



4. Development and environment

4.3 Moving forward with resilience: A "new mobility" for Lima and Callao

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Peru Debate 2021 Project: proposals for a better government

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Presentation

The pandemic has made even more visible and deepened Peru's great social gaps and inequalities, as well as its structural and institutional weaknesses. Two hundred years after its independence, the country's old and serious problems persist. However, the bicentennial and the 2021 electoral process are an opportunity for discuss the key and most urgent issues to be prioritized by the new government, such as addressing the health crisis and economic recovery.

Within this framework, six Peruvian academic and civil society institutions - the Economic and Social Research Consortium, the School of Government and Public Policy of the Pontificia Universidad Católica del Perú, the Institute of Peruvian Studies, the Transparency Civil Association, the Research Center of the Universidad del Pacífico and IDEA International - have joined forces and organized the project *Peru Debate 2021: proposals for a better government*.

This initiative aims to strengthen the capacity of political parties to design government plans, raise the level of electoral debate and provide evidence and policy proposals to the elected authorities for the 2021-2026 period. As part of the project, 20 policy documents have been prepared, grouped into four thematic areas: (i) state reform and public management, (ii) social policies, (iii) productive development and employment, and (iv) development and environment.

Each policy document includes a diagnosis, policy options, recommendations for the implementation of the proposed policy and a road map for the next government with horizons of 100 days, one year and five years of administration. All of this is made available to political parties, presidential and congressional candidates, the media, civil society and the general public.

Finally, this effort would not have been possible without the support of our four strategic partners and 11 sponsors, whom we thank for their commitment to democratic governance and sustainable development in Peru.

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Moving forward with resilience: A "new mobility" for Lima and Callao



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SUMMARY

Lima and Callao make up one of the most important metropolises in the region; however, under the erroneous model that makes the most important mo

In the past, the problems of people's mobility have been ignored for a long time. Today, we have as a result a fractured and precarious public transportation system that has perpetuated chaos in the city and intensified problems of congestion, pollution and traffic accidents. These facts, which are serious, have an impact on society and disproportionately affect the most vulnerable sectors of the population: the elderly, the disabled, women, children and the economically vulnerable. The COVID-19 pandemic has jeopardized the functioning of the transportation system, especially public transportation. This is of vital importance to ensure levels of accessibility to public services and to increase the population's opportunities for better development. A change of perspective is required to address this problem in a multi-sectoral way and think of innovative solutions. In this sense, a public transportation policy that integrates land planning is necessary. This will make it possible to face the future in a sustainable manner and create the basis for a resilient city.

KEY WORDS: *pandemic, resilience, mobility, accessibility, accessibility, public transportation, land use*

Diagnosis of the current situation

At a global level, urban mobility¹ is affected by population growth, climate change, traffic accidents and advances in technology. These factors or future changes are key to understanding the context in which mobility in the metropolitan area of Lima and Callao is analyzed. In order to change such trends and grow economically in a sustainable and inclusive manner, the 2030 Agenda was created in 2015, where 17 Sustainable Development Goals (SDGs) were defined. This will ensure that our needs are met without mortgaging the future of the next generations (UN, 2018a).

At the national level, some actions have been taken by the government. The National Agreement contemplates policies for 2021 to increase equity, justice and competitiveness in the country (Acuerdo Nacional, 2002). However, many of these policies are general and detail the "what" but not the "how". The Bicentennial Plan groups these policies into five strategic guidelines, of which some measures in the transport sector are highlighted, such as the promotion of intermodality, the use of sustainable transport and the closing of infrastructure gaps for motor vehicles and road transport (CEPLAN, 2011). However, there is no clear talk about people's mobility. Recently, in 2019, the Peru Vision 2050 was created, designed to comply with the SDGs (CEPLAN, 2019).

The problems of the current transportation system

The transportation system in Lima and Callao follows a model that prioritizes motorized modes and has resulted in problems of congestion, pollution and accidents. These increased with the liberalization of the transportation market (Bielich, 2009), which exacerbated the chaos in the city and turned it into a space where there is no place for citizens. It is a complex system that requires a broad analysis, ranging from the development of the urban structure, modal partitioning, infrastructure problems and externalities caused by the model itself. All of this ends up disproportionately affecting the most vulnerable.

Urban structure of the city

The metropolitan area comprised of Lima and Callao is one of the most populated cities in Latin America (City Population, 2020), with a population that covers about 30% of the national total (INEI, 2018). According to a study by the Development Bank of Latin America (CAF), density levels in Lima exceed, in some cases, and are comparable to European cities (CAF, 2018), as they can reach up to 3600 inhab/km² per macro-region (Lima Centro).

The urban structure² and how the city of Lima has developed can be explained through INEI's stratified maps. These show that the spatial distribution



Lima Cercado, Surco, Callao and Ate Vitarte are the areas that attract the most trips, along with some shopping centers and Jorge Chávez airport.

1 Urban mobility refers to the movement of people, with emphasis on people's needs and accessibility. Unlike the term transport, which refers to the vehicle or infrastructure, mobility is a broad concept that encompasses transportation.

2 The urban structure is the relationship within an urban space at the social, economic and spatial levels.

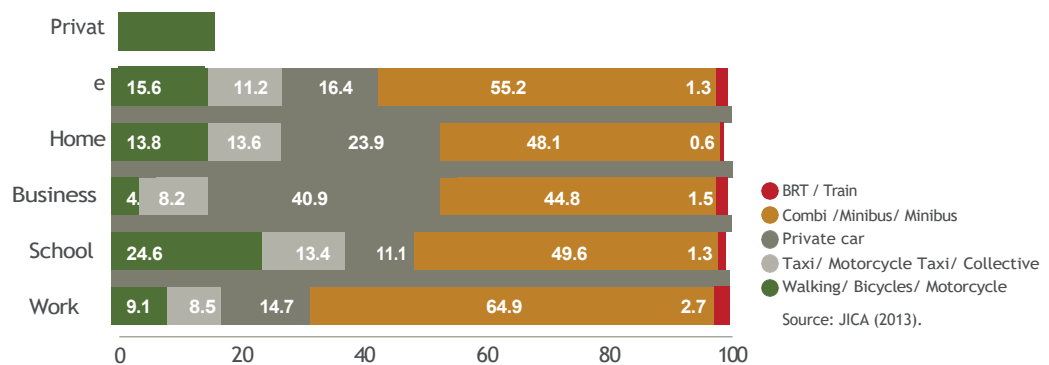
The results show that there is a relationship with socioeconomic distribution, as an indicator of inequality. It can be observed that there is monetary inequality even within the same district, especially in peripheral areas where the urban sprawl has been spreading. In contrast, the districts of Central Lima have consolidated themselves as upper middle and upper class strata (INEI, 2020). In addition, at the infrastructure level, inequality is reflected in the lack of services and public spaces, the further we move away from the city center. As evidence of this, the latest Lima Cómo Vamos survey on the perception of quality of life in Lima and Callao, evidences that sectors C, D and E show greater dissatisfaction in terms of public space (Lima Cómo Vamos, 2019), unlike the higher sectors. The location of public services, shopping centers, markets, labor and educational centers are crucial for the development of the city, as they determine movement patterns. The farther away the services and points of interest are, the lower the level of accessibility and the greater the responsibility of the transportation system. In the case of Lima and Callao, the districts that concentrate the greatest number of public services and labor centers are Lima Cercado, Surco, Callao and Ate Vitarte (AATE, 2018), since according to the latest *big data* study, these are the areas that attract the greatest number of trips, along with some shopping centers and Jorge Chávez airport.

Structure of urban transportation and travel

In Metropolitan Lima, about 24.5 million trips are made daily³ (AATE, 2018). Public transport and walking are the most used modes: 51% and 25%, respectively. Despite the fact that public transport⁴ is the most popular motorized mode, most of it is still provided by the conventional system (JICA, 2013) and the concessioned system only accounts for only 3% of the trips made.

To better understand mobility patterns, it is not enough to analyze modal share alone. It is also necessary to identify travel motives. In the case of Lima and Callao, trips to work and school represent a large percentage of total trips in the city. However, it is important to see that the prevalence of mode varies according to travel motives. According to the latest survey conducted by JICA (2013), people mostly prefer to travel by bus when commuting to work, but, if the reason is studies, active modes are the second most popular option (Figure 1). The latter could be related to the proximity of schools and universities to the place of residence.

Graph 1. Purpose of travel by means of travel



In addition, it is interesting to analyze the relationship between time, cost and the level of participation in the transportation system in order to understand its shortcomings (Figure 2). The bus and minibus services are means that, despite taking more time, have an accessible price and this could explain their greater use. Metro and Metropolitan services have contributed to the reduction of travel time by up to 34 minutes. However, due to their locali-

³ Trips are all those trips that are made from an origin to a final destination. The latest AATE study, using *big data* analysis, recorded an increase of 2.2 million trips with respect to the last study conducted by JICA.

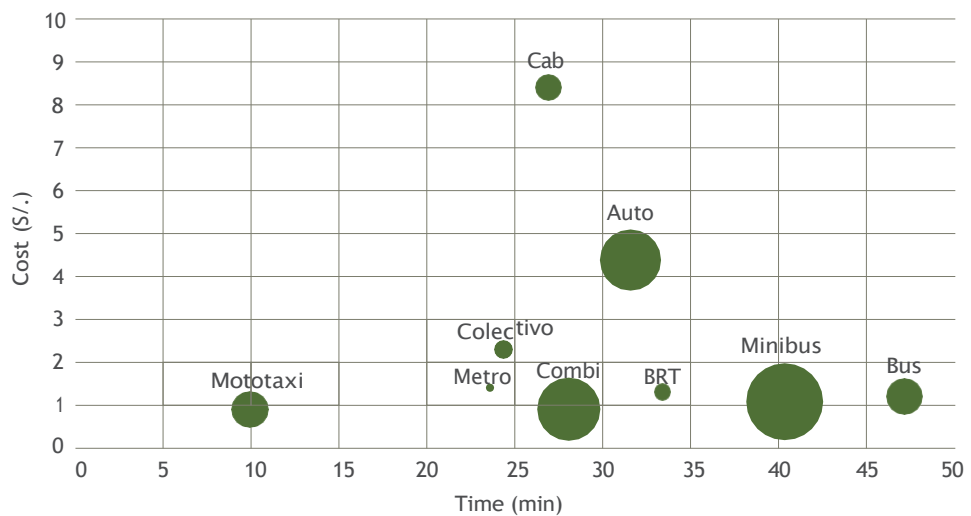
⁴ In the case of Lima and Callao, public transportation is composed of the conventional system (regular or traditional public transportation), which represents those private companies that continue to operate under the commissioner-affiliator modality, and subsidized public transportation, which is that which has State investment, such as the Metro, the Metropolitan and

complementary corridors.

zation and level of accessibility, these have primarily benefited middle-class groups (IDB, 2016), leaving a large sector of the population undersupplied, who must continue to use alternative modes and sacrifice more time and money to commute.

The large percentage of users who use the **combis** is striking. When compared to cab services, despite having the same travel time, many use the combi because of its more affordable cost. This shows that there is an inequity in the selection of modes of transportation related to socioeconomic status.

Figure 2. Time, cost and mode share in the transportation system



Source: JICA (2013). Own elaboration.

According to Figure 2, cabs are the most expensive means of transportation, but with a more attractive travel time than other modes. This service has grown considerably in recent years and has come to represent more than half of the regular transport trips⁵ (Fundación Transitemos, 2018). According to the study conducted by the company Táryet in 2013 (Briceño, 2018), 182,376 cabs circulated in Lima that year, of which 92,500 were informal⁶ (without considering cabs by apps). The latter made 42.98% of trips on a working day. This study also found that 15% of all cab vehicles were more than 20 years old. These data are a consequence of the lack of control of vehicles and organization of public transportation.

On the other hand, motorcycle cab services show a similar percentage of use as buses. Since they have less travel time, it is understood that they absorb a non-negligible amount of short **intra-city** trips.⁷ The combis and mototaxi services expand access to the city by covering a larger part of the city and having an accessible cost, as explained in the previous graph. It is this spontaneous transportation that fills a need that the local or central government is unable to provide (Dextre and Avellaneda, 2007). In summary, the conventional transport system provides a necessary service for the poorest and for those living on the periphery of the city. However, it is disorderly and creates negative externalities.⁸

⁵ Regular transportation is comprised of buses, minibuses and vans.

⁶ Formal cab services are those that have an operating permit from SETAME and/or SETACA; collective and informal cab services are those that circulate without a permit and provide services that are not contemplated in the regulations. Additionally, there are cabs by application, which are an emerging system that offers a higher quality service, but falls into a regulatory vacuum.

⁷ Intrazonal trips are those trips made within the same area or district.

⁸ Among the negative externalities resulting from regular transportation are congestion, pollution, traffic accidents, wasted time of users, etc.

Infrastructure and congestion

According to the Proexpansión study (2008), one of the main consequences of the chaotic transportation system is the loss of time. This directly affects the economy of users, who lose productive hours commuting to work (CAF, 2011). If this loss of time is broken down among motor vehicle users, the greatest time cost is borne by users of conventional public transportation, who do not have the privilege of passage over private vehicles (Proexpansión, 2008).

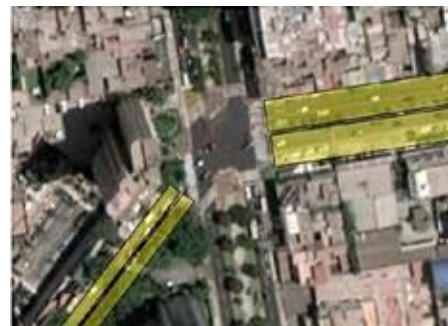
In this aspect, infrastructure plays a very important role, since it determines the arrangement of modes and the fluidity of the transport system. It has been observed that the configuration of urban infrastructure designed for motorized transport accentuates the problem of congestion. Many of the city's main avenues have significant road discontinuities in their capacities from one block to the next. This causes bottlenecks at numerous intersections in the city, such as those shown in Images 1 and 2.

Intersection of Javier Prado Ave. and Brasil Ave.



Source: Google Earth (2020).

Image 2. Intersection of Aramburú Ave. and Santa Cruz Ave.



Source: Google Earth (2020).



In Metropolitan Lima, about 24.5 million trips are made daily. Public transportation and walking are the most used modes: 51% and 25%, respectively.

Therefore, when improving the transportation system in Lima, a review of the current infrastructure situation should be carried out, taking into consideration that congestion mainly affects surface public transportation that has a fixed route, while private cars can use alternative routes to try to avoid it. The problem returns and ends up affecting individuals of vulnerable socioeconomic level, since it is this group of users who mostly use conventional public transport. This disadvantage perpetuates inequity in access to opportunities. It is for this reason that Dextre and Avellaneda (2014) propose that, instead of following the ideal mobility pyramid (pedestrian, cyclist, public transport, freight transport and cars), a strategic pyramid should be used, where it will be necessary to give greater importance and speed to the implementation of integrated public transport with sufficient territorial coverage. This will allow recovering space that would be put at the service of pedestrians and cyclists.

In addition to the reorganization of surface transportation, it is necessary to create a solid system that includes mass public transportation infrastructure for longer trips. In this aspect, there has been great progress. There is already the basic network of the Lima Metro, the BRT (Metropolitano), five complementary corridors and two pro-

cable car projects (MTC, 2020). These ongoing projects will improve the mobility system in the city of Lima. On the other hand, the peripheral ring road project (MEF, 2016) will be key to clear traffic originating in the center, through alternate routes for vehicles that, due to their destination, do not need to enter the city center.

Other externalities: pollution and accidents

According to CAF (2011), the lack of an efficient transportation system accentuates chaos in the city and inequity, generating other social costs such as inefficient use of fuel, pollution, and an increase in deaths and injuries from traffic accidents. In the case of conventional public transport, about 26% of the fleet is older than 20 years and 85% of all conventional transport vehicles use fuel oil. This has serious health consequences: it affects the respiratory system and causes coronary diseases (ATU, 2020c).

On the other hand, there are traffic accidents, which during 2018 alone caused 715 deaths in Lima (INEI, 2018); that is, six deaths per 10,000 vehicles. This value is one of the highest in Latin America and the Caribbean (IDB, 2019), despite being one of the cities with the lowest motorization rate in the region. According to the Peruvian National Police, in 2018, 40% of fatal accidents were caused by conventional public transport (Takeuchi, 2018). Among the main causes of accidents recorded are speeding with 32.1% and driver recklessness with 28.8% (MTC, 2018). In addition, pedestrians are the ones who suffer the most traffic accidents, followed by bicycle users (MTC, 2017). This situation reflects the burden of accidents that weighs on the most vulnerable road users, having consolidated a system that prioritizes motorized vehicles.

Traffic fatalities are a social cost; in 2015, they amounted to 129 million dollars (Marzi Seminar, 2017). However, if we use the costs determined by the study called *Crashes versus Congestion: What's the cost to society?* (Cambridge Systematics, 2008), it is estimated that traffic accidents alone in Peru would represent 6% of the total GDP (Dextre, 2016). In 2017, the

National Road Safety Strategic Plan, whose purpose is to set goals to solve the problem of traffic accidents (MTC, 2017). Despite this, there have been no clear results indicating an improvement in road safety.

City management: the work of the ATU

In 2018, the formation of the Single Transport Authority of Lima and Callao (ATU) was approved, with the objective of guaranteeing the operation of the Integrated Transport System of Lima and Callao (SIT) under a single regulatory body (Congreso de la República, 2018a). In this regard, there has been some progress in two years. With the absorption of AATE and the latest merger with PROTRANSPORTE, the objective of centralizing transport management is being achieved. However, transport reform still remains an unresolved issue. In 2019, a subsidy policy was approved that seeks to improve access to quality transport (MTC, 2019); however, it prioritizes routes that belong to the Metro and BRT trunk axis with its feeder routes and punishes conventional public transport that is not integrated into the system. Priority is thus given to mass transit projects that do not cover the service of the majority of the population, which requires a short-term solution. However, it is necessary to recognize that in remote areas of the city, where it will not be possible to reach them with mass systems (as part of the concession system), conventional transportation should play a role in feeding the trunk system, so as to maintain the coverage of the public transportation system to the entire population.

Traffic accidents, during 2018, caused 715 deaths in Lima; that is, six deaths per 10,000 vehicles. This value is one of the highest in Latin America, despite the fact that it is one of the most important cities with the lowest motorization rate in the region.

In 2019, the Bicycle Law was published (Congreso de la República, 2018b). In this regard, the national PROMOVILIDAD program is working hand in hand with the ATU to promote the use of sustainable modes. The Sustainable Individual Transport System or SITIS (ATU, 2020d) proposes the creation of a network of bicycle lanes of up to 301 km for Metropolitan Lima. This measure will be reinforced with the popular bicycle project, recently launched by the ATU so that more people can access this mode of transportation (León, 2020a).

Impact of the coronavirus on mobility in Lima and Callao

In Lima and Callao, mobility was affected by travel restrictions, a measure necessary for coronavirus containment. During the quarantine, mobility patterns changed: more people moved within residential areas (Google, 2020) and more short trips were observed (mostly walking or cycling). In the first stage of containment, trips were prioritized for people performing basic support work for the city and telecommuting was promoted to ensure that people stayed at home. These measures helped to indirectly alleviate congestion on the streets. The same was true for the education sector. In addition, short trips were allowed for food and medicine supplies. Local services were key to avoiding conglomerations. However, over time, these first measures became unsustainable, due to labor informality that can reach between 66% and 95%, in adults and youth, respectively (Franco and Ñopo, 2018), especially in the lower socioeconomic strata (C, D and E). This was decisive, since the lack of money to support the household has been one of the causes of the failure of immobilization measures imposed by the government.

Public transportation services were affected by the reduction in demand. This greatly affected small companies that provide regular public transport services. Ensuring social distancing by reducing fleet capacity by up to 50% was very complicated (Gestión, 2020b), making it an unsustainable business. In this aspect, ATU management has been crucial to reach an agreement on subsidies to offset costs in exchange for conditions to monitor services (ATU, 2020b). Ad-

In addition, the disinfection of fleets, including regular transport, has been managed (ATU, 2020a). While there have been good intentions on the part of the ATU to reduce contagion in the use of regular transport

In order to ensure adequate space for public transport, measures such as the promotion of social distancing at bus stops and stations require interventions and infrastructure that guarantee adequate space according to the demand for the service.

In short, the public mass transit system does not have the capacity to maintain in-vehicle distribution unless a major containment of demand is achieved, such that only essential trips that are permitted can be absorbed by the public mass transit system. This forces the system to be subsidized while operating with reduced demand due to the emergency.

On the other hand, to cope with the crisis, many businesses have migrated to digital platforms to offer their services and meet the demand that increased during the crisis. This situation has increased the use of *delivery* service applications that use motorcycles. According to the Peruvian Automotive Association (AAP), 43% more motorcycles were sold in August than in the previous month (León, 2020b). It is worth noting that this service has fulfilled the need to satisfy the need to purchase products and food of



Ensuring social distancing by reducing the capacity of the [public transport] fleet by up to 50% was very complicated, making it an unsustainable business.

Many of the measures taken during the crisis are sustainable in nature and have a positive impact on mobility; however, the urban reality is different. The pandemic has exposed the state of vulnerability and precariousness of the mobility system, increasing the levels of inequity underlying the urban structure.

a sector of the population (Peru Retail, 2018; Gestión, 2020a). However, it brings consequences such as the exposure of users to health risks (Gestión, 2020c), exposure to accidents due to high speeds and the lack of regulation of the use of **motorcycles**. According to a recent report, the lack of control and ease of issuing licenses has perpetuated impunity on the streets for this motorized means, where on some roads the number of accidents involving a motorcycle is around 45% (León, 2020b).

It has been shown that cycling and walking are modes that, when carried out in open spaces, reduce contagion. While there have been efforts to promote cycling, the infrastructure has not been adequate since its **inception**. The lack of safe and prioritized infrastructure has led to accidents, some of them fatal (RPP, 2020). Admittedly, there was a quick reaction by the ATU to implement a plan of "**emerging bicycle lanes**", together with the Municipality of Lima and other **local governments**. However, since it does not have the authority to implement the proposals, the possibility of enhancing the role of the bicycle towards sustainable mobility runs the risk of falling on deaf ears. In the current context, cycling has become very important and the role of activists has been crucial. According to a recent study, sales of handcycles have increased, with up to 184% more bicycles being imported (in the month of August alone) compared to the previous year (COMEX Peru, 2020).

On the other hand, the government has promoted maintaining a distance of at least 1.5 m between people, but the reality of pedestrian infrastructure is different. No measures have been taken to recover public space, despite the fact that walking is the most basic unit of displacement and is part of all trips made in the city.

Many of the measures taken during the crisis are sustainable and have a positive impact on mobility; however, the urban reality is different. The pandemic has exposed the state of vulnerability and precariousness of the mobility system, increasing the underlying levels of inequity in the urban structure. Although the ATU has tried to accelerate change with some measures, the very informality of the transport system, the fractured management of the entity that is in the process of absorbing the AATE (the process of transferring PROTRANSPORTE was recently completed) and the lack of maturity as an institution have shown that a re-evaluation of the responsibilities and powers that the institution should have is required. The goal is to achieve the necessary changes towards sustainable mobility and the creation of a resilient system that can overcome critical situations, such as the current pandemic.

Policy options

En the previous chapter, the problem of a fractured and precarious urban transportation system, which has a negative impact on people's quality of life, was discussed. Among the main affected groups identified in the analysis are those with low socioeconomic status and groups that are not self-sufficient.

The main challenges for the city are the pedestrians, cyclists, the disabled, the elderly, women, and children. Annex 1 explores the conceptual framework for solution proposals that are oriented on urban planning, active mobility, the people-centered road safety model, and building a resilient system. However, a city vision is urgently needed to define the objectives and can- lize strategies towards a "new mobility" to cope with the "new normal".

Creating a vision

Peru's Vision 2050 sets out some long-term goals to be met in order to achieve equality and sustainable development at the national level. However, as long as there are no development plans for the cities, with a comprehensive vision and specific goals, it will not be possible to achieve the objectives set as a country. It is important to have a vision of the city that prevents projects that are part of the development plan from being paralyzed by a change of government (Dextre, 2010a). In the case of Lima, there have been failed attempts to create a long-term development plan that would allow us to have a vision of the city. Fortunately, the PLANMET 2040 project is currently underway, with an urban development vision for Lima that focuses on mobility, public space and infrastructure (Municipality of Lima, 2020).

The policy approach requires a framework to address the mobility problem in a multi-sectoral manner. With

To that end, the problem identification process required an analysis of trends affecting the status of the mobility system in order to determine the city's priorities (Appendix

2). In addition, the SWOT analysis made it possible to identify the

specific problems of the current model of mobility and transportation in Lima and Callao and propose appropriate strategies (Annex 3).

Therefore, four pillars are proposed that will serve as a guide to propose a vision of mobility for the metropolitan area of Lima and Callao: (i) prioritizing life, (ii) guaranteeing equity in the city, (iii) ensuring well-being and health, and (iv) proposing environmentally friendly measures.

Mobility vision for a resilient city

From the above analysis, we conclude that the city requires a "mobility vision" that is reinforced by the four pillars mentioned above. It is urgent to extend the limits of the sustainable mobility model to equity, health and safety. It is therefore recommended that the Metropolitan Municipality of Lima, together with the Municipality of Callao and the ATU, build a vision of the city with the participation of organized society.

Specifically, the vision points to accessible, sustainable, healthy and safe mobility. This vision should seek to create a system in which the right to the city prevails. In this way, people will be able to access more services and opportunities for their development,



It is important to have a city vision that prevents projects that are part of the development plan from being paralyzed by a change of government.

The system should be equitable and emphasize the most vulnerable. It should also provide sustainable and environmentally friendly options to improve the quality of life in the city, prioritize health and, above all, safety for all users of the system. This vision will create a fairer city and is an important step toward closing inequity gaps.

Proposed policies

The SWOT strategic matrix (Annex 3) showed the need for a series of strategies that focus on solving the issues of lack of access, traffic accidents, health problems and environmental sustainability.

Under the framework of the vision of accessible, sustainable, healthy and safe mobility, four policy options are proposed that are aligned with the National Strategic Plan to 2021, with the Vision of Peru to 2050 and with the Sustainable Development Goals.

- **Policy 1: Public transportation as an articulating axis of the city and its integration with land use planning.** The main objective is to prioritize citizen goods through the democratization of public transportation, in order to revalue the right to mobility and the city. This policy focuses efforts on achieving sustainable accessibility by strengthening public transportation and working hand in hand with urban planning for the sake of a polycentric and compact city.
- **Policy 2: Recognition of active mobility as a necessary mode of transportation for sustainability.** The main objective is to improve the quality of life in the city by promoting micro-mobility and walking. This policy emphasizes the benefits of these modes, both in terms of health and pollution reduction.
- **Policy 3: Demand management of the transportation systems that support the city.** The main objective is to implement an intelligent system for managing transportation services that will improve flows and reduce congestion levels affecting the city, promoting the efficient use of space.
- **Policy 4: Recognition of the cost of life for the reduction of traffic accidents.** The main objective is to reduce deaths caused by traffic accidents by establishing a regulation that allows the calculation of the costs associated with accidents, including the "cost of life". This will strengthen the system and ensure improvements in the infrastructure for accident prevention. It will also bring positive consequences for the country's production and economy.



It is recommended that the Metropolitan Municipality of Lima, together with the Municipality of Callao and the ATU build a vision of the city with the participation of organized society.

Identifying the costs and benefits of policy options

The following matrix provides an approximation of the cost-benefit analysis of the policy options. Through this analysis, the stakeholders, their interests, the perceived problems and the opportunity (benefit) offered by each policy option were identified.

Table 1. Cost-benefit analysis matrix

Policy options	Involved	Interest from those involved	Perceived problems	Opportunity
Public transportation (PT) as an articulating axis of the city and its integration with land use planning.	<ul style="list-style-type: none"> ● TP users ● Informal TP and dependents ● Users of cars, motorcycles and private motorized services ● Pedestrians and users of micromobility 	<ul style="list-style-type: none"> ● Use of a decent and efficient PT ● Work and generation of earnings ● Fast transfers ● Saving money with multimodal travel ● Moving safely, easily and quickly 	<ul style="list-style-type: none"> ● Initial rejection by informal PT companies ● Possible precarization of people dependent on informal services (economic chain), if adequate measures for reintegration are not implemented. ● Service reduction cab 	<ul style="list-style-type: none"> ● Moving around safely, efficiently and affordably ● Attract more users to the TP as it is a reliable and quality service. ● Reduction of congestion in the city ● Reduction of traffic accidents ● Increased access to public services by bringing them closer to citizens ● Reduction of travel times ● Formalization of labor formalization and generation of decent work ● Creation of a city friendly, walkable and orderly for everyone ● Positive impact on the local economy
Recognition of active mobility as modes of transportation necessary for sustainability.	<ul style="list-style-type: none"> ● Pedestrians and micro-mobility users ● TP users ● Users of automobiles, motorcycles and private motorized services 	<ul style="list-style-type: none"> ● Use of accessible modes ● Traveling safely ● Moving quickly and comfortably 	<ul style="list-style-type: none"> ● Potential conflict between pedestrians and micromobility users ● Less space for motorized vehicles ● Perception of increased congestion and slow travel 	<ul style="list-style-type: none"> ● More safe, accessible, efficient and healthy transportation options ● Improving the quality of the CITY AIR ● Improved levels of physical and mental health ● Reduction of congestion in the city

Policy options	Involved	Interest from those involved	Perceived problems	Opportunity
Management of the demand for the systems of transport that support the city	<ul style="list-style-type: none"> ● Users of cars, motorcycles and private services motorized ● Companies of logistics service ● TP users ● Pedestrians and micro-mobility users 	<ul style="list-style-type: none"> ● Mobilizing fast through the city ● Providing a service fast and efficient ● Avoiding congestion ● Transit through adequate spaces according to their needs 	<ul style="list-style-type: none"> ● Time restrictions by type of vehicle can generate discomfort in the users ● Misperception of increased congestion in the city ● Lack of knowledge of the use of technology 	<ul style="list-style-type: none"> ● Strengthening of the system security mobility ● Reduction of congestion of the city ● Reorganization of the city ● Optimization of the use of space and roads ● Optimization of the travel times of the transportation services ● Adoption of new technologies generates knowledge for the future and a support for resilience
Recognition of the cost of life for the reduction of spending for infrastructure not	<ul style="list-style-type: none"> ● Users of cars, motorcycles private services motorized economic traffic ● Friendlier city of micromobility ● Concessionaires of infrastructure 	<ul style="list-style-type: none"> ● Safe travel and ● To mobilize safe and autonomous users ● TP users Pedestrians and users related to accidents on vulnerable 	<ul style="list-style-type: none"> Industry opposition private to private investment in infrastructure and without Risk to life and limb ● Avoid costly concessioned 	<ul style="list-style-type: none"> ● Reduction of the more fatal accidents maintenance ● Increased public Improve for users vulnerable roads that recover their autonomy

Source and preparation.

Based on a balance between the perceived problems and the opportunities offered by the policies, policy 1 is selected: "Public transport as the articulating axis of the city and its integration with land use planning". The selection is a first step to solve the major mobility problem in Lima and Callao, related to the inequity of access to the city.

As has been argued, strengthening public transportation has positive consequences for the recovery of the city, as it is an essential tool that allows articulation and guarantees the right to mobility for all users. This articulation, together with land planning, expands the benefits of mobility and guarantees people's accessibility to more opportunities, as it reduces inequality gaps.

The policy proposes, in the first instance, to strengthen public transportation by increasing and expanding the network of complementary corridors, and to provide a quality service that offers improvements in travel times by using exclusive lanes (in the case of surface transportation). This will require increased investment and a dedicated subsidy program to ensure efficient public transport service. This restructuring guarantees a recovery of public space and a revaluation of micro-mobility users, as it increases the perception of safety of these users.

tions. The replacement of low-capacity units along the city's main corridors with higher-capacity units will mean a recovery of road capacity, which will be used for pedestrian mobility and micro-mobility, for which sidewalks will be widened and bicycle lanes will be implemented.

In addition, it is proposed to work hand in hand with land use planning. A compact city reduces the number of mandatory trips by motorized transport (shorter distances can be covered by walking or cycling), reduces people's exposure to traffic accidents, and therefore increases safety levels. The combination of both measures strengthens the mobility system. It would be a catalyst for sustainable development and make the city more resilient to face the current and future crises.

As mentioned above, the four policies have been designed under the approach of a vision of accessible, sustainable, healthy and safe mobility, and fulfill a transitional function towards the "new mobility" that is desired for the city. Therefore, while prioritizing the first policy, it is important to implement the other three in a complementary manner. Recognizing active mobility and its important role towards a more sustainable mobility will allow projects such as the recovery of public space, the widening of sidewalks and the promotion of bicycles to be prioritized by the various local governments. In addition, it is necessary to take advantage of the important moment that this last means of transport is having to extend its use. Policy three, related to demand management, will lay the foundations for a smart city where mobility is used efficiently. Finally, a policy related to road safety, but which is rarely addressed, is the recognition of the cost of living. This is a proposal that will help to make the safety problem more visible and is a necessary complement to the road safety policy that is being implemented.



The replacement of low-capacity units along the city's main corridors with higher-capacity units will mean a recovery of road capacity, which will be destined to pedestrian mobility and the micromobility, for which sidewalks would be widened and bicycle lanes would be implemented.

Specific objectives

The selected policy is "Public transportation as an articulating axis of the city and its integration with land use planning". Based on this, a series of objectives are planned:

1. **To guarantee mobility, easy access and the right to the city, favoring public transportation over other motorized modes. In addition, it seeks to improve quality of life levels by reducing the externalities of the current chaotic transportation system.**

One-year goals

- Expand the surface public transport network (complementary corridors) to improve accessibility levels in underserved areas of the city that have significant travel demands.
- To offer more competitive trips in public transportation, by means of the construction of a new The implementation of exclusive lanes to provide fluidity to the system of complementary corridors (closed BRT such as the Metropolitano) and the implementation of exclusive lanes with electronic supervision to guarantee their exclusive use by the regulated public transport service (open BRT as in the case of several sections of the Transantiago).
- To finalize the bidding process for Lines 3 and 4 of the Lima and Callao Metro, in order to The construction of this system should begin in the short term, which would allow the consolidation of the trunk system of mass public transportation comprising Lines 1, 2, 3 and 4 of the Metro and the Metropolitano.
- Implement a single collection system that integrates all the modes that make up the system. The SIT (corridors, BRT and Metro). This will allow the integration of the means of payment (single payment card) and also the possibility of fare integration (paying for the entire trip regardless of the modes used).
- Proposal for a program for the integration of informal or *para-vehicle* minors. *The Transit System* (combis, minibuses and motorcycle cabs) to the Integrated Transport System, as feeder vehicles in the periphery of the system, taking into consideration that the regulated system will not be able to reach this level of coverage throughout the city.
- Adapt mass public transport fleets and infrastructures to allow for the following multimodal travel.
- Initiate the construction of the ring road project to remove from the city center vehicles that are not destined for the city center and only cross it. This will decongest the downtown area and recover space for pedestrians and cyclists.

Five-year goals

- To put into operation Lines 2 and 4 of the Lima and Callao Subway.
- 100% operation of the tele-operational system Lima. Its integration into the SIT must be guaranteed in order to improve accessibility levels in these areas and take advantage of its construction to improve the public spaces through which the system passes, transforming it from a transportation project into a city project.
- Ensure that surface public transportation is concessioned and operating at 80%, and guarantee the exclusive use of lanes where required by means of electronic control.

Among other measures, it is required to offer more competitive trips in public transportation, through the construction of exclusive lanes. Likewise, the bidding process for Lines 3 and 4 of the Lima and Callao Metro should be completed, so that construction can begin in the short term, which would allow the consolidation of the trunk system of mass public transportation.



An extraordinary budget will be required from the ATU to enable annual data collection to monitor the results of the strategies. proposals. This will serve to evaluate the transportation system.

- Guarantee the integration of the means of payment and the service fare, as well as the implementation of the necessary infrastructure for the physical integration of the main modes of mass transportation of 100% of the regulated system.
- To achieve that 100% of people with disabilities (who are recognized by the State) can use the integrated system at a 70% subsidized rate.
- Reduce traffic accidents in urban areas caused by regulated public transportation by 80%.
- The integrated public transport system incorporates public bicycles as an integral part of the public transport system.
mode of approach to public transport or travel destination.

2. Promote improved land use to create a more compact city that promotes the use of sustainable modes of travel, reduces pollution and congestion, and improves people's health.

One-year goals

- To revitalize the new centralities, increasing the quantity and quality of public services to promote proximity.
- Improve existing public spaces by providing them with furniture and infrastructure for the users.
- Encourage short (local) trips, using sustainable modes to meet basic food and health needs.
- To make modifications to the city's zoning regulations to promote mixed land use.
- Make changes in the regulations of new urban projects to limit the amount of parking for private vehicles.
- To propose normative guidelines for the use of development oriented tools (DoT), which allow for the capture of capital gains.

Five-year goals

- Provide the city with flexible and adaptable infrastructure to increase its resilience: services and public space.
- Create high-performance schools located in the new central areas, which will have a multipurpose character (classes during the day, pre-university academy in the evenings, place of refuge in case of emergencies).
- Enabling urban regeneration along all transport corridors mass public transportation (Metro Lines 1, 2 and 4, BRT).
- Create strategic multimodal stations that include public bicycle service and *shared mobility* services in order to expand high-capacity transportation services.
- Use of DoT tools in the Metro Lines 2 and 4 projects, which will allow the use of DoT tools in the Metro Lines 2 and 4 projects, which will allow the use of DoT tools in the Metro Lines 2 and 4 projects.
capture of capital gains and the regeneration of public space.

3. Strengthen the road safety of the mobility system through safe infrastructure design and speed management to reduce danger to vulnerable users.

One-year goals

- Implement a design standard for safe infrastructure with a universal approach, giving preference to vulnerable users, people with reduced mobility, pedestrians, and cyclists.

- Formulate a hierarchy of streets and roads in the city, according to their use and pedestrian density. Create guidelines for the use of tactical urban planning and traffic calming measures.

Five-year goals

- Reduce the maximum speed limit: on avenues to 50 km/h, expressways to 60 km/h and on the rest of the streets to 30 km/h.
- Manage speed according to road users and make safety prevail of **vulnerable** road users. Establish local traffic calming measures, electronic speed bumps, and speed limiting road design.

The short- and medium-term objectives and goals should be articulated using appropriate regulatory, economic and informational tools to support the policy. It is important to point out that the proposed goals require multidisciplinary action, which should be coordinated by the ATU, municipalities and the Ministries of Health, Education and Housing.

In addition, indicators are required for each objective to monitor the effectiveness of the **policies**. This will require an extra-budgetary budget from the ATU, which will allow annual data collection to monitor the results of the **proposed strategies**. This will also serve to evaluate the transport system and propose new measures for the future.

Finally, in order for these policies to be extended to all cities in the country, a new mobility law is required, in which municipalities are obliged to have a Sustainable, Safe and Healthy Mobility Plan, so that they can access additional government funds, which would be controlled by results.



In order for the policies to be extended to all cities in the country, a new mobility law is required, in which municipalities are obliged to have a Sustainable, Safe and Healthy Mobility Plan.

Obstacles to the implementation of the selected policy

S Five types of barriers have been identified that may hinder the implementation of the selected policy:

Political obstacles

- Lack of long-term vision does not allow aligning projects towards the fulfillment of sustainable objectives for the city.
- Lack of political decision on the part of elected authorities responds to interests of their own political agenda.
- Short time to be able to generate a change in the transportation system, which carries the risk of not continuing the project in the long term.
- Prioritization of infrastructure works over space redevelopment policies. for other modes. This is due to the misconception that still persists in society of "more road supply, less congestion". The reality is that a greater road supply encourages motorization and therefore increases congestion. In addition, infrastructure works are seen as tangible works and have a positive effect on voters with a view to the next elections.
- Interests of powerful groups that usually support motorized modes and can to exert pressure on the political decision of the authorities in office.
- Prioritization of sustainable modes can be considered a political risk due to the aversion to change that this implies in various sectors of the city.
- Government instability due to lack of institutionality.

Social obstacles

- Persistence of the "car culture". As private motor vehicles have dominated the roads, there is still a false sense that they are being deprived of space and their right to circulate is being limited. It has been seen, during the pandemic, that measures such as vehicle restrictions can generate discontent in some sectors of the population.
- Particular cars is seen as a positional asset and status symbol in society.
- Opposition to restrictive measures for motorized modes that imply redistribution of road space. The lack of integrated, orderly and quality public transportation generates discontent among the population when space is ceded to cyclists and road space is reduced for motorized vehicles.

Economic obstacles

- Public transportation in the world is subsidized. However, in Peru, projects to improve the public transport system are seen as an expense rather than an investment. The budget allocated to public transport redevelopment has been limited, with the exception of subway lines, BRT and complementary corridors, which are subsidized.
- Lack of financial capital for the implementation of complementary measures to the The following transport reform measures are related to land use: redistribution of road space, implementation of measures to promote compactness, the

implementation of public services in strategic locations and the recovery of public spaces.

- Private investment projects may be affected if they do not have the necessary tools. The company has neither the appropriate tools nor the trained personnel to generate efficient alliances and agreements that benefit the State.

Institutional obstacles

- The current regulatory apparatus is designed to promote vehicular traffic and privileges **motorized vehicles**.
- Separation of transportation and land uses. Lack of integration and coordination with Urban planning, an area in which the ATU does not participate, may affect the articulation of measures related to urban space and slow down policy progress.
- Lack of personnel specialized in transportation and mobility issues to apply measures to improve the
The measures proposed are often focused on solving traffic but not on solving mobility and safety issues. Many of the measures proposed are focused on resolving traffic but not on resolving mobility and safety issues. The planning of transport and mobility is a multisectoral issue and requires many specialties to address problems of a social nature.
- Public entity specialists do not focus on group needs affected and models from other countries are replicated without an exhaustive analysis of local needs.

Technological and specialized personnel barriers

- There is a shortage of personnel specializing in technological careers in the transportation sector.
- Lack of tools and technological support at the country level does not allow for the development of improved technological innovations in the transportation and mobility system.



The reality is that a greater road supply encourages motorization and, therefore, increases congestion. In addition, infrastructure works are seen as tangible works and have a positive effect on the voters with a view to the next elections.

Recommendations for the implementation of the proposed policy: strategies, actions and alliances

Se recommend that the government apply the following strategies in order to reduce the impact of obstacles to policy implementation:

Governance strategies

- **City vision.** A city vision is needed to help us have a clear goal and objectives of what we want to achieve in the long term for Lima and Callao. Ensuring the continuity of PlanMet 2040 is key to the sustainable and orderly development of the city. While this vision applies to Metropolitan Lima, it needs to be combined with the development of Callao, where the country's main port and airport are located. With the city vision, mobility and local development plans will be aligned with the same objectives.
- **Government policy.** Having made the problems of the public transportation system visible, and recognizing the importance of the city's development as a key element in the country's economy, it is necessary to focus on it as a central government policy. This will allow strategies to be channeled from the central government, ensuring the cooperation of local governments, municipalities and those responsible for different sectors, such as housing, transportation, education, health and labor. In this way, compactness in the city and the articulation of multisectoral measures can be achieved.
- **Establish clear responsibilities at the institutional level.** Although the ATU is an independent entity in the area of urban transport, it only deals with public transport. It is necessary to establish, from the central government, a working table where responsibilities are defined for each entity or sector involved, and alliances with the local municipalities of Lima and Callao. In this way, it is important that the ATU has enough power to lead the change towards an accessible, sustainable, healthy and safe mobility.
- **Create land use regulation instruments.** It is important to generate adequate regulatory instruments that allow for better transportation and mobility planning. Changes in the regulatory apparatus are required

The ATU, as the agency responsible for public transport in Lima and Callao, must intervene in decisions on land use changes. For this, it is necessary that the ATU, as the agency responsible for public transportation in Lima and Callao, intervene in decisions on land use changes.



We need a vision of the city that will help us to have a clear goals and objectives of what we want to achieve in the long term for Lima and Callao.

- **Creation of databases and evaluation methods.** Transportation and mobility systems are complex systems that require constant evaluation and monitoring. It is necessary to generate data to monitor strategies and actions taken. Evaluation through data will allow redirection of objectives and more efficient use of budgets allocated for the fulfillment of strategies. Data allow us to make problems visible, to have a better picture of what is happening and to make accurate decisions to solve public problems. This requires the use of the technologies of the fourth industrial revolution (artificial intelligence, internet of things, *machine learning*, data mining, etc.), which allow us to take a lot of information, process it and make reports that facilitate informed decisions and build performance indicators (KPIs).
- **Multisectoral policies.** It is necessary to review existing policies that may have an impact on the proposed policy. As the policy is multisectoral in nature, it is important to have the cooperation of all institutions and their willingness to support the achievement of the objectives.

Resources

- **Identify financial constraints.** It will be necessary to review fiscal policies, financial incentives, public investments, etc. to prioritize budgets according to the importance and necessity of the city project. If financial constraints are identified, financing and support can be sought from international institutions such as development banks.
- **Sustainable and sustainable financial models.** It is necessary to use methods that adequate financing for transportation and mobility projects. To this end, more specialized personnel with knowledge of contractual norms and efficient financing mechanisms that benefit the State are needed. On the issue of subsidies, it will be necessary to evaluate types of supply-side subsidies for *paratransit* integration, considering operational subsidies or fuel tax rebates (depending on the evaluation of each mode); while, for vulnerable people, it is recommended to apply demand-side subsidies through discounted fares according to their economic situation.
- **Capital gains capture tools.** Many of the DoT projects require capital gains capture tools to enable their development, allocate money for urban regeneration in the area and promote the use of sustainable modes. This will require early acquisition of land and partnerships with the real estate sector for the sustainable construction of new housing and residential areas. This land revaluation should be moderate and controlled to avoid problems of exclusion of vulnerable people in the area impacted by the revaluation (social housing should be promoted by the government).

It is necessary to use adequate financing methods [...]. On the issue of subsidies, it will be necessary to evaluate types of subsidies to the supply for *paratransit* integration, considering operational subsidies or fuel tax refund.

Alliances

- **Use of participatory methods and citizen-based design.** Many projects have been seen that do not satisfy the interest of the majority of users. Therefore, greater interaction of stakeholders and participation of the local community is recommended for the design of measures according to the needs of the users. The use of citizen-based designs is key to the success of the policy. While not all projects can be decided on the basis of public opinion, some local mobility projects can be designed using participatory methods, whereby the public is involved in the design and implementation of the project.

invite stakeholders to learn about their needs and take them into account in the design.

- **Partnerships with the private sector for the promotion of multimodal travel.** While public transport needs to have a strong state presence to ensure that it is accessible to the majority, modes related to micromobility can be enhanced with the private sector, generating partnerships with interested companies. One option is to integrate *shared mobility* companies to be part of the city's mobility strategy and plan.
- **Create links with academia.** State investment is needed to form research centers in universities. This link is beneficial for the country, as it builds solid knowledge bases in the transportation and mobility sector. There are very few specialist researchers in the sector or laboratories dedicated to the area. Without this type of investment, more money will continue to be invested in foreign technicians without generating local knowledge, which is vital for technology transfer that considers local conditions.

Shares

- **Use of pilots.** The use of pilot measures can be crucial to convince groups that are resistant to change. They are easy to implement and low-cost instruments, so they do not imply a large investment. It is recommended to carry out the pilots in district governments, to encourage citizen participation and generate a bond of ownership of the city. Seizing the moment is key for an effective transition to a new mobility. The pandemic should serve to promote the reevaluation of public space and the use of active modes.
- **Local government campaigns.** It is recommended to prioritize the campaigns launched by the government to promote the use of public transport, when measures to improve the system are being implemented. In addition, it is necessary to launch campaigns to emphasize the benefits of the strategies applied to educate the population and meet long-term objectives.
- **Carrot and stick.** As the strategies are progressively implemented during the first year, and the accessibility of transportation is guaranteed, it will be necessary to apply "carrot and stick" type actions. In this way, the use of sustainable modes is rewarded, offering citizens the possibility of traveling in the Integrated Transport System, which would have sufficient coverage, service quality and competitive travel times. On the other hand, it punishes those who opt for motorized and private modes. For this, it will be necessary to eliminate some parking zones in urban centers, limit the hours of use of available parking, and evaluate the charge for parking on the street, etc.



Many projects have been seen that do not satisfy the interest of the majority of users. Therefore, more stakeholder interaction and community participation is recommended.

Roadmap

Main suggested measures to be implemented for the first 100 days, one year and five years:

	100 days	1 year	5 years
Regulatory measures			
Public transportation and integrated system	<ul style="list-style-type: none"> ● Planning for. new routes of public transport with to consolidate network control. ● Zone evaluation for the integration of the <i>paratransit</i> ● Route selection with high demand routes with lanes. exclusive ● Start of the bidding process for Lines 3 and 4 of the Lima and Callao subway system 	<ul style="list-style-type: none"> ● Implementation of system of integration of <i>paratransit</i> ● Start of operation of routes Exclusive lanes with electronic electronic ● Implementation of the single of the SIT collection system in a progressive ● Adequacy of infrastructure for the use of multimodal transport in mass transportation ● Public bicycle program for integrated to the SIT 	<ul style="list-style-type: none"> ● Operation of Lines 2 and 4 of the Lima and Callao subway and the Lima cable car. ● Operation of the single collection system between modes of transportation
Infrastructure and urban design	<ul style="list-style-type: none"> ● Location of. with adequate bus stops. and strategic according to the demand pedestrian ● Program for recovery of the public space by vulnerable local governments: schools and hospitals) ● Improvements to the discontinuities the mass public adaptation of exclusive lanes on main city routes and congested branch roads 	<ul style="list-style-type: none"> ● Initiation of the ring road project ● Construction of infrastructure support systems for users micromobility and ● Program for the identification of "Zones 30" (prioritizing areas of high user demand by vulnerable users: schools and ● Urban regeneration plan for the of road transport corridors for mass public 	<ul style="list-style-type: none"> ● Flexible and adaptable infrastructure to increase the resilience of the city: services and public space. ● Creation of schools located in the new central areas and having a multipurpose character. ● Creation of strategic multimodal stations that include public bicycle and <i>shared mobility services</i> at new stations on Lines 2 and 4 and Line 1 of the Lima Metro.
Operational and of regulations	<ul style="list-style-type: none"> ● Guidelines for. regulation and 	<ul style="list-style-type: none"> ● Implementation of a standard design for infrastructure 	<ul style="list-style-type: none"> ● Reduction of the limit maximum speed: in

100 days 1 year

5 years

Regulatory measures

reuse of parking spaces

- Law for the formalization of teleworking and blended higher education
- Standards and regulations for exclusive lane design
- Program for the hierarchization of streets and roads in the city

safe and universal approach that gives preference to vulnerable users, people with reduced mobility, pedestrians and cyclists

- Elaboration of a design guide of secure infrastructure and low-cost measures
- Regulations for the preparation of basic guidelines and guidelines for the development of Accessible, Sustainable, Safe and Healthy Mobility Plans.
- DoT program regulations for the capital gain capture
- Guidelines and guidelines for inclusive urban design with a gender perspective
- Change of ordinance: of studies impact studies to road impact studies mobility generated

avenues at 50 km/h, expressways at 60 km/h and on all other streets at 30 km/h.

Economic measures

Subsidies

- Evaluation of operating subsidies and return of taxes on fuel for companies that supply the SIT in the periphery
- Proposal design for the subsidy of vulnerable groups

- Budget increase for the public transportation subsidy for surface
- Changes in zoning regulations to promote the use of the city's mixed soils
- Changes in the regulations of new urban projects, that limit the amount of parking lots for vehicles private

- Establishment of demand subsidy for individuals vulnerable, through the use of tariffs with discount for the population previously identified

Financing

- Designated budget item for the recovery of space public
- Designated budget item for interventions and improvements of road safety
- Strategic alliances and funds from international banks that promote sustainable mobility projects

- Implementation of capture system of capital gains for investment projects public transportation

Taxes

- Tax reduction for companies that encourage bicycling to work

100 days 1 year

5 years

Information/education measures

Data

- Information on safe routes for cyclists and pedestrians
- Design of SIT's integrated digital information platform
- Proposed registration system of mobility data using *big data* (SIT users)
- Implementation of real time information on public transportation routes.

Campaigns

- Campaigns for promotion for use of micromobility for short trips
- Tactical urban planning campaigns for the recovery of spaces public from the neighborhoods
- Route program school walkways

Education

- Training for local governments on public transportation, mobility and use of technologies
- Training program for city inspectors

Annexes

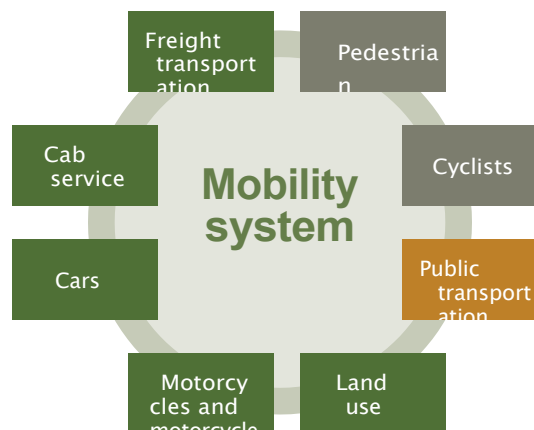
Annex 1: Conceptual Framework for Policy Formulation

Here we explore the different theories reviewed and interviews that were conducted as part of the research and that form part of the analysis for policy formulation. The topics addressed are related to urban planning, active mobility, other countries' experience in road safety and urban resilience.

Urban planning + transportation = accessible mobility

Transportation and accessibility are not only about the intrinsic purpose of moving people from one point to another. It is also about increasing their possibilities to perform activities and increase their development opportunities (Levinson, 2017). However, this function of transport is often neglected in order to prioritize speed reduction, infrastructure and fleet expansion, with the aim of increasing capacity in response to demand (Geurs and Van Wee, 2004). This type of solution is admissible, but it neglects the urban-social interrelationships that shape the mobility system.

Figure 1. Mobility system



Source: *Mobility in urban areas* (Dextre and Avellaneda, 2014). Own elaboration.

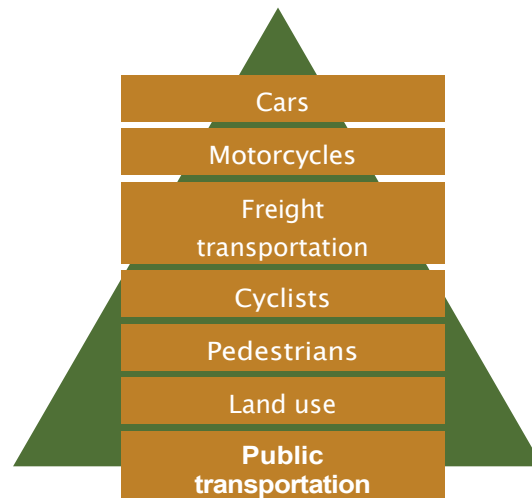
A change of perspective on how mobility is conceived is required to reduce the levels of social exclusion caused by the traditional way of planning transportation (Lucas, 2012). To this end, it is necessary to conceive public transport as a subsystem of mobility, recognizing active mobility⁹ -pedestrian and micro-mobility¹⁰ as alternative modes of transport and not recreational activities (Dextre and Avellaneda, 2014) (Figure 1). Reordering the mobility system implies reordering the pyramid of priorities according to local characteristics and needs, where the base of the system is public transportation that promotes efficient travel in the city and is articulated with an adequate use of land¹¹ (Dextre, 2018) (Figure 2).

⁹ Active mobility refers to any type of mobility that is performed using the body as the main motor of movement.

¹⁰ Micromobility is mobility using light vehicles such as bicycles, scooters, skates, scooters, etc.

¹¹ Zoning regulations often limit land use, placing limits on development. Mixed land use is a proposal that promotes a compact city.

Figure 2. Strategic Pyramid of Mobility Priorities



Source: *Mobility in urban areas* (Dextre and Avellaneda, 2014).

Urban form, composed of elements such as housing density, the location of public services and the distribution of employment, affect travel demand. Thus, land planning takes center stage when it comes to reducing the amount of travel. A polycentric city vision¹² could help reduce travel externalities. Currently, "new centralities" have already been formed in the northern area of Lima, fostered by the creation of large commercial emporiums and the improvement of some zonal parks; however, they do not end up fulfilling an urban function, lacking complete services and public spaces, which are necessary to increase the levels of quality of life in the area (Vega-Centeno, 2017). Therefore, a redistribution of services and better land planning is urgently needed, including infrastructure and mass transportation investments at the inter-neighborhood level and more sustainable mobility projects at the local level (Dextre and Avellaneda, 2014).

One of the integration strategies between urban transportation and land uses is DoT (transit-oriented development) planning.¹³ This tool allows the channeling of densities along the high-capacity public transport service. In doing so, it facilitates rapid access to the system (Suzuki, Cervero and Iuchi, 2013). As a complement, this strategy should be accompanied by higher urban density, promotion of mixed land uses and integration with other modes of transportation. In this way, compactness is achieved in the city and long trips promoted by a dispersed city are avoided. In addition, these large-scale transport projects are opportunities for urban regeneration of the city. In this way, a transport project becomes a city project.

Active mobility as a catalyst for sustainability and wellbeing

For a long time, the design of the city and its traffic management systems have had the vehicle as the protagonist, completely neglecting the mobility needs of pedestrians, cyclists and mass public transport. This type of city design and management has been shown to cause serious health effects. A city with high levels of congestion creates pollution and affects the quality of the air we breathe. It also generates stress, obesity, increases chronic diseases, and produces an unacceptable number of pedestrians killed in traffic accidents.

¹² Polycentric city refers to a city that has several sub-centers that offer public services, educational centers and work centers. The polycentric city concept is related to the compact city by centralizing all city functions in a smaller area.

¹³ Transit-oriented development (TOD) is a tool to promote sustainable urban development by maximizing the use of public transport.

The promotion of active mobility meets the objectives of improving physical and mental health, as well as reducing carbon emissions from vehicular transport. The bicycle is one of the means that has been gaining more and more prominence in the city, due to the different health benefits it has (Dextre, Hughes and Bech, 2015). In addition, it is a more accessible mode of transportation and can be useful to meet the demand for short or last mile trips in the city. However, it does not come to position itself strongly, due to the lack of political decision and the scarcity of infrastructure that allows the safe movement of users. The same is true of walking: despite being one of the main ways of getting around, the infrastructure and public space are inadequate or non-existent. This has repercussions on how we perceive the city and how we identify with it.

Therefore, it is important to recover the human scale,¹⁴ to build adequate spaces for people to live and develop in harmony (Gehl, 2014). The recovery of public space¹⁵ transforms cities into livable, safe and healthy ones; for this, it is necessary to focus design on people (Gehl and Svarre, 2013). This becomes more relevant in the current pandemic context: urban spaces have regained their value and yet not much progress has been made in this regard. There is an urgent need to reconsider the needs of people in the redevelopment of the city.

A new approach to road safety

Road crashes are a "pandemic" resulting in 1.35 million deaths globally each year (WHO, 2018), which is not given the importance it deserves. Beyond the support required at the system level, there is a need to change the approach to how road safety is addressed (Dextre, 2010b). It is necessary to migrate to a more humane approach. Sweden's vision zero¹⁶ or safety

The Netherlands¹⁷ are successful examples that have shown good results in reducing accidents. The success of this approach lies in accepting that people can make mistakes, and therefore, the system should be prepared

to reduce the consequences of these errors (Dextre, 2008). Under this vision, the concept of "prevention" and that of "forbearance" take precedence. With the former, the aim is to prevent accidents from occurring, and with the latter, to prevent the consequences of an accident from ending in the loss of life or permanent disability. It is important to recognize the importance of reducing the danger to which road users are exposed, which is caused by motor vehicles traveling at high speed. Hazards can be reduced through design and speed management, then the population can be educated to be able to manage the risk. The design of safe infrastructure in urban areas involves tactical urbanism measures, traffic calming in residential areas and the construction of infrastructure.

for vulnerable users: pedestrians, people with reduced mobility, people with disabilities, the elderly, children and cyclists (Dextre and Avellaneda, 2014). In this last aspect, it has been shown that increasing bicycle use with adequate infrastructure has direct consequences in reducing accidents, as it reduces the danger to which users are exposed (Gehl, 2010).



It is important to recognize the importance of reducing the danger to which road users are exposed by motor vehicles traveling at high speed.

¹⁴ Human scale is a concept used in architecture and urbanism to emphasize that city design should focus on people and their behavior.

¹⁵ Public space is any space in the city where one can circulate freely without restrictions.

¹⁶ Sweden's Vision Zero is an approach to road safety that aims that no one should die from road accidents.

¹⁷ Holland's sustainable safety is an approach similar to Vision Zero, which has five people-centered pillars and aims to reduce the severity of road accidents.

Technology plays a very important role in the resilience of the city: communication, real-time information and the use of intelligent systems allow us to reduce the impact in both immediate response and recovery.

One of the main causes of fatal accidents is speed. A vehicle over 50 km/h can kill a person (WHO, 2017) by not braking in time. Therefore, there is a need to reduce speeds in the city; also, combined measures such as safe design of public space, accompanied by speed management, can save lives and reduce serious accidents. This is promoting a reduction of speed in urban areas, whereby expressways would have a maximum speed of 60 km/h, avenues of 50 km/h, while for the rest of the streets there would be a maximum speed of 30 km/h.

Building resilient cities

Referring to resilient cities sounds more than relevant in these times of crisis. For a long time, this concept has been related to natural disasters; however, it is applicable to complex environments that are exposed to constant change, as is the case of cities (Deppisch and Schaerffer, 2011). A city is resilient to the extent to which it can overcome a stressful situation or how prepared it is for the unexpected (Müller, 2011). As explained above, mobility systems articulate the city by providing logistical support and allowing people to have access to it. In this way, individuals can access work, study, public services and entertainment. Hence their relevance in crisis situations.

But, you have to start with the infrastructure that supports the city. According to Jorge Vargas:¹⁸

Transportation and mobility are elements that allow us to obtain a certain state of resilience; for this, favoring mass transit over small vehicles makes the city more resilient as a system [...]. In addition, demand management is crucial to rearrange flows and the use of space.

Under this premise, technology plays a very important role in the resilience of the city: communication, real-time information and the use of intelligent systems allow us to reduce the impact in both immediate response and recovery. In addition, according to Jorge Vargas, public space is very important for coping with the crisis, as it allows us to offer public services, campaigns, markets, etc. It has already been seen during the pandemic that the deficiency of adequate public spaces has been a limitation to face the new normality resulting from the coronavirus.

ANNEX 2: Trends Affecting Mobility

The four main trends affecting the mobility system are examined: population growth, climate change, road accidents and advances in technology. A trend analysis for policy prioritization based on the CEPLAN model is also provided.

Currently, more than half of the world's population lives in cities (UN, 2018b). According to the UN (2017), by 2050, the urban population will double and the new focus of population growth will be concentrated in emerging countries. This population growth will have consequences on the age distribution, i.e., dependent elderly people will be more likely to live in urban areas.

¹⁸ Personal interview via Zoom, August 21, 2020.



Climate change is a growing problem and cities are no strangers to it. Transportation is one of the main factors in the increase of greenhouse gases.

Due to its high dependence on fossil fuels, the transportation sector emits 24% of global CO2 emissions.

and chronic diseases (CEPLAN, 2017). In the particular case of Latin America, growth is uneven. There are inequity gaps that are manifested in poor access to basic services such as education, health and transportation; also, in the high levels of labor informality and gender differences. This reduces development opportunities for the most vulnerable people¹⁹ (ECLAC, 2016).

Climate change is a growing problem and cities are no strangers to it. In this regard, transportation is one of the main factors in the increase of greenhouse gases (Neves, 2009). Due to its high dependence on fossil fuels, the transportation sector emits 24% of global CO2 emissions (Givoni and Banister, 2013). This has a direct relationship with the increase in motorization: in 2015, the average growth of motorization in Latin America and the Caribbean was 4.7%, one of the highest global motorization rates (Rivas, Suárez-Alemán and Serebrisky, 2019). The case of Lima is not very different: private car use has been increasing (Ferrer *et al.*, 2018) and, with it, congestion and pollution (GIZ, 2015), which negatively influence air quality and the health of people living in the city.

In addition to this, there are traffic accidents, which affect developing countries to a greater extent (PAHO, 2019) and disproportionately affect the most vulnerable groups (Nantulya and Reich, 2002; Dextre, 2010b). In the case of Latin America, motorcyclists and pedestrians occupy the second and third place in terms of traffic deaths (PAHO, 2019), while in Peru, of the total number of deaths in traffic accidents, the percentage of pedestrians killed (78%) is the highest of all countries investigated by the World Health Organization in 2009 (WHO, 2009). A few years ago, the WHO declared road traffic crashes a public health problem and, since then, actions have been taken and country agendas have been strengthened to reduce their number. Despite the decade of action for road safety, the number of deaths worldwide has not decreased in the last 10 years. According to a WHO report (2018), the figure stands at 1.35 million deaths. There is still the challenge of making the problem visible: underreporting of those affected by crashes is one of the main difficulties in developing countries, where the number of deaths from road crashes may be higher than deaths from diseases such as HIV or tuberculosis (*ibidem*).

It is inevitable to mention the arrival of the digital age and automation. Technologies such as artificial intelligence, *big data*,²⁰ the internet of things (IoT)²¹ and autonomous vehicles²² are just some of the advances being developed that will affect the way we live. Innovations in technology impact various sectors, such as transportation and mobility. The emergence of the *gig economy*²³ and *shared mobility services*²⁴ supported by applications are here to stay, as they facilitate access to services. In Peru, the use of app-based cabs is becoming increasingly common,

19 Vulnerable" refers to population groups that are affected by their conditions and circumstances, such as socioeconomic level, disability, gender, geographic condition, etc.

20 The use of information using data mining.

21 Interconnection of objects, artifacts and devices through the Internet.

22 Advanced technology vehicles that can navigate in their environment without the need for a driver.

23 The emerging economy characterized by its flexibility and the use of technology.

24 *Shared mobility* refers to the shared use of a vehicle by different users.

as they offer a better service, with better fleets and with the technological support that traditional cabs lack. However, this has been linked to the emergence of new informalities and new insecurities in the city.

Trend analysis

Table 2 shows a trend assessment matrix, which allowed a threat/opportunity analysis to be made according to the probability of occurrence and the impact that the identified trends will have on the mobility system.

Trend assessment matrix			
	Trends/situation	Probability of occurrence (1-5)	Impact on the system (1-5)
Threats	● Climate change and temperature increase in cities (CEPLAN)	5	5
	● Deficit in infrastructure and public services in LAC cities (IDB)	3	3
	● Increase in the dependent population and with chronic diseases (CEPLAN)	4	5
	● Pandemic COVID-19		
	● Possible occurrence of other epidemics more frequently in the future	4	5
	● Urban sprawl	3	4
	● Increased insecurity in the streets	3	4
	● Population growth in cities (UN Habitat)	5	5
	● Increased social inequity (OXFAM)	3	4
	● Increasing number of accidents in urban roads (WHO)	4	5
	● Increase of trips using modes of transport particular due to the pandemic	4	5
	● Increase in labor informality due to the health crisis	4	4
	● Health effects due to lack of activity physical during focused quarantine	3	4
Opportunities	● Emergence of new technologies in transportation and mobility	5	5
	● Increased use and presence of the Internet (CEPLAN)	4	5
	● Work automation (CEPLAN)	4	3
	● Emergence of autonomous vehicles (CEPLAN)	5	3
	● Increased life expectancy (CEPLAN)	3	4
	● Increase in the middle classes (CEPLAN)	4	4
	● Increased presence of women in the labor market (INEI)	3	4
	● Economic growth in countries (CEPLAN)	3	5
	● Increased role of active modes to reduce the spread of the virus (NOT)	4	5
	● Changes in lifestyles due to the pandemic (NOT)	3	3

Own elaboration.

Through a matrix, the problems are identified in order to propose solutions to the problems of the transportation system. The SWOT strategic matrix allowed grouping the measures according to the needs of the proposed mobility vision.

The SWOT analysis facilitates the visualization of the current mobility situation in Lima, in order to then propose and prioritize potential strategies and policies that adapt to the needs of Metropolitan Lima. It consists of:

- **Internal analysis:** Current situation of the transportation and mobility system in the metropolitan area of Lima and Callao.
- **External analysis:** Analysis of trends in the city at the global level, agendas, the transportation market and external factors affecting the mobility and transportation system

		INTERNAL ANALYSIS		EXTERNAL ANALYSIS	
		Strengths	Weaknesses	Threats	Opportunities
Offer		<ol style="list-style-type: none"> 1. Approval of the basic network of the Lima and Callao subway system. 2. Lima and Callao peripheral ring road project proposal for decongesting Lima's downtown area 3. Mass transportation projects such as the Metropolitano and the Metro have helped to reduce travel times for users 4. Bicycle lanes project emerging during the crisis 5. Lima cable car project 	<ol style="list-style-type: none"> 7. Walking : the second most popular mode of transportation after PT 8. The largest number of 	<ol style="list-style-type: none"> 1. Poor quality of the service and infrastructure of the PT 2. Economic inequality in access to transportation services 3. Insufficient dedicated infrastructure for active mobility users 4. Few public spaces for pedestrians 5. Formal PT network does not supply the periphery (IDB) 6. Increase in the number of cab services 7. Infrastructure that prioritizes the motorized vehicle 8. Discontinuities in the city's main roads 9. Favoring, on the part of the service of the Metropolitan, to middle class sectors, but not to sectors with less purchasing power (IDB). 10. The most expensive modes are private vehicles and cab services (JICA). 11. Vehicle fleet increase (PNSV) 12. Lima has the highest 	<ol style="list-style-type: none"> 17. PT is most commonly used by
	Demand	<ol style="list-style-type: none"> 6. According to modal split, in Lima, a large percentage of users travel by public transport 		<ol style="list-style-type: none"> 13. Speed is the main cause of accidents 14. Users prefer to travel by cab and bus for convenience and speed. 15. Micromobility unpopular in vulnerable sectors 16. Downtown Lima is the area that attracts the most trips (mostly from the periphery). 	

1. Climate change and temperature increase in cities (CEPLAN)
2. High carbon emissions as a result of motorized transport
3. Infrastructure and public services deficits in LAC cities (IDB)
4. Increase in dependent and chronically ill population (CEPLAN)
5. Pandemic COVID-19
6. Possible occurrence of other epidemics with higher frequency in the future
7. Immunization and cure of COVID-19 will take time
8. Lack of urban planning and land uses
9. Deficiency and inequality in access and infrastructure and services by district
10. Insecurity in the streets

11. Population growth in cities (UN-Habitat)
12. Social inequality gaps (OXFAM)
13. Increasing number of accidents on urban roads (WHO)
14. Increase in e-commerce and delivery services

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- n of work (CEPLAN)
5. Emergence of autonomous vehicles (CEPLAN)

6. Increased life expectancy (CEPLAN)
7. Increase in the middle classes (CEPLAN)
8. Increased presence of women in the labor market (INEI)
9. Economic growth in

Environmental / Technological /

Population / Culture / Socioeconomic

		INTERNAL ANALYSIS		EXTERNAL ANALYSIS	
		Strengths	Weaknesses	Threats	Opportunities
Demand		of travel during peak hours is carried out for work/educational reasons	users from lower-middle socioeconomic levels 18. Increased use of conventional PT over formal PT (Metro, BRT). 19. Pedestrians: main victims of traffic accidents	15. Increased travel using private modes due to pandemic 16. Lima-Centro Macroregion hosts a large percentage of labor centers (JICA) 17. The people who bear the burden and consequences of traffic accidents are the most vulnerable and the youngest.	emerging countries (CEPLAN) 10. Lima-Centro: macro-region with the highest population density.
		9. Bicycle use by more people	20. Preference for informal PT (minibuses and motorcycle cabs) to be lower cost for short trips 21. Recklessness of drivers on the streets 22. Persistence of the automobile culture in various socioeconomic sectors 23. Conventional PT is a source of employment for many people. 24. Men make more long trips	18. (--) 19. Increased labor informality due to the health crisis 20. Health effects of lack of physical activity during focused quarantine 21. (--)	11. Emergence of movements and activists to curb climate change and promote active modes of action. 12. International interests and support to promote the closing inequality gaps in emerging cities 13. Increased demand for logistics services 14. Increased role of active modes to reduce virus transmission (NOT)
Sociocultural		10. Promotion of bicycles as a means of transportation in some districts of Lima 11. ATU's efforts to carry out transportation reform	25. Lack of integration between modes of transport 26. Economic losses due to high congestion levels 27. Congestion, accidents and pollution due to "war of the penny". 28. Lack of personnel trained in transportation issues	22. Corruption and conflict of interest at the government level 23. Underappreciated police system 24. Weak and fragmented health system 25. Political instability 26. Laws passed that favor informality	15. Promoting telework during quarantine 16. Distance education due to the health crisis 17. PlanMet Project 2040 in progress
		12. Bicycle Act in 29. service 13. Draft Law of Urban Mobility in agenda	conventional 30. Services offered by application promote the informality		
Manage					
Regulation					

Population / Culture / Socioeconomic

Management / Regulation / Political

INTERNAL ANALYSIS		EXTERNAL ANALYSIS	
Strengths	Weaknesse	Threats	Opportunities
14. National policy on of SV in agenda	31. High turnover officials and public sector workers		

Politici

Management / Regulation /

As a result of the above analysis, the "SWOT strategic matrix" is obtained. The matrix was built based on cross information that allows us to identify strategies for success, reaction, adaptation and defense for an improvement of the mobility and transportation system of the city.

INTERNAL ANALYSIS		EXTERNAL ANALYSIS	
Strengths		Weaknesses	
<p>SUCCESSFUL STRATEGIES</p> <p>F4O14: Opportunity to maintain emerging bikeways as permanent infrastructure leveraging health benefits during the crisis.</p> <p>F8O15, O16: Promotion of behavioral changes in the labor sector and education to reduce the amount of travel and conglomerations.</p> <p>F9O2: Promoting the development of technology and innovations to encourage the use of bicycles</p> <p>F12: Proposal of tools to articulate the future urban mobility law at a multidisciplinary level.</p> <p>F9O11: Use of the bicycle moment to encourage a cycling culture, from MTC and ATU.</p> <p>F11: Creation of a strategic plan to address transportation reform, clearly stating the benefits for the public</p> <p>F11O17: Working in conjunction with PlanMet 2040 project to improve transportation reform</p> <p>F7O10: Leveraging density to create a walkable city</p> <p>F6O7: TP system of better quality and cost (not only the most vulnerable travel in TP, but everyone, as it is more efficient and safer).</p> <p>F8O3: Dissemination of the Bicycle Law among citizens in a more understandable way, making use of digital campaigns.</p> <p>F11O2: Courses, training programs and alliances with universities to encourage the use of new technologies in the transportation sector</p>		<p>COPING STRATEGIES</p> <p>D3O1/D4O1: Budget for infrastructure dedicated to pedestrians and cyclists, to ensure social distancing in the first instance</p> <p>D3O03: Putting on the political agenda the jobs generated by emerging economies with the advance of technology, so as not to aggravate the problem of informality in the country.</p> <p>D4O6: More infrastructure and public space with universal design, to increase the autonomy of people with reduced mobility, the elderly and the disabled.</p> <p>D28O5: Creation of more careers and training courses focused on transportation and mobility issues for the use of new technologies and innovations in the sector.</p> <p>D1O6: Improve PT fleets and service to ensure safe travel for elderly people with reduced mobility.</p> <p>D2O7: Consideration of affordable prices in new mass transit projects and projects considered under the transportation reform. So that not only the middle classes benefit.</p> <p>D29O9: Elaboration of a horizon for formalization of conventional PT for equitable economic growth</p> <p>D18O17: Increase of formal routes supplying the periphery in accordance with the expansion of the city of Lima</p> <p>D24O8: Increased infrastructure and design of the SIT with a gender focus</p>	

Opportunities

	INTERNAL ANALYSIS	EXTERNAL ANALYSIS
	Strengths	Weaknesses
Opportunities	<p>F2O13: Taking advantage of the pandemic to reorganize the movement of heavy goods vehicles</p>	<p>D2O10: Quality infrastructure for active modes that facilitate mobility for short trips and bus lines with zonal routes with flat rate for the area (use of technology).</p> <p>D1O12: Programs and funding to improve the PT system with better infrastructure for multimodal service and to increase accessibility</p> <p>D26: Improving the efficiency of the public transportation system</p> <p>D6D7, O7: Reducing the disproportionate use of cab services, improving the efficiency of PT services.</p> <p>D13O14: Reducing speeds in cycling areas to improve road safety</p>
Threats	<p>COPING STRATEGIES</p> <p>F1A8: Promotion and use of tools such as the DoT in strategic stations to improve access and urban regeneration</p> <p>F2A13: Redirection of logistics and freight transport routes to reduce serious accidents involving vehicles of different masses.</p> <p>F3A12: Expansion of the SIT network to reduce travel times and inequity in access to the city F6A15: Formation of a network system of PT buses to be subsidized. Grouping of buses by lines to cover areas of demand in the city.</p> <p>F7A10: Improving street safety by reclaiming public space. More people generate more safety: social force concept.</p> <p>F9A1: Leveraging the bicycle momentum to educate people on sustainable modes of transportation and promote their use</p> <p>F10A12: Promotion of bicycles as an accessible means of transport to increase people's access to the city</p> <p>F11A5, A6, A7: Using pandemic as a catalyst for change toward more sustainable, safe, and equitably accessible mobility and transport</p> <p>F14A25: Expedite the development of the security policy, to make it a State policy.</p> <p>F7A6: Increasing the resilience of the city through the revalorization of active modes</p> <p>F10A20: Promotion of physical activity and active modes at the neighborhood level to ensure people's health, keeping the necessary biosecurity measures.</p> <p>F5A3: Increasing accessibility through the use of accessible fares in the new ropeway project</p>	<p>DEFENSE STRATEGIES</p> <p>D5A9: Extension of formal PT networks to the periphery: proposed integration of informal modes</p> <p>D9A9: Subsidies for low-income BRT users</p> <p>D11A2: Increased regulation for vehicles using more polluting fuels. Program to promote the use of more environmentally friendly fuels through benefits.</p> <p>D16A16: Improving the distribution of opportunities and the location of industrial centers in a sustainable manner.</p> <p>strategic (new financial centers). Continuity through laws to promote teleworking.</p> <p>D17A12: More transportation service options to districts that have a higher proportion of vulnerable people and have poor access</p> <p>D21A23: Improvement of the traffic policing system by revaluing the profession with better salaries and</p> <p>D21A3: Use of physical measures to reduce speeding on streets D21A4: Use of physical measures to reduce speeding on streets</p> <p>D22A12: Curb the car culture and reduce levels of inequity by increasing public transportation service</p> <p>D23A18: Streamlining of stages for the formalization of PT companies and labor reinsertion</p> <p>D25A9: Prioritize multimodality to increase travel options and access to the city D27A17: Lower the city's entropy through an integrated transport network that reduces the number of accidents involving vulnerable users and young people</p> <p>D12A3: Improve the form and execution of infrastructure and public service projects so that they do not stagnate.</p> <p>D12A22: Creation of strong and independent sector entities related to the sector, allowing for the fluidity of projects for the benefit of the city.</p>

	INTERNAL ANALYSIS	EXTERNAL
	Strengths	Weaknesses
Threats		<p>D7A11: Safe design for use of active modes, implementation of safe routes from local governments for local travel to major public services</p> <p>D15A12: Prioritization of cycling infrastructure and public space in vulnerable and hard-to-reach areas</p> <p>D8A11: Investment in infrastructure and management of Lima's main road corridors to reduce congestion</p> <p>D14A4: Provide accessible public transportation services for people with reduced mobility and chronic diseases.</p> <p>D12A17: Design of safe roads to reduce the number of accidents. New approach to safety</p> <p>D19A11: Safe design approach with pedestrian priority</p> <p>D13A14: Increased regulation of the use of motorized vehicles that increase speed to make deliveries, promote the use of bicycles on safe roads</p>

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