PROPOSAL FOR A NATIONAL TRANSPORT STRATEGY FOR LOW CARBON CITIES: COLOMBIA IN 2030

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I. Introduction

The proposed national transport strategy for low carbon cities: Colombia in 2030 has been developed under the framework of the ***Institutional and Regulatory support for low-carbon urban transport in Colombia*** project which is part of the British Embassy's Prosperity Fund programme in Colombia and jointly developed by the Research Group on Urban and Regional Sustainability SUR (acronym in Spanish) of the Universidad de Los Andes in Colombia and the Accessibility Research Group - ARG from University College London in the UK and supported by the Colombian Ministry of Transport and Transport for London. The project, funded by the UK Foreign and Commonwealth Office (FCO), seeks to integrate the experiences of Colombia and the United Kingdom in order to strengthen the institutional capacity and develop policies that will lead to an improvement in the quality of life for through low carbon transport.

The aim of this report is to suggest a vision for Colombian cities and propose a national urban transport strategy that allows local authorities to lead in the development of their action plans. This strategy encourages cities to define what they want to achieve and provides guidance to enable local authorities to make the decisions on the actions needed to reach that target. The document intends to provide a strategy which has a vision and objectives based on fundamental principles but which is flexible enough to allow each city to reflect its own characteristics in the design and implementation of its plans and actions.

The strategy is a response to the need of strengthening and complementing the legal framework in Colombia related to urban transport policy and the various policy instruments currently used. To provide some context, a brief description of this legal framework will be found below, followed by the proposed strategy.

II. Justification

Currently, Colombia has a national urban transport policy framed primarily by four laws and some policy instruments known as CONPES documents. Below is a brief description of each law:

Act 105 of 1993 highlights the basic provisions of transport in general and the distribution of resources between the national and local authorities for transport investments. It also establishes, in a very general manner, the basic principles of urban public transport and its vision is aimed at infrastructure development.
Act 336 of 1996 provides general provisions for transport modes, unifying the principles and criteria that will form the basis for regulation for air, sea, river, rail, surface and mass transit transportation, and its operation in the country. In the area of urban transport, it states that the Ministry of Transport and the National Planning Department are responsible for setting the parameters to define, evaluate and implement mass transit projects.
Act 1083 of 2006 establishes regulation to contribute to sustainable urban planning like the prioritisation of non-motorised modes and other non-polluting initiatives through the development of Mobility Plans (PM acronym in Spanish). It also emphasises the use of clean fuels, to reduce public health harm and contribute to better air quality. Furthermore, it also includes the need to ensure accessibility to mobility networks for users with disabilities and to ensure safety and protection for all users.
Act 1450 of 2011, better known as the National Development Plan (PND acronym in Spanish), proposes that the urban transport policy in Colombia is primarily intended to boost economic development and competitiveness of cities, ensure environmental sustainability of the country, promote equality and improve the quality of life of the population. More specifically, the urban transport policy seeks to encourage mobility solutions that ensure environmental, operational and financial sustainability, to promote safe mobility, guarantee adequate land use planning and provide a better link between land use

and transport. It also aims to strengthen institutional activities related to management, regulation and control of traffic and transport. To contribute to the development of public transport, this Act proposes that both Bus Rapid Transit System (BRT) and Strategic Public Transportation Systems (SPTS) are articulated with Land Management Plans (POT) and that they work as a structural axis for mobility plans. However, it is important to clarify that this law has a temporary nature of four years, the length of the presidential term, making it weak in ensuring continuity in time.

CONPES documents are policy instruments used by the government to define strategies to meet national policy objectives, including urban transport. However, these documents do not have the force of the law, allowing freedom to choose the means of implementation of the strategy.
Below are the main urban transport CONPES with their respective main objective:

Table 1 Description of key policy CONPES in transportation. Source: Authors

CONPES		OBJECTIVE
3260	National policy for urban and mass transport	Promote the implementation of integrated mass transit-BRT-in big cities and strengthen institutional capacity to plan and manage traffic and transportation.
3167	Policy to improve urban public transport of passengers	Improve urban public transport of passengers through the application of innovative technical and financial tools.
3305	Guidelines to optimise urban development policy	Promote the consolidation of more compact cities, more sustainable and equitable; and with the ability to manage and finance their own development.
3718	National policy for public space	Support to local authorities in strengthening institutional and administrative capacity for planning, management, financing and sustainability of public space.
3700	National strategy for the articulation of policies and actions on climate change in Colombia	Facilitate and promote the formulation and implementation of policies, plans, programs, incentives, projects and methodologies in climate change

Based on the content of the laws, the implied urban transport strategy results in a framework that has been updated over time, beginning with a vision directed to infrastructure, followed by a transition to the prioritization of non-motorized modes and the use of clean fuels to improve air quality. This strategy seeks a mobility solution that ensures environmental, operational and financial sustainability. However, there are certain weaknesses in this strategy, because it is not consolidated nationally and much of it is justified by CONPES policy documents, which do not have the force of law necessary to sustain a long-term policy. On the other hand, the PND as primary legislation has no continuity in time as it is subject to a presidential term of four years.

Moreover, when comparing the contents of some laws, it is clear that there are important issues that have not been given the required importance and they are not aligned with the principles established in the Act 105 of 1993 and the PNDs from recent governments. Some of this issues include the institutional capacity, policy continuity and strengthening of inter-sectorial collaboration both nationally and locally. In many cases, these issues end up being the main obstacles to the success of transportation projects. Similarly, there are other aspects required for good development in transportation management that could go adrift, for example the creation of regional or integrated transport authorities, which have great potential to improve the management of transport in cities.

Additionally, it is necessary to generate a strategy that focuses more on the quality of life than on the city infrastructure. Therefore the strategy should be based on global principles that allow POTs and PMs of cities to have goals that align with the overall objectives.

After describing the content and purpose of the framework and each of the urban transport laws in Colombia, it can be concluded that it is outdated in terms of objectives, principles, tools and strategies. This has encouraged the development of lower-level rules and instruments such as CONPES, and instruments with short duration such as Development Plans, limiting the continuity of policies and urban transport projects. Therefore, the need to create a national strategy for public transport is increasing, and it requires identifying and encompassing the global aspects necessary to achieve a vision of sustainable low carbon cities.

So, why is it necessary to develop a National Urban Transport Strategy supported by the law:

- The laws that currently make up the regulatory framework for urban transport in Colombia are outdated and require a strong change in their vision. A new law will update this framework to adequately support CONPES documents and development plans.
- A law is enacted by the Congress which is the legislative body, and this means it has the highest ranking under the constitution. This allows it to have the necessary force to achieve deep and permanent transformations, unlike the CONPES documents.
- A law, unlike a Development Plan is not limited in time to a presidential term, allowing for continuity and stability of policies that do not rely entirely on the government in turn.
- A law implies the need for a broad discussion with different sectors of society, helping identify the vision that the Colombian society has on sustainable transport, in search of a general wellbeing.
- The existence of a law enables the entities in charge of the enforcement of transport policies (ministries, cities, local authorities) to ensure that these policies are aligned with the basic principles set out in the vision.

III. The role of Urban Transport

As seen section II, there is a need to update the national framework refocusing its vision, therefore the proposed national transport strategy in low carbon cities in Colombia is based on the fundamental principle in which urban development focuses on people, and therefore on their wellbeing. Cities are fundamental means to facilitate "well-being" through the different activities offered: employment, health, education, entertainment, food, water and so on. However, if these activities are not fully accessible to all citizens, the general wellbeing is not achieved and instead the processes of inequality, poverty, violence, among others are reinforced. Also, if the means available to access the activities generate impacts on health (e.g. respiratory diseases, accidents and stress) and on the environment (polluting emissions, energy use and scarce resources), the general wellbeing, especially that of future generations, will not be achieved. Therefore it is necessary to develop a strategy for the cities of Colombia that considers the current and future challenges and provides an analytical framework and guidelines to achieve the general wellbeing in its various constituent systems. This paper considers the role of urban transport within a strategy for competitive low carbon cities.

This strategy does not have a prescriptive approach with a specific list of steps that must be developed over time. Instead, this strategy acknowledges the evolving nature of systems in terms of the changing nature of the cities in which they exist. Therefore, this transport strategy seeks to identify:

(i) A vision of a desirable future for the cities,

(ii) The fundamental principles that set the guidelines and objectives that connect the vision with transport planning in the city and

(iii) A systematic structure analysis to identify obstacles and define actions that materialise the objectives of the principles and the vision.

Additionally, it is important to note that the Transport Strategy for Low Carbon Cities recognizes cities as systems of systems in which all elements are interconnected and therefore presents a holistic and systematic approach from the transportation system to contribute to addressing needs such as reducing urban poverty, improvements in health and safety and environmental protection.

It is important to note that this strategy is not a political definition, nor a set of plans or specific actions, and therefore it is not intended to define how the actions should be implemented. What the strategy does, however, is to define the framework within which it is possible to derive the necessary action plans to achieve the vision. These action plans should perform the necessary functions to provide the functionality required by the strategy to achieve the vision. The framework is guided by a set of principles that determine the direction guideline but not the details of action. It is therefore possible to follow the strategy and achieve the vision by different routes. Thus, the strategy is a technical and politically neutral framework which is placed within the decision-making process between the fundamental principles and the implementation plans, more pointed than the vision and more open than the action plans.

IV. Vision

The vision is that by 2030, Colombia will be a country that will stand out for its accessible, prosperous and healthy cities, which enable all citizens to achieve their wellbeing and ensure good quality of life and sustainable growth for present and future generations. To realize this vision, cities must seek to achieve the general wellbeing, reduce energy use and emissions and ensure sustainable economic development.

To define a vision as described above, it is important to note that this should be supported and owned by the population. To do this, an important step for a city is to obtain the view from its citizens independently of political influences. This means that the vision of the future of a city should not be built through political channels or as part of government cycles but must be defined through a greater public consultation to establish **their** vision of **their** city for a certain length of time in the future without restrictions – the true perfect city. The role of politicians is to formulate a set of actions to achieve that vision, which can go in one way or another depending on the preferences, philosophies and political determinations. However, the strategy is positioned as the process framework within which the actions and the scope needed to ensure that they meet the objectives of the vision are determined. In this paper, where we are defining the strategy, we suggest a city vision broad enough to be accepted by the majority of the population. The framework is independent of the vision; however some details of the strategy could be different if the vision changed.

The five fundamental principles

From the vision mentioned above, five fundamental principles conceptualized as 'five cities' are defined. Each core principle - or city model - defines a set of guidelines to achieve the basic objectives to ensure the citizens´ wellbeing in the various aspects of urban life. The guidelines for each city model give a general framework for planning decisions, design and operation of cities. Thus the ideal city (Figure 1), one that guarantees the wellbeing of society, results from the simultaneous implementation of the various elements defined by all five city models.

The five cities are:

1. The courteous city
2. The active and inclusive city
3. The city as public space
4. The liveable city
5. The city that evolves

An essential tool to make the interpretation of the five cities a reality is the mobility system. Therefore, urban mobility, through the consolidation of integrated intermodal and safe systems that are accessible, efficient and have minimal negative impact on the environment, health and use of scarce resources, will help facilitate this vision.

Figure 1The ideal City

The Courteous City

The first city is the "courteous city", a city in which people interact with each other in a positive manner and in which social interactions are stimulated. This is a city where the behaviour and attitude of the people is the functional basis of the city. In general, people respond to incentives and make rational decisions seeking to improve the general wellbeing before improving their own wellbeing. Because the perception of benefits and costs vary greatly from one person to another, the construction of a new positive social behaviour is based on engineering design (infrastructure, operating systems, traffic calming etc.) that promotes respect and courtesy; and policies, plans or education programs to reiterate the principles of coexistence and civic culture.

General objectives of the **courteous city**:

- Behaviour change and continuous promotion of civic culture
- Increase in equality
- Infrastructure design and operative systems that promote respect and courtesy

Colombian citizen´s interpretation of how the courteous city affects each of the five cities

The Active and Inclusive City

The second city is the "active and inclusive city." To achieve a state of wellbeing, it is necessary to ensure that people have access to a wide range of activities required to meet their needs - jobs, health, education, entertainment, provision of food, water, etc. This means that, for everyday activities, the city should promote the strategic location of activities and opportunities so that all citizens have easy access to them in terms of convenience and low cost (time, distance, money). In general, to gain access to different activities, movement is necessary. In the active city, the transport system ensures that the mobility to access everyday activities can be performed in non-motorised transport (NMT) modes. To achieve this objective, and in addition to considerations of location of activities, the city must provide a network of pedestrian and bicycle roads designed to ensure connectivity within the city ensuring safety and security. Also, the infrastructure network for non-motorized transport should facilitate inter-modality based on a harmonious and safe coexistence between the different modes of transport. Additionally, the active city identifies, in a dynamic and continuous manner, the reasons (barriers) that prevent citizens from using non-motorised transport modes (i.e. inadequate distribution of activities, insecurity, accidents, lack of infrastructure, etc.) and defines strategies to correct it. As a secondary objective, where it is not possible to connect the NMT activities, it is necessary to design adequate public transportation systems to provide connectivity in an equitable manner and with minimal energy use.

General objectives of the **Active City:**

- Increase in the number of activities and opportunities within the city
- Promote non-motorised transport
- Promote the benefits that low carbon transport has on health.

Colombian citizen´s interpretation of how the active city affects each of the five cities

The City as a Public Space

The third city is the "city as a public space." This city model puts people at the top of the needs hierarchy and therefore considers that all urban areas are owned by the people. Thus, public space should be designed as an open, available and accessible place that provides protection and safety. Public space in this context refers to the whole space that is not legally deprived - which includes the space between buildings, streets, roads, sidewalks, parks and plazas, among others. Therefore, this model city seeks to build a sense of public ownership and to help people feel safe and secure in public spaces, and not intimidated and / or marginalised by the development of certain activities or the total absence of activity. Consequently, the design of the city as public space pays special attention to issues such as signage, visibility, usage, security, maintenance of the sites and access to help. Also, these designs include universal accessibility considerations to ensure that the spaces are designed to be accessible to everyone including people with reduced mobility, visibility, hearing or cognition, and to allow for people not only to have the opportunity to move easily between activities, but also to stop and talk, sit and relax whilst enjoying the public space *as space for the public*.

General objectives of the **city as a public space**:

- Design of open spaces available and accessible with elements that invite people to stay and inspire safety
- Improvement and extension of Green zones
- Development of community safety and security strategies

Colombian citizen´s interpretation of how the city as a public space affects each of the each five cities

The Liveable City

The fourth city is the "liveable city". An essential goal for all cities in the world is to be liveable. People should have the opportunity to enjoy a long, healthy and economically optimal life, and the design of the city should enable this goal. Therefore, through designs that positively minimise the transmission of infections, prevent respiratory or cardiovascular diseases, reduce stress related problems and other mental conditions and prevent injuries and deaths caused by traffic accidents. To contribute to reducing greenhouse gases and improving health, it is necessary to promote mental and physical activity among citizens. Thus, it is necessary to re-conceptualise the cities and their development, providing access to activities in all parts of the city so as to minimize the need to travel using mechanical engines - and if for some reason these are needed; promote the use of technologies that can minimise the negative impacts on the environment and humans.

General objectives of the **liveable city**:

- Designs that promote positive health impacts
- Health improvements
- Designs and planning that minimise the need of using motorised transport modes
- Use of clean technologies

Colombian citizen´s interpretation of how the liveable city affects each of the five cities

The City that Evolves

The fifth city is the "city that evolves." According to Brundtland (1987), the current needs must be satisfied without compromising the resources and possibilities of future generations. The problem is that, in some circumstances, the changes are so complex and fast that it is difficult to know the needs of future generations. Therefore, the cities must be designed to be adaptable to the changes that will occur. This change in time is the evolution of the city. All activities in a city depend on people and their needs and aspirations. The perceptions of needs and desires change over time and generations, so it is necessary to note that the city will change and evolve in the future and therefore the design of the cities today should not only depend on the complexities of human lives in the current world, but should consider the next generations. Also, it is vital to define clear goals and guidelines focused on wellbeing that facilitate the development of flexible and adaptable strategies that can achieve those goals in the future. This approach will even respond to complex uncertainties such as climate change and globalisation, among others.

General objectives of **city that evolves**:

- Infrastructure design that allows for adaptation and if necessary de-construction
- Monitoring and constant research to identify and predict - if possible, future needs
- Development of planning strategies and flexible and adaptable systems.

Colombian citizen´s interpretation of how the city that evolves affects each of the five cities

V. Strategy

To achieve this vision and meet the guidelines of the five fundamental principles is important to have a systematic framework to guide the way to implementation. Therefore this strategy highlights below 8 steps to guide the path:

1. Adoption of the five cities model
2. Adoption of the accessibility, mobility, movement and transport concepts as a set of requirements to meet
3. Development of plans based on the analysis of where they are in relation to guidelines 1 y 2 using the *"Systems functionality"* approach
4. Definition of plans, policies and regulations to facilitate the implementation of the strategy
5. Financial and institutional support for the implementation of plans that meet the strategy requirements starts
6. Execution of the plans and actions starts
7. Establishment of monitoring, reporting and verification processes to evaluate the strategy´s performance
8. Initiate the review of the strategy after 5 years.

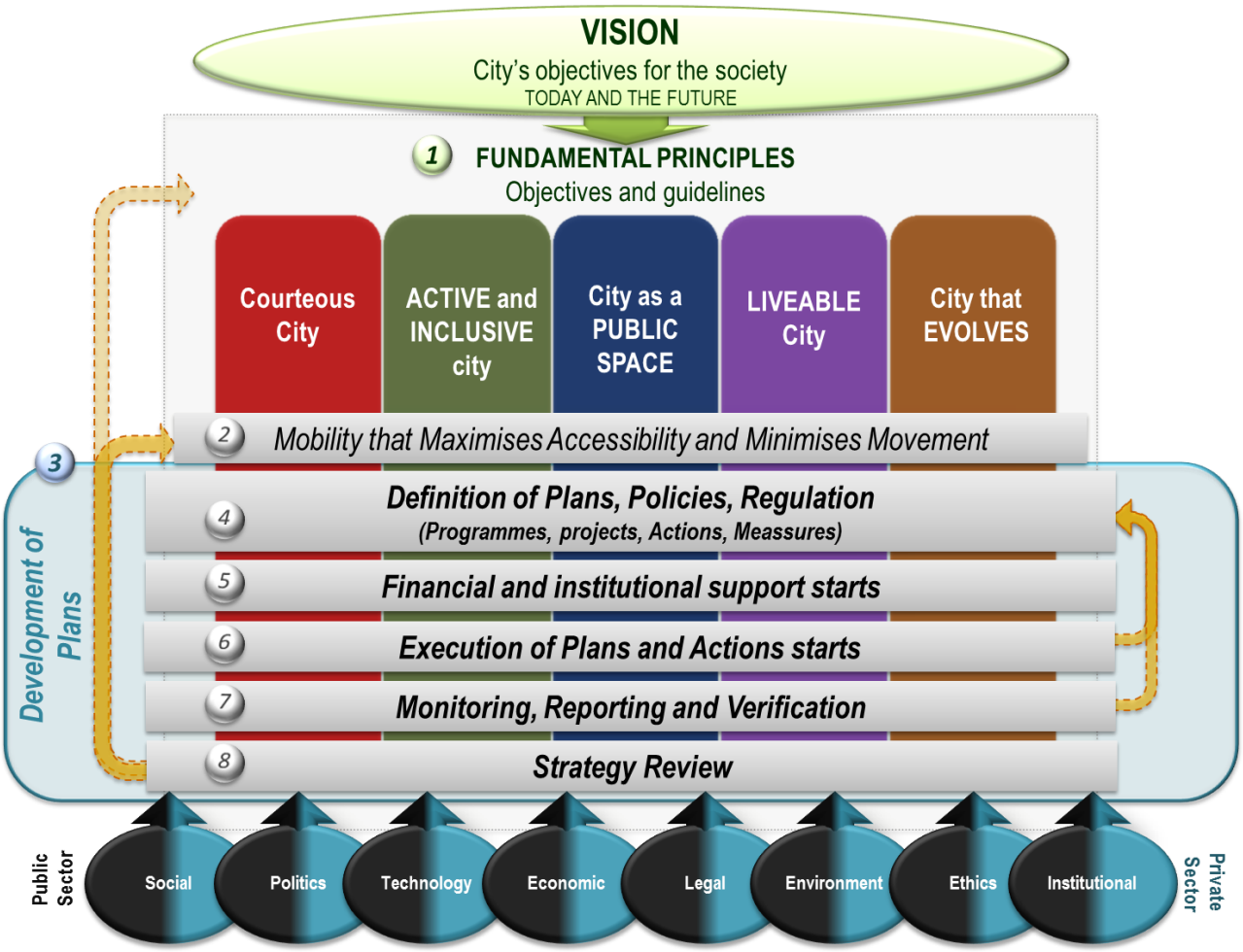

Figure 2 Low Carbon Urban Transport Strategy

Figure 1 represents schematically the urban transport strategy for low carbon Colombian cities and indicates the relationship between the eight steps in the process. The strategy stars from the vision, which

reflects the citizens' great needs and aspirations. The achievement of this vision is crucial on the path to the sustainable wellbeing of society. This vision is translated into five fundamental principles (Step 1), which define guidelines and objectives that need to be achieved in parallel through all the steps of the strategy, in this case of the transport system in a low carbon city. Step 2 of the strategy represents the most important conceptual target of low carbon transport and therefore traverses the '5 principles' columns.

The next level of the diagram represents the third step of the strategy, which refers to the translation of the vision and 5 principles through the development of proposed plans, policies, regulations, projects and, in general, all actions that the 5 principles promote. The development of proposals (for a plan, project or action) that include the development of subsequent steps must involve inputs, and interactions between, a series of 'spheres' - social, political, economic, ethical, institutional, financial, each considered in its public and private components - of the city and its constituent systems.

At this level the strategy emphasises the need for each plan, project, or action proposed to be developed with a focus on "functionality of the system" in light of the different spheres. The functional approach is presented as a systematic way of thinking that emphasises the need to consider factors in the different spheres so that each proposal will contribute to the creation of value and enhance benefits for the city as a whole while controlling the financial and institutional difficulties or constraints in the development of proposals. This approach is presented as a framework for the definition of plans, programs and regulations to facilitate the implementation of the strategy (Step 4), with special emphasis on the importance of starting the process of defining financial and institutional support (Step 5). Step 6 refers to the beginning of the implementation and execution process of plans and projects up to the extent to which the level of progress on the previous steps allow.

The process is then ready to start implementing the projects plans and actions – for example, the proposed transport solutions generated following this strategy in order to achieve the city´s vision, meet the 5 fundamental principles and respond with good quality to the needs of accessibility, mobility and transport of society. From this perspective, it is necessary to design and put in place the systems for Measurement, Reporting and Verification of the strategy (Step 7) and the processes necessary to review and adapt the strategy every so often (Step 8).

The detail of each step of the strategy is as follows:

1. **Adoption of the five cities model**

The model of the five cities describes different types of needs that are required in a city, and the functions that a city should have in order to make it easier for its citizens the achieve wellbeing. As mentioned above, this strategy focuses on the fundamental principle that urban development focuses on people, and therefore their wellbeing. Cities are by their nature crowds of people, activities and a diversity of opportunities that facilitate achieving the general "well-being". Therefore it is important to ensure that the activities are accessible and affordable to all citizens, to ensure equity, reduction of poverty and violence, and so on. It is also vital to ensure that the means available to access the activities are planned and designed so as to minimise the negative impacts on health (respiratory diseases, accidents and stress) and the environment (emissions, energy use and scarce resources), in order to ensure the general wellbeing of current and future generations. Therefore adopting the basic principles of the five cities may frame and guide the scope of the general wellbeing and sustainable economic development in all cities of Colombia.

2. Adoption of the accessibility, mobility, movement and transport concepts as a set of requirements to meet

This strategy is based on people and therefore it is important to understand why people move and how to facilitate this shift. Everyone seeks their wellbeing and how this is conceptualised through aspirations. To achieve these aspirations and perceptions of welfare, people need to undertake a variety of activities (study, work, shopping, sports, access to health centres, etc.) that allow them to approach this wellbeing. These are activities that encourage movement and this is an essential concept that the transport sector needs to recognise: people move to gain access to the activities they desire and not just to be 'transported'.

So, the displacement creates the need to move and the 'transport' system is simply a tool to sort the necessary movements for people to achieve mobility. Therefore, it is essential to consider accessibility to the activities as the primary goal for people, mobility as the distribution of activities and their access routes; and the transport system as the movement management tool required to access the activities. This consideration is necessary because it places the emphasis on delivery by the transport system and not on what it looks like or how it works. Similarly, it is also crucial to understand that it is useless to have an accessibility system unless it has easy access for everyone regardless of their mental, physical and financial capacity, if it takes a long time or generates excessive emissions. Therefore to achieve the vision, the key is that the transport system should maximise accessibility, minimise movement and in doing so reduce transport energy consumption and greenhouse gases emissions.

For this it is necessary to modify our thinking about transport needs by adopting a mobility approach which minimises energy use thus reducing emissions. An important element of this approach is to make mobility more local. That is, by reducing the need to travel or facilitating activities so that they can be reached through the use of non-motorized transport and then prioritizing the use of public transport, this would change the objective of "maximizing capacity" to "minimising the use of energy."

3. **Development of plans based on the analysis of where they are in relation to guidelines 1 and 2 using the ”Systems functionality” approach**

The analysis of the functionality and cost of a system consists of the development of a structured process that sets the value of the relationship between the 'function' (satisfaction of needs (goals)) and the resources used to meet them. The steps included in this process are: planning, procurement of information, analysis, creativity, evaluation and reporting. A specific technique to make this type of analysis in a rigorous way is called *Value Engineering* (Miles 1989).

Central to Value Engineering is the determination of the functionality ('value') of the system elements. Therefore, to design the urban transport system it is essential to determine the necessary functions of each one of the system´s elements. For example, a bus stop may have a variety of functions: access to buses, access from buses to the local area, a point of information near the transport system, a place to rest, a place to display the system logo, etc. The way these functions are prioritised, determines the design of the bus stop and its contribution to the overall system´s functionality. The focus on each element´s function means that the implementation would be directed to the functionality of the system – the general understanding of isolated functions is not enough – you also need to have a clear view of the joint functions and how they are related to the high-level vision.

Within the analysis to know where each city is against the guidelines 1 and 2, it is important to analyse macro factors, identifying all aspects of urban transport. Table 2 highlights some primary areas (‘spheres’) covered by these macro factors:

Table 2 Spheres representing macro factors

Social sphere:	**Economic sphere:**
Political sphere:	**Environmental sphere:**
Technological sphere:	**Legal sphere:**
Ethical sphere:	**Institutional sphere:**
Other Sphere	

The consideration of macro factors in the different spheres is a process which should involve all the citizens and this is an initial process in which everyone expresses their views. Similarly, to obtain a successful plan for implementation it is necessary that the public understands what can be done – and what cannot (and why). This analysis is expected to identify a set of clear actions in specific areas of intervention. Also, it is recommended to set timeframes and processes to measure, report and verify.

4. **Definition of plans, policies and regulations to facilitate the implementation of the strategy**

In order to achieve the vision for Colombian cities, projects and programmes should be defined including actions to achieve the strategy objectives. These actions must be translated into plans, policies and regulations to facilitate the implementation of the strategy and thereby facilitate the decision-making processes. These plans should be developed by each Colombian city with the aim of providing them required autonomy and freedom to adjust policies to meet the guidelines for your individual needs.

5. **Financial and institutional support for the implementation of plans that meet the strategy requirements starts**

Typically, the design of transport networks aims to create the necessary capacity to meet peak demand. This encourages large investments in high capacity infrastructure (but is often unsuccessful because it is not understood well enough how capacity operates in transport systems, especially near to the limits). This transport strategy in low carbon cities aims to prioritize investments that will not only help to reduce energy use and carbon emissions, but would be aligned with the vision and the five cities model.

Funding of projects, institutional capacity, clear definition of actors and their functions, and the consensus among stakeholders have been presented repeatedly as critical elements for the development of programmes and projects. Given these elements, scarce resource scenarios in which different sectors compete for funding or political scenarios characterised by the multiplicity of institutions and overlapping of functions further increase the difficulty of the project development. However, to make the proposals viable in the context of the guidelines and principles of this transport strategy, it is possible to identify funding and institutional mechanisms that contribute to the project's sustainability while promoting the achievement of the basic objectives of the transport strategy. So the approach should encourage the selection of a variety of funding and institutional mechanisms to structure both institutional and financial strategies in line with the capabilities and needs of each city. This means, for example, the design of financing and institutional plans that combine both private and public sectors, in such a way that there is a clear understanding of responsibilities taken by each party in the future – in terms of the share of investment income, risks and responsibilities in the event of difficulties taken on by each party.

The analysis of the funding and institutionalism for the implementation of the strategy may focus on developing regulatory mechanisms, or institutional viability required to obtaining certain funding levels or institutional capacity required. Nevertheless funding and institutionalism are not the only tools needed to implement the strategy, and therefore it is necessary to design it in detail so that it is politically feasible and allows successful programs and projects to develop. It is therefore important to consider that the main

determinant for the design of funding and institutional systems is related to policy decisions that influence the selection of one funding model over another. Against this, it is crucial to ensure that the decisions that are taken are focused on achieving the strategic vision and not necessarily to fit the political model.

6. **Execution of the plans and actions starts**

Once extensive planning processes have been carried out, it is important to start the process of execution and implementation of the elements defined at the beginning, ideally, by the process of reform and institutional strengthening to allow the identification of actors that will have the technical capacity and could be in charge of leading the development of the whole strategy. The start of this execution process refers to start of different elements and steps required to carry the plans from the *paper* to *reality* . This process may be related to legal or economic processes (i.e., definition of contracts, tendering process, etc.), engineering process and / or technical (eg infrastructure construction, operational changes, etc.) or consultation processes and stakeholder engagement, among others.

7. Initiate the establishment of monitoring, reporting and verification system to evaluate the strategy´s performance

It is necessary to evaluate the performance of the designed system in terms of its scope to meet the required objectives. The problem is that the objectives defined in the light of the basic principles are generally not directly measurable on comparable terms. For example, because interest income cannot be easily compared with the benefits of the courteous city, it is necessary to use multi-criteria analysis tools to make the required assessments. It is also necessary to include measurement systems at the beginning of the design of the city systems, to ensure that the monitoring is sufficient for the analysis and evaluation.

Moreover, it is essential to create mechanisms that facilitate measuring, reporting and verifying (MRV) the integration of urban and transport planning, including feedback required to make adjustments at the level of specific actions. Similarly, these mechanisms could measure the improvement of accessibility and equality so that it is clearly visible whether it has improved or not. The project under which this report is being made, aims to generate a number of tools including assessment frameworks for accessibility and equality and frameworks for analysing congestion which can be used as a basis to develop MRV systems.

8. **Initiate the review of the strategy after 5 years.**

It is essential to define a timeframe to evaluate the strategy after implementation so as to identify the aspects that are working, what needs to be changed and what adjustments must be made in order to continue to achieve the vision. Therefore it is important to include a date to evaluate this strategy in order to ensure its success and make the necessary changes to maintain progress towards the vision. It is important that the strategy review is technical, and not political – political reviews are made within the democratic process – and that it is made through the Value Engineering model, including especially an analysis of macro and micro functions. We recommend a period of five years to review the strategy, so that it provides the opportunity to evaluate substantive progress. This period of five years should have covered the periods of implementation, transition, and initial monitoring to facilitate reviewing whether it would be necessary to change something to ensure the successful path towards the vision.

VI. Final Remarks

It is important to mention that the main objective is to improve the quality of life and that the function of cities is to facilitate the achievement of this goal. Therefore this strategy is based on the role of the accessibility system to ensure that this is possible. The transport system is only part of the process to achieve the vision – an important part – and it is essential to consider the processes of the transport system

as a tool to achieve a state of well-being in cities. Therefore, the global challenge is to improve the wellbeing and not just the improvement in the transport system.

The 8 steps outlined have been considered using the value engineering model which facilitates the identification of key steps to ensure that a process not only fulfils its purpose, but also ensures that it covers all the aspects required to ensure its continuity.

The proposed strategy is suggested as a framework for each Colombian city, so that there is a high level vision and national guidelines, which grant autonomy to each independent city in the development of plans, projects and MRV measures. For each city to have the capacity to develop these plans, capacity building is recommended to facilitate the understanding of this vision, the suggested guidelines and techniques needed to achieve it.

Finally, it is worth mentioning that the achievement of each model city is associated primarily with a set of measures, some of these are presented below, however, is the integration of all these measures which achieved the main goal of the strategy, improving the quality of life of the population.

Table 3 Measures against the five fundamental principles

Measures	Courteous city	Active and inclusive city	City as a public space	Liveable city	City that evolves
Strengthening of civic culture	X		X		X
Land use and transport planning	X	X		X	
Support walking as a mode of transport		X	X	X	X
Strengthening of the bicycle as a mode of transport		X	X	X	X
Strengthening of public transport		X			
Consolidation of an integrated mobility		X			
Public space	X		X	X	X
Strengthening of road safety	X	X	X		
Clean technologies			X	X	X
Private transport demand management		X	X	X	
Traffic management	X	X	X	X	X
Security strategies and crime reduction	X	X	X		X

VII. References

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