GREEN CLIMATE FUND

Concept Note

The Green Climate Fund (GCF) is seeking high-quality projects or programmes.

Accredited entities may choose to submit a concpet note, in consultation with the relevant national designated authority, to present the proposed project or programme idea in order to receive early feedback and recommendation.

Project/Programme Title:	Panama Sustainable Urban Mobility
Country/Region:	Republic of Panama
Accredited Entity:	Corporación Andina de Fomento (CAF)
National Designated Authority:	Ministerio de Ambiente de Panama

Please submit the completed form to fundingproposal@gcfund.org[1]

A. Project / Programme Information	
A.1. Project / programme title	Panama Sustainable Urban Mobility
A.2. Project or programme	Programme
A.3. Country (ies) / region	Panama
A.4. National designated authority(ies)	Ministry of Environment (Ministerio de Ambiente)
A.5. Accredited entity	CAF
A.6. Executing entity / beneficiary	Executing Entity: ATTT, Metro Beneficiary:
A.7. Access modality	Direct ☒ International ☐
A.8. Project size category (total investment, million USD)	Micro (≤10) ☐ Small (10<x≤50) ☐ Medium (50<x≤250) ☐ Large (>250) ☒
A.9. Mitigation / adaptation focus	Mitigation ☒ Adaptation ☐ Cross-cutting ☐
A.10. Public or private	public
A.11. Results areas *(mark all that apply)*	*Which of the following targeted results areas does the proposed project/programme address?*
	Reduced emissions from: ☐ Energy access and power generation (E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.) ☒ Low emission transport (E.g. high-speed rail, rapid bus system, etc.) ☐ Buildings, cities, industries and appliances (E.g. new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.) ☐ Forestry and land use (E.g. forest conservation and management, agroforestry, agricultural irrigation, water treatment and management, etc.)
	Increased resilience of: ☐ Most vulnerable people and communities (E.g. mitigation of operational risk associated with climate change – diversification of supply sources and supply chain management, relocation of manufacturing facilities and warehouses, etc.) ☐ Health and well-being, and food and water security (E.g. climate-resilient crops, efficient irrigation systems, etc.) ☐ Infrastructure and built environment (E.g. sea walls, resilient road networks, etc.) ☐ Ecosystems and ecosystem services (E.g. ecosystem conservation and management, ecotourism, etc.)
A.12. Project / programme life span	5 years
A.13. Estimated implementation start and end date	Start: 2017 End: 2022

[1] Please use the following naming convention for the file name: "[CN]-[Agency short name]-[Date]-[Serial number]" (e.g. CN-ABC-20150101-1).

B. Project/Programme Details

The Fund requires the following preliminary information in order to promptly assess the eligibility of project/programme investment. These requirements may vary depending on the nature of the project/programme.

B.1. Project / programme description (including objectives)

Funding is sought for building institutional capacity for the sustainable mobility programme and for implementing six (6) short-term projects with catalytic potential to transform travel behavior, transport infrastructure and land use in the Panamá Metropolitan Region. The projects were selected from a comprehensive plan formulated to achieve the nation's long-term goals of rationalizing the transportation sector, reducing GHG emissions and improving urban dwellers' overall quality of life.

During the past sixty years, the Panamá Metropolitan Region has experienced explosive growth, largely unplanned and discontinuous, that has pushed low- and middle-income housing relentlessly farther to peripheral, low-density suburbs, while commercial and institutional uses dominate the city center. This unbalanced separation has strained infrastructure to the point of effective failure, and has grown wearily burdensome for those who daily confront long commutes, overcrowded roadways and soaring real estate prices. A 2015 survey determined that the average morning commute on public transport takes 85 minutes; in private cars the figure is 63 minutes—both significantly higher than those of other Latin American cities with comparable or even much larger populations. For reference, the average travel times through the day of 67 and 56 minutes in public and private transport (respectively) are higher than those in Caracas (56 and 32), Lima (52 and 18), Santiago (39 and 24).

In 2014 Panama's first rapid rail transit line (Metro) became operational, a watershed event that prompted the government to commission a study of how buses and non-motorized transport should be integrated to support future expansions of rapid transit in the region. Two other Metro lines are in construction and planning phases, leading the way of Panama's push for modal change towards public transport. With financial support from the Inter-American Development Bank, the Comprehensive Plan for Sustainable Urban Mobility (referred to as PIMUS, its Spanish acronym) was developed for presentation to the Cabinet Council and the National Assembly in early 2016. The PIMUS provides guidance for Panamá's urban transportation transformation over a 20-year period, giving unprecedented attention to system-wide rationalization, public participation and long-term sustainability.

The plan delineates 149 project level actions in three categories:

- Integrated Transit System (SIT, Spanish Acronym for Sistema Integrado de Transporte): Restructuring bus routes and integrating independent operators into a regional public transit network anchored to the backbone of existing and future Metro (rapid rail) lines.
- Demand Management: Infrastructure and policy actions that push travel behavior toward transit and non-motorized transport, and discourage adoption and use of individual private vehicles.
- Targeted roadway redesign and roadway construction projects that conform to the other two project categories to improve overall urban mobility efficiency and enhance transportation system resilience.

To carry out these actions, the PIMUS recommends creating a Metropolitan Mobility Directorate (GMM, Spanish acronym for Gerencia Metropolitana de Movilidad) within the Transit and Ground Transportation Authority (ATTT, Spanish acronym for Autoridad de Tránsito y Transporte Terrestre). GMM will be staffed by qualified technical personnel in consultation with an advisory board consisting of the mayors of all local jurisdictions within the Metropolitan Region. The GMM will assume responsibility for transport planning, environmental review, and project execution, coordination and oversight within the Metropolitan Region, functions currently assigned to ATTT which lacks dedicated staff to perform them. The institutional framework for the GMM is currently being established by the government with assistance from the World Bank through a Reimbursable Advisory Services agreement. Additional support will be critical to make the GMM fully operational in a timely manner.

Panamá recognizes that a fledgling entity like the GMM will face many hurdles—institutional, technical

and financial. Because its work is projected substantially to decrease transport-related GHG emissions (this being one of its main objectives), officials deemed the GMM a likely candidate for support from the international community. To complement a request of direct financial support for building GMM capacity, it was proposed that a small number of PIMUS-recommended actions (projects) should be selected for presentation to the GCF, projects valuable in themselves, but with farther reaching consequences due to the the enhanced capacity and organizational standing that the GMM will gain as they "learn by doing" through their implementation.

The Ministry of Environment of Panamá contracted the Center for Clean Air Policy (CCAP) to analyze the PIMUS and facilitate an initial project selection process in 2015. In April 2016 a panel of officials from several key ministries and representatives from local government agencies reviewed the PIMUS and together, from the plan's list of 149 actions, they zeroed in on six (6) projects from the SIT and GDM categories. Criteria that informed their decisions included:

- Potential for GHG reduction
- System impact (e.g., reduction of congestion, wait times and trip times)
- Development benefits
- Feasibility of short-term implementation (i.e., conformity with local priorities, relevance to existing investments, political support)
- Contribution to paradigm shifts
- Geographic distribution throughout the primary ridesheds of the Metropolitan Region

The six catalytic projects selected and now proposed in this concept note are:

Project	**Location**	**Objectives**
1. **Carriles Preferenciales** Preferential bus lanes along three (3) strategic major arterials	Central Panama ride shed	Reduce bus trip times; improve pedestrian safety; increase public transit usage; reduce GHG emissions.
2. **Estaciones Metrobus** Six (6) auxiliary bus stations	Central Panama ride shed	Increase bus deployment during PM peak time; reduce passenger wait times; decrease bus trip lengths; reduce GHG emissions.
3. **Cuenca Norte La Cabima** Reorganizing feeder bus routes and bus operators, standardizing fare collection	La Cabima (northern ride shed)	Reduce route lengths; reduce boarding times; match bus capacity to route demand; update vehicles for improved emissions control.
4. **Cuenca Norte San Isidro** Reorganizing feeder bus routes and bus operators, standardizing fare collection	San Isidro (northern ride shed)	Reduce route lengths; reduce boarding times; match bus capacity to route demand; update vehicles for improved emissions control.
5. **Cuenca Oeste** Reorganizing feeder bus routes and bus operators, standardizing fare collection	Arraiján and La Chorrera (western ride shed)	Reduce route lengths; reduce boarding times; match bus capacity to route demand; update vehicles for improved emissions control.
6. **Acupuntura Urbana La Chorrera** "Complete Streets" streetscape and pedestrian-oriented improvements	La Chorrera (western ride shed)	Prepare the district to take maximal advantage of mobility infrastructure and Transit-Oriented Development opportunities

		generated by the construction of Metro Line 3.

Panama is committed to full implementation of the sector-transforming PIMUS, and has high expectations for early successes with measurable impact. To advance this goal, the government, in consultation with and with financial support from the Andean Development Corporation—Development Bank of Latin America (CAF), commissioned pre-feasibility studies for the six selected projects. The results of these studies inform details presented in other sections of this concept note.

B.2. Background information on project/programme sponsor

CAF: Over the past few years CAF has contributed close to $600 million, 33 percent of the total, for Line 1 of the Panama Metro, representing the main source of multilateral financing.[2] In Dec 2014 CAF and the Government of Panama signed a joint declaration that pledged support of $2,000 million for the country during the next five years, to promote the Panamanian government's development strategy. In November 2015, CAF approved a long-term loan of $115 million to Panama for the development of a programme to promote a sustainable mobility system for Panama, focusing on an improvement in the quality of life of its inhabitants and the modernization of the country's roadways.

Metro de Panamá: The Secretariat of the Panama Metro (SMP) is an entity created by Executive Decree No. 150 of 2009, attached to the Ministry of the Presidency, responsible for coordinating and planning the construction of Metro in Panama. Law 109 of 2013, created the regulatory framework for the Metro System for Transportation of Persons and authorized the establishment of the company Metro de Panama, SA, which was established as a technical and administrative corporation with responsibility for all their activities.

Since January 2015, the Metro de Panama became a joint stock company owned 100% by the State. The company is responsible to plan, promote, manage, regulate, coordinate, monitor, provide, control and execute infrastructure works and equipment for the Metro, as well as operation, security, management, maintenance, expansion and provision of other Metro-related services at all stages, line and modalities. It must develop, adopt and monitor policies and administrative, operational and safety procedures, plans, regulations and other actions necessary for effective development and operation

Line 1 (15.8 km) opened in April 2014 and cost approximately $1,400 million. Construction of Line 2 (29 km) has already begun as well. That initial contract for Line 2 is for $334 million for a system that will ultimately consist of 21 stations. The government has also signed a loan with Japan for $262 million to finance initial studies for Line 3 (26.7 km), which is expected to cost $2,600 million. The final plan for Metro by the year 2040 envisions 90 stations in a network of eight lines. Concurrent with the opening of Line 1 Metro contracted initiated the PIMUS. This comprehensive planning process was funded by the Inter-American Development Bank, and prepared by a team of foreign consultants and Panamanians. In early 2016 the findings were presented to the Cabinet Council, the board of directors of the Transit Authority and to the National Assembly.

In October of 2015 Panama Metro S.A. acquired 100% of the shares of Transporte Masivo de Panamá S.A., the company that operated the MetroBus public bus system in the Panamá City metropolitan area. The company hired First Transit Inc. as the technical-administrative support consultant.

ATTT: Autoridad de Tránsito y Transporte Terrestre (ATTT), the Panamanian ground transport authority, is responsible for ground transportation and transit in the country. It also regulates and administers transportation related matters. ATTT began in 1981 as the National Bureau of Transportation. In the 1990s it assumed the functions of Traffic Police such as licensing, minor infractions, and road signage,

[2] https://www.caf.com/en/currently/news/2014/06/13-kilometers-of-speed-efficience-and-technology/

and then later became responsible for traffic signalization. In July 28, 1999, Law 34 officially created the Autoridad del Tránsito y Transporte Terrestre. According to this law "The Authority has all the functions related to planning, research, management, supervision, inspection, operation and control of land transport in the Republic of Panama."

In 2008 ATTT created a Directorate of Urban Mobility, to implement the new Metro Bus public transport system in the city. The Directorate was designed to deal with programming and operation of public transport. However, it was assigned a range of functions, including contracting with providers of public transport in the districts of Panama and San Miguelito, but also institutional development and general planning and control of urban mobility. In 2015 the budget for ATTT was set at $37million, split about evenly between vehicle traffic control projects and public transit planning and management duties. ATTT currently has a contract for $1.7 million with the Technical University of Panama (UTP) for the initial phase of capacity building to create the GMM framework.

Ministerio de Ambiente (MIAMBIENTE): Law 8 of March 25, 2015 created the Ministry of Environment and dissolved the former Autoridad Nacional del Ambiente (ANAM). The Ministry of Environment is a State lead agency for the protection, conservation, preservation and restoration of the environment and sustainable use of natural resources and to ensure compliance and enforcement of laws, regulations and National Policy Environment. The MdA recognizes the need for GHG reduction plans in the transportation sector and was the initiator of the development of the Sustainable Urban Mobility NAMA. They want to base Panama's land transport GHG reduction strategy on the principles and programmes found within the PIMUS.

B.3. Market overview

Describe the market for the product(s) or services including the historical data and forecasts.

The market for this NAMA is the travelling population of the Panama Metropolitan area. The projected growth in households, population and employment is shown in the table below.

Demographic projections for Panama Metropolitan Area

Year	2014	2017	2020	2025	2030	2035
Households	506,897	541,238	587,028	660,813	727,865	797,160
Population	1,774,140	1,894,333	2,054,846	2,312,846	2,547,528	2,790,060
Employment	770,756	905,507	994,956	1,164,016	1,339,781	1,521,439

The travelling public will generate a demand for over 3,400 million trips in the five year period between the year 2015 and 2020 and this demand is expected to grow along with the population. However, congestion and long travel times are projected to become worse if nothing is done to improve the transportation system. This will depress the market for travel. According to travel demand model projections, overall demand will be about 7% higher if the NAMA is implemented due to the reduced travel times and congestion resulting from more efficient transportation infrastructure systems.

Projected travel demand under Business as Usual (BAU) and NAMA scenarios

Cumulative 5 year demand - passenger trips/year	2020	2025	2030	2035
BAU	3,407,371,041	3,248,659,831	3,477,447,701	3,636,406,738
NAMA	3,534,975,281	3,305,716,977	3,621,295,934	3,888,612,024

Travel demand is currently being met by a combination of modes, including private vehicle travel on roads and public transit travel on both formal and informal services. According to household surveys done for the PIMUS, public transit and private vehicles are almost equal in their share of trips, providing well over one third of all trips for each mode. Taxis, non-motorized travel and others serve for the remaining 25%. The "other" mode includes school buses, company carpools, etc. Combining the "other", taxi and public transit modes shows the potential demand for travel that could be filled by modes that are not private cars or non-motorized.

Mode split of travel

Public Transit	Taxi	Other	Private vehicles	Non-Motorized
38.05%	9.30%	8.28%	36.10%	8.27%
55.63%				

Source: PIMUS:2015

Many of the public transit trips switched to Metro (subway) after it opened. The Panama Metro began service in April of 2015 and ridership steadily grew until reaching an average of 230,000 trips per day. However, some of the bus trips have switched to informal services due to better access. Ridership on MetroBus declined from 750,000 per day in 2013 to about 500,000 per day in 2015.

The travel demand modelling done for the PIMUS did not include non-motorized trips, so the results below just show the split between public and private modes. That model projected that the mode split between public transit and private vehicles would remain about the same under a Business as Usual scenario. Due to the congestion and long travel times neither mode would become more convenient and have a competitive advantage. Panama's motorization rate is currently 225 private vehicles per thousand persons, lower than many Mexican or Brazilian cities but already higher than cities such as Bogota or Lima, which have integrated transit systems. Panama also has fewer roads per square kilometre than most Latin American cities. Future investment priorities will be the key to whether public or private transport modes increase their share. Under a scenario of increased road building, transit use would be expected to decrease. However, if the NAMA is implemented the mode share of transit is expected to increase.

Projected Mode split between Public transit and Private vehicles (non-motorized transport not included)

		2020	2025	2030	2035
BAU	Public Transit	58%	58%	58%	58%
	Private vehicles	42%	42%	42%	42%
NAMA	Public Transit	60%	62%	62%	63%
	Private vehicles	40%	38%	38%	37%

Some of the increase in transit ridership under the NAMA could be attributed to changes in land use leading to more compact, transit-oriented neighborhoods with better access to transit services and safer, more convenient non-motorized travel options. The NAMA is expected to lead to an increase in population density and concentration of housing closer to the center of the region.[3]

Provide pricing structures, price controls, subsidies available and government involvement (if any).

ATTT sets the fare structure for the MetroBus concessionaires. The break-even fare has been calculated

[3] This assumption would be revised with the implementation of metro line 3.

at $0.45 per trip but the fares are set lower than that for social purposes. Currently the government is subsidizing the transit operations of MetroBus by approximately $82 million per year. An additional subsidy of some $18 million per year goes to Metro.

The current structure uses a prepaid card system. It includes timed transfers allowing 2 transfers within a period of 150 minutes There are discounts for students, retirees and people with disabilities. The basic fare system is shown below:

Type of trip	Fare
Metro	$0.35
Regular bus	$0.25
Express bus	$1.25
Metro to bus	$0.25
Bus to Metro	$0.35
Metro to express	$1.25
Express to Metro	$0.35
Bus to express	$1.00

B.4. Regulation, taxation and insurance

Provide details of government licenses, or permits required for implementing and operating the project/programme, the issuing authority, and the date of issue or expected date of issue.

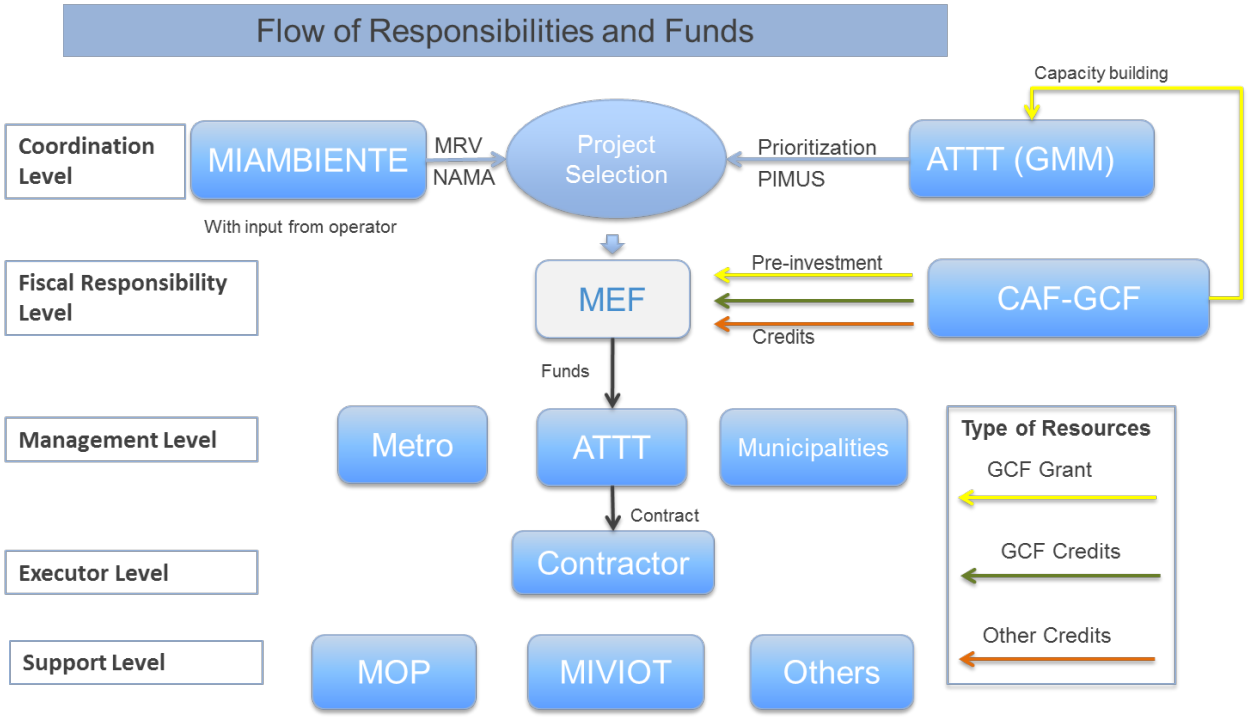
Operation of Metro system:
Metro was created outside the ATTT system. Law 109 of 2013. Article 5 states: "The corporation Metro de Panama, S.A. will be privatively responsible to plan, promote, manage, regulate, coordinate, monitor, provide, control and execute infrastructure works and equipment for the Metro, and its operation, security, management, maintenance, operation, expansion and provision of other services related to the Metro ...."

Framework of transit regulation:
Metro is regulated in a different way than the rest of the transit. In public transit monopolies are prohibited and competition within the regulatory management framework is encouraged. Public transport is a public service; it is the responsibility of central or decentralized state administration to meet the needs of the population. A transit concession is considered a right granted by the State to provide the public service. The process of granting operating certificates is under the control of the management organizations, and there is an informal market. Routes are awarded by the State to concessionaires and transit rates are set by the ATTT, except for Metro, which sets fares internally. The ATTT is responsible for authorizing operations but the concessionaires actually plan the transport operations

Reorganization of ATTT:
Reorganizing the ATTT to create the GMM does not require legislative action as it is solely an internal restructuring of an existing government agency. The board of the ATTT may create by decree this metropolitan mobility management authority, specifying their powers, functions, funding source and can also define the establishment of the advisory board. This structure must have the prior approval of the state management section of the Ministry of Economy and Finance (MEF, Spanish acronym for the Ministerio de Economía y Finanzas).

Restructuring the bus operators:
Three of the six catalytic projects incorporate restructuring the routes and reorganizing the operators. Currently the activity of public transport operators is disjointed, with growing participation of informal operators or "piratas" who exercise their economic activity without any organization. Similarly, there are

	still "internal" and even metropolitan routes, which are not included in the prepaid card fare collection system, and ineligible for subsidy by the government. This is being addressed by the government purchase of Transporte Masivo de Panamá, which ran the MetroBus routes. This purchase allows the government to begin negotiating with operators. The current fragmented situation represents a good opportunity to promote the necessary changes through a bidding process in which conditions for the participation of existing formal and informal operators will be established. This process will have four stages: 1. Organization of operators into consortiums. These are companies made up of informal operators and formal investor-owned companies that agree to come together, and thus to have the legal capacity to sign operating contracts for zonal concessions. 2. Compensation of remaining operators. Those operators that do not join a consortium must be bought out with a compensation package and must deliver their bus for scrapping. 3. A fiduciary agent is formed that offers credit to the consortiums to purchase new busses and fare technologies that meet the standards of the system. 4. State investment in infrastructure, bus stops and control systems. Fares will only cover operation so public investment is needed for infrastructure. **Purchase of land for terminals and infrastructure:** Land must be acquired for transit system infrastructure through purchase. Planning documents have already been established showing where some of this land is located, for example along Line 1 of the Metro. Eminent domain may be used if the owners are not willing to sell. **Rezoning of land along transit corridors:** Again, some areas already have planning documents that promote the highest and best use for land with good transit access. In other areas plans may need to be updated. The use and regulation of road right of way is a shared responsibility between the Housing and Land Planning Ministry (MIVIOT, Spanish acronym for Ministerio de Vivienda y Ordenamiento Territorial) and the Public Works Ministry (MOP, Spanish Acronym for Ministerio de Obras Públicas).
B.5. Implementation arrangements	*Describe construction and supervision methodology with key contractual agreements.* Due to the complexity of coordinating a comprehensive transport plan, the NAMA will be implemented at multiple levels as shown in the graphic below. The most important agency will be the ATTT, which will have a dual role, coordination and implementation. **Institutional Structure**



The coordination of the NAMA will take the form of prioritizing the implementation of the numerous projects in the PIMUS. Although the plan developed a long-term schedule for implementation, realizing each individual project is highly dependent upon funding availability, political negotiations and market conditions. Starting with the six selected catalytic projects, ATTT (through the GMM) will prioritize pre-investment studies to be funded by GCF grants. After the appropriate studies are completed, additional grants or credit financing would need to flow to the projects for their implementation.

After the necessary consultations with the Government of Panama, CAF will serve as the accredited entity and would need to sign a contract with the Ministry of Economics and Finance (MEF) as the national counterparty. Funding could then flow directly to the appropriate agency at the project management level, which will contract with construction companies executing the project.

The transport system restructuring aspects of the projects in the Northern and Western ride sheds will also be managed by the GMM, since these require a process of negotiation and arrangement that can only be legally implemented by the ATTT. Metro de Panama will assist the GMM until capacity is built to perform the necessary work.

Infrastructure projects such as the Carriles Preferenciales, the La Chorrera urban acupuncture improvements and the various transit stations, workshops and other facilities in the various ride sheds can be managed in either of two ways.

a. Direct Management of Infrastructure Projects:
   - The Metropolitan Mobility Management (GMM), created within ATTT, prepares analyses studies, assessments and formulation of the basic design, preliminary design, technical specifications and bidding documents.
   - The Ministry of Public Works (MOP) tenders the project, selects the Contractor and oversees the project in-house or by separately contracting supervision services.
   - The Contractor is responsible for the development of final designs and construction. Depending on the adopted financial plan, the Contractor may or may not provide financing.

b. Hiring a Project Manager:
    - The GMM prepares conceptual designs and general specifications.
    - A project management company is hired to be the Project Administrator (PA), who is responsible for the preparation of basic designs, technical specifications, legal and contractual documents, in cooperation with GMM.
    - The PA accompanies the GMM in the bidding and contracting process and is responsible for the construction supervision and contract administration with the selected Contractor.
    - Depending on the complexity of the project and the financial scheme adopted, the Contractor is responsible for the design, construction and financing.
    - The PA should always work in coordination with the Ministry of Public Works (MOP)

As discussed above, financing of infrastructure can be wholly public or, depending on the resources available to the government, partly financed by the private sector. In that case there is the possibility of encouraging Public-Private Partnership (PPP) projects in which the private sector finances the construction of terminals and recoups revenues through exploitation of commercial areas or by payment for infrastructure use by transport operators.

Describe operational arrangements with key contractual agreements following the completion of construction.

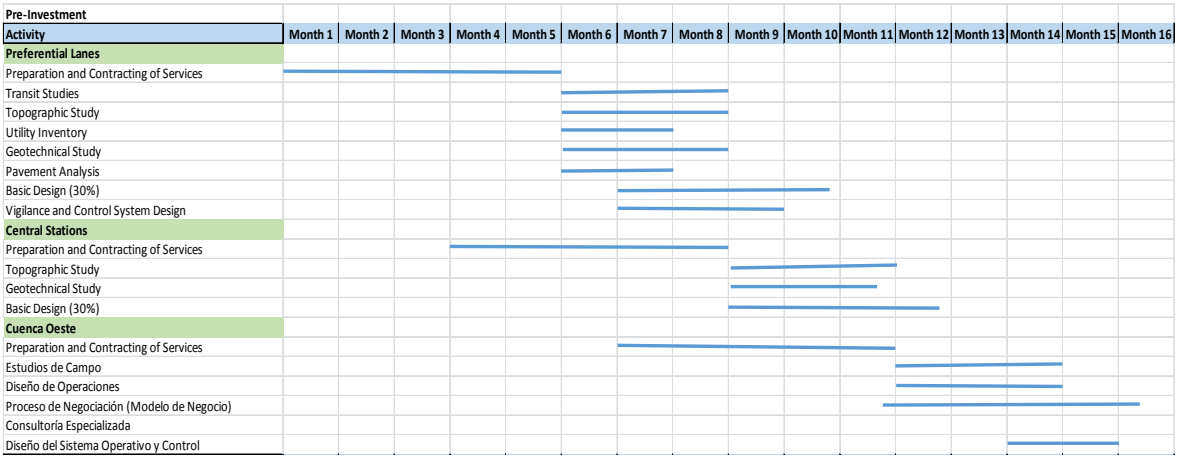
Implementing an integrated transit system (SIT) requires the participation of the private sector to ensure that the project operations are viable from the financial point of view. In many countries these systems are structured under schemes in which the infrastructure is financed as public works, the operations of the system are given to carriers (grouped in companies) and to a third party is given the concession for fare collection systems and control.

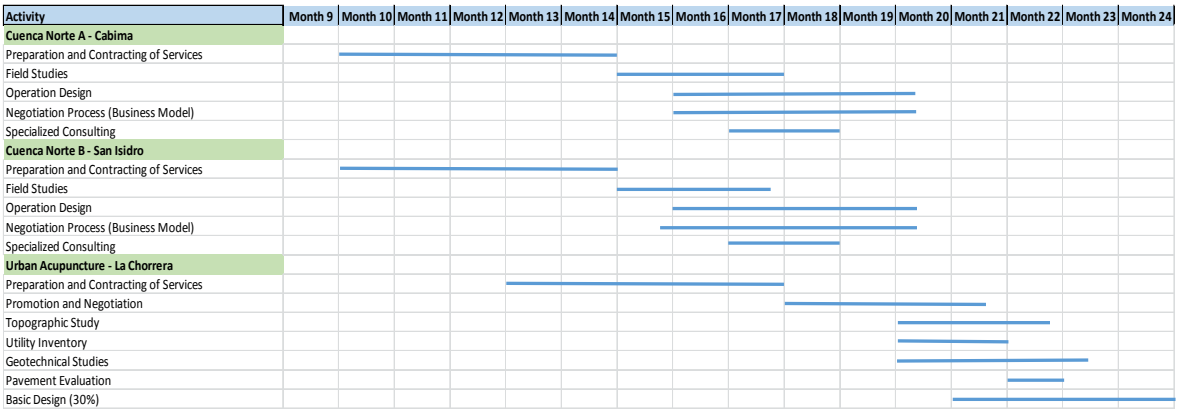
Currently in Panama, Transporte Masivo de Panama S.S. (100% owned by Metro) operates the bus system with technical assistance from First Transit and Sonda operates the fare collection. However it is possible that for the newly restructuring ridesheds private operation concessions could be given with preference to current operators of transport systems, when organized into consortia of transport companies.

This NAMA has an institutional reorganization component as well as six programmatic actions. Each of the actions will require a pre-investment stage before construction begins. The North and West restructuring programmes will require negotiations with operator consortiums before they are complete, although infrastructure can be started during this time. Infrastructure investment for the six projects will include constructing various stations and terminals, storage yards and roadway improvements.

It is currently expected that the preferential lanes and new stations in the central area will be first because they are simple infrastructure projects. The La Chorrera urban acupuncture might be delayed due to the local administrative changes in the city. The North and West ride sheds will require completion of negotiations that are ongoing at this time so the final completion dates are not yet finalized.

Ultimately, the GMM will be tasked with implementing the pre-investment work and then balancing the priorities of the various construction components of the programmes with the negotiations ongoing in the ride sheds. A detailed preliminary schedule for pre-investment is shown below, followed by the longer term implementation staging schedule. It is expected that pre-investment funds will be received as grants, and used to create a team specifically tasked with the preparation of the projects, definition of the necessary studies and carry out the hiring processes. Depending on the flow of funds, this preparation phase could take longer than shown in this schedule.





	Long term implementation staging of portions of the six selected catalytic projects	
	Project	**Stage**
Route restructuring	Routes from the Chorrera end station	2018 – 2021
	Routes from the Cabima end station	2018 – 2021
	Routes using the Andes and San Isidro terminals	2018 – 2021
Transfer Terminals	San Isidro	2018 - 2020
	Arraiján	2021- 2025
End stations	Cabima	2018 - 2020
	La Chorrera	2018 – 2020
Preferential lanes	Exclusive lane Av. Central (Calle 42 y Plaza 5 de Mayo)	2017 – 2020
	Preferential lane Av. Balboa (Multicentro - 3 de Noviembre)	2017 – 2020
	Preferential lane Av. Justo Arosemena (5 de Mayo-Calle 42)	2017 – 2020

			Preferential lane Tumba Muerto (San Miguelito-Cervecería)	2021 – 2025
			Preferential lane vía España (Arosemena a Vía Porras)	2021 – 2025
			Preferential lane Transístmica (San Miguelito al Centro)	2021 – 2025
			Preferential lane vía España (Vía Porras-Centenario)	2021 – 2025
			Preferential lane Transístmica (Domingo Diaz a Los Andes)	2021 – 2025
			Preferential lane vía España (Centenario a Parador)	2026 – 2030
		Storage yards, workshops and Road improvements	La Cabima	2018 - 2020
			La Chorrera	2018 - 2020
			Arraiján	2021- 2025

C. Financing / Cost Information

C.1. Description of financial elements of the project / programme

Please provide:

- *a breakdown of cost estimates analysed according to major cost categories.*

The estimated cost of each of the six catalytic projects and the support for institutional reform is outlined below. The second table offers a further breakdown of the capital costs of the six catalytic projects. Additional disaggregation of the specific sub-costs of each project can be found in the pre-feasibility study. Capital costs are based on engineering estimates and are subject to change based on results of the pre-investment studies. Total pre-investment cost is $2.05 million.

NAMA support project cost breakdown

Project	Cost Category	Cost (millions $)
Institutional reform	*Capacity building*	**5**
Carriles preferenciales	*Pre-investment*	**1**
	Capital expenditure	**311**
La Cabima	*Pre-investment*	**0.2**
	Capital expenditure	**17**
San Isidro	*Pre-investment*	**0.15**
	Capital expenditure	**20**
Estaciones centrales	*Pre-investment*	**0.2**
	Capital expenditure	**30**
Cuenca oeste	*Pre-investment*	**0.35**
	Capital expenditure	**73**

Acupuntura urbana La Chorrera	*Pre-investment*	**0.15**
	Capital expenditure	**10**
TOTAL		**$468.1**

NAMA support project capital cost breakdown

Project	Cost Category	Cost (million $)
Carriles preferenciales	*Ricardo J. Alfaro corridor*	81
	Vía España corridor	97
	Transístmica corridor	133
La Cabima	*Restructuring, minor terminals and stops, control system*	10
	La Cabima Terminal	7
San Isidro	*Restructuring, minor terminals and stops, control system*	15
	San Isidro Terminal	5
Estaciones centrales	*Land acquisition*	9
	Construction	21
Cuenca oeste	*Restructuring, minor terminals and stops, control system*	45
	Arraijan transfer terminal	14
	La Chorrera end terminal	14
Acupuntura urbana La Chorrera	*Sidewalks, drainage, lighting, signals, furniture, paving*	10
TOTAL		**$461**

- *a financial model that includes projection covering the period from financial closing through final maturity of the proposed GCF financing with detailed assumptions and rationale*

A total of $24.9 million in grants would be requested. An additional $75.5 million in credit or credit guarantees would be requested from GCF. These would be sovereign loans to the state of Panama, with the Ministry of Economics and Finance serving as the counter-party This would add up to a total request to the GCF of $100.4 million. Additional financing could come from CAF, as the accredited entity, after an agreement is reached with MEF and the corresponding evaluation process is completed. The funds would be allocated to the six projects and the capacity building as shown below.

	Work	Cost (Millions of USD)	Source				
			National Support of Counterpart	GCF			Complementary Credit from CAF
				Grants	Credit/ Creditary Guarantee	Total to ask from GCF (Grants+ Credits)	
Reform and Institutional Capacity	*Capacity building*	5	1.7	3.3		3.3	
Preferential Lanes	*Pre-investment*	1	0	1		1	
	Capex	311			61	61	250
Cuenca Norte (La Cabima)	*Pre-investment*	0.2	0	0.2		0.2	
	Capex	17		3	3	6	11
Cuenca Norte (San Isidro)	*Pre-investment*	0.15	0	0.15		0.15	
	Capex	20		3	3	6	14
Central Stations	*Pre-investment*	0.2	0	0.2		0.2	
	Capex	30		2.5	2.5	5	25
Cuenca oeste	*Pre-investment*	0.35	0	0.35		0.35	
	Capex	73		3	6	9	64
Urban Acupuncture La Chorrera	*Pre-investment*	0.15	0	0.15		0.15	
	Capex	10		8		8	2
TOTAL		$468.1	$1.7	$24.9	$75.5	$100.4	$366.0

Analysis of the net present value of the six projects based on a two-year capital investment schedule and projected benefits from time and operating costs savings are presented below. Details and a disaggregated analysis can be found in the pre-feasibility study.

Year	Total (Capital Cost) or Economic Benefit ($)
1	(208,259,999)
2	(242,389,998)
3	93,968,309
4	96,420,575
5	98,937,864
6	101,521,927
7	104,174,563
8	106,897,618
9	109,692,991
10	112,562,631
11	115,508,542
12	118,532,781
13	121,637,462
14	124,824,758
15	128,096,899
16	131,456,179
17	210,484,954
NPV	**215,203,971**
IRR	**20.1%**

- *a description of how the choice of financial instrument(s) will overcome barriers and achieve project objectives, and leverage public and/or private finance.*

This division of resources was based on the needs of project financing, as well as a distribution of sources and forms of financing. Panama's government has

<table>
<tr><td colspan="2"></td><td colspan="5">demonstrated its commitment to improving mobility through planning and construction of a system of three subway lines. A monetary contribution to the restructuring of the ATTT and the creation of a Metropolitan Mobility Management Directorate are considered as the national contribution to the implementation of the first six projects. It is important to emphasize that Panama is committed to full implementation of the NAMA beyond the initial six projects. As for the request to the GCF, it is considered that a distribution of 25% grant and 75% loan is appropriate given the objectives and priorities the Fund established within its framework of operation. Finally, it is expected that the $100.4 million requested from the GCF would leverage a loan of $366 million, with CAF being one of the potential sources, as it has already participated in the transformation of the Panama Metropolitan region by financing the Metro system and supporting this study.</td></tr>
<tr><td rowspan="8">C.2. Project financing information</td><td></td><td>Financial Instrument</td><td>Amount</td><td>Currency</td><td>Tenor</td><td>Pricing</td></tr>
<tr><td>Total project financing (a) = (b) + (c)</td><td></td><td>466.4</td><td>million USD ($)</td><td></td><td></td></tr>
<tr><td rowspan="3">(b) Requested GCF amount</td><td>(i) Senior Loans
(ii) Subordinated Loans
(iii) Equity
(iv) Guarantees
(v) Reimbursable grants *
(vi) Grants *</td><td>……
75.5
……
……
……
……
24.9</td><td>Options
million USD ($)
Options
Options
Options
million USD ($)</td><td>( ) years
( ) years</td><td>( ) %
( ) %
( ) % IRR</td></tr>
<tr><td colspan="3">* Please provide detailed economic and financial justification in the case of grants.</td><td></td><td></td></tr>
<tr><td>Total Requested (i+ii+iii+iv+v+vi)</td><td>100.4</td><td>million USD ($)</td><td></td><td></td></tr>
<tr><td rowspan="2">(c) Co-financing</td><td>Financial Instrument</td><td>Amount</td><td>Currency</td><td>Name of Institution</td><td>Seniority</td></tr>
<tr><td>Senior Loans
Options
Options
Options</td><td>366 million
……
……
……</td><td>million USD ($)
Options
Options
Options</td><td>……
……
……
……</td><td>Options
Options
Options
Options</td></tr>
<tr><td colspan="5">Lead financing institution: CAF can be part of the financing institutions, prior agreement with MEF and the corresponding evaluation process.</td></tr>
<tr><td>(d) Covenants</td><td colspan="5"></td></tr>
<tr><td>(e) Conditions precedent to disbursement</td><td colspan="5">Pre investment studies will be completed prior to disbursement of capital funds.</td></tr>
</table>

D. Expected Performance against Investment Criteria

Please explain the potential of the Project/Programme to achieve the Fund's six investment criteria as listed below.

D.1. Climate impact potential *[Potential to achieve the GCF's objectives and results]*

Specify the climate mitigation and/or adaptation impact. Provide specific values for the below indicators and any other relevant indicators and values, including those from the Fund's Performance Measurement Frameworks.

- *Total tonnes of CO_2 eq to be avoided or reduced per annum*

This NAMA is expected to supplement the GHG emissions reductions from the transport sector that Panama is already obtaining by implementing the Metro lines and result in an **18% reduction in transport GHG emissions** within the Panama Metropolitan Area. The PIMUS upon which the NAMA is based was developed to leverage Metro ridership, with a view toward increasing overall transit usage and slowing the motorization rate, which will reduce total vehicle kilometers travelled (VKT), energy use and emissions. As the Metro lines are built or expanded, new areas are opened to transit accessibility, people want to live near transit, and the real estate market will respond by directing investments to those areas with good transit service. Even so, lower density areas with a walking distance of a kilometer or more from stations may still have slow, difficult or unsafe access, and thus encourage car ownership, unless comfortable and convenient bus service and appropriate non-motorized transport infrastructure is available.

The six GCF supported projects were selected for their potential to increase transit and/or non-motorized mode share through a variety of well-proven mechanisms. Increased transit and NMT mode share decreases total vehicle kilometers traveled and lowers energy consumption, leading to reduced GHG emissions. The table below lists the mechanisms by which each project is expected to reduce GHG emissions from transport.

GHG reduction mechanisms of the six selected projects

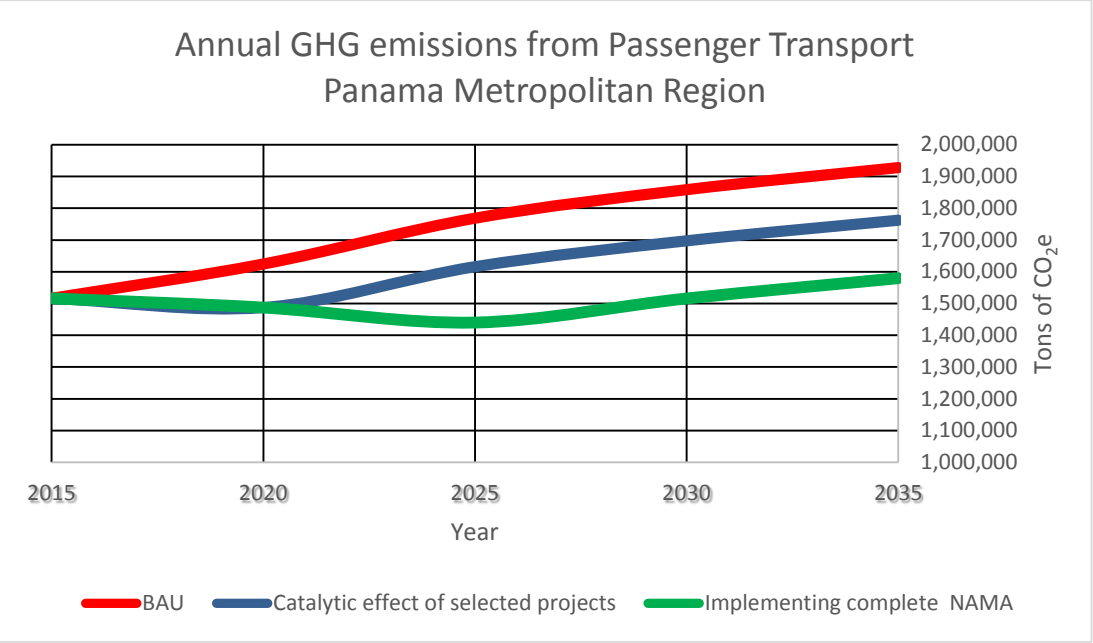
Project	Location	GHG reduction mechanisms of project
1. **Carriles Preferenciales** Preferential bus lanes along three (3) strategic major arterials	Central Panama ride shed	Increase public transit usage; reduce bus trip times and travel efficiency; improve pedestrian safety and increase non-motorized mode share; improve auto flow; attract Transit-Oriented Development (TOD).
2. **Estaciones Metrobus** Six (6) auxiliary bus stations	Central Panama ride shed	Increase public transit usage; increase bus deployment during PM peak time; reduce passenger wait times and inconvenience; decrease bus trip lengths; attract TOD.
3. **Cuenca Norte La Cabima** Reorganizing feeder bus routes and bus operators, standardizing fare collection	La Cabima (northern ride shed)	Increase public transit usage; reduce route lengths; reduce boarding times; match bus capacity to route demand; update vehicle fleet for improved efficiency and reduced emissions; improve transit access.
4. **Cuenca Norte San Isidro** Reorganizing feeder bus routes and bus operators,	San Isidro (northern ride shed)	Increase public transit usage; reduce route lengths; reduce boarding times; match bus capacity to route demand;

standardizing fare collection		update vehicle fleet for improved efficiency and reduced emissions; improve transit access.
5. **Cuenca Oeste** Reorganizing feeder bus routes and bus operators, standardizing fare collection	Arraiján and La Chorrera (western ride shed)	Increase public transit usage; reduce route lengths; reduce boarding times; match bus capacity to route demand; update vehicles for improved emissions control; improve transit access.
6. **Acupuntura Urbana La Chorrera** "Complete Streets" streetscape and pedestrian-oriented improvements	La Chorrera (western ride shed)	Increase non-motorized mode usage, prepare the district to take maximal advantage of mobility infrastructure and Transit-Oriented Development opportunities generated by the construction of Metro Line 3; increase pedestrian trips by improving comfort and safety.

The amount of reduction in GHG emissions that each project is expected to produce can be estimated in comparison to a baseline scenario. The baseline was generated by the PIMUS travel demand modeling. This modeling combines demographic data (future land use, population and employment projections) with a representation of the transport infrastructure that is expected to exist in each model year. The expectations of the spatial distribution of the demographic data can have a profound effect on the performance of the transportation infrastructure; capturing this interaction is the reason that the complicated and expensive task of travel demand modeling is undertaken.

The baseline scenario models the existing roadways and the transit network, including Metro Line 1 and Line 2 of the Metro implemented according to the approved schedule. Extending this scenario out to 2035 assumes that Panama would do nothing to address the increasing traffic and travel delays that occur as the population expands and motorization grows. Another scenario was also modeled which contained Line 3 of the Metro as well as the six catalytic projects and many other projects. This scenario represents the implementation of the PIMUS, balancing transit and roadway projects.

Each modeling scenario generated data summaries of the travel demand in passenger trips, the mode share split between autos, Metro and other public transit, and the average trip length of each mode. Combining this information with estimated values for fuel efficiency of each mode and the carbon intensity of fuels used allows one to calculate the total fuel consumed and GHG emitted by each scenario. Comparing baseline and PIMUS scenarios gives a range of potential GHG reductions that could be expected under different circumstances.



Tons CO_2e reduced from BAU if the full PIMUS and if only the six projects are implemented

	Annual tons of CO_2e reduced	
Model year	Scenario of full NAMA implementation	Scenario of implementation of 6 catalytic projects
2020	297,485	137,059
2025	328,557	152,745
2030	342,699	161,088
2035	348,261	165,677
Cumulative Reduction 2020-2035	5,293,520	2,477,373
Reduction as % of BAU	18%	8.5%

Pairs of the selected catalytic projects can be aggregated to cover entire ride sheds (cuencas in Spanish) and, with the exception of La Chorrera acupuncture, were included in the PIMUS modeling. Total travel demand was used at the ride shed level as a surrogate for the size of the effect of the catalytic transit projects in that area. Using this methodology we measured the growth in public transit passenger demand by ride shed comparing the NAMA implementation scenario with the BAU scenario. Since the BAU scenario lacked the transit projects of the PIMUS, we assumed the passenger demand change could be attributed the projects. This increment of change was further assumed to represent new passengers who would have shifted to private autos under the BAU scenario. Thus the total NAMA reductions could be multiplied by the fraction of total bus transit demand in each of the three rides sheds containing catalytic projects time to estimate the effect of the projects.

Given than the modelling made for the PIMUS (using the CUBE software) was made in five year intervals, only the results for these years are shown in the tables. For an annual estimate, these results can be interpolated.

Estimated Annual GHG reduction from each project

Year	Cuenca Norte		Cuenca Oeste		Cuenca Centro		Tota proy
	La Cabima	San Isidro	Oeste	La Chorrera	Preferencial Lanes	Stations	
	tCO_2e	tCO_2e	tCO_2e	tCO_2e	tCO_2e	tCO_2e	tC
2020	8,665	53,260	27,442	1,444	34,686	11,562	137
2025	7,413	58,409	35,997	4,000	35,194	11,731	152
2030	7,931	60,167	35,737	3,971	39,963	13,321	161
2035	7,866	61,243	36,741	4,082	41,808	13,936	165
Cumulative 2020 - 2035	126,312	936,385	551,221	56,432	605,266	201,755	2,47

D.2. Paradigm shift potential

[Potential to catalyze impact beyond a one-off project or programme investment]

The organizing theme of Panamá's Comprehensive Plan for Sustainable Urban Mobility (PIMUS) is "Avoid – Shift - Improve". The NAMA support will be targeted toward implementing projects and insititional reforms that:

- Avoid (reduce) unnecessary travel by aligning development and transport to minimize displacement between work and home.
- Shift travel behavior by enhancing public transport and non-motorized modes.
- Improve the performance of the urban transport system and reduce externalities so as to mitigate impact on the public and the environment.

The six projects presented here, while valuable by themselves for direct on-the-ground impact, were also selected specifically as best suited for launching the new Metropolitan Mobility Directorate (GMM) prescribed by the PIMUS to accomplish this vision of "Avoid-Shift-Improve". As it goes about its inaugural tasks, the GMM will create formal conduits for local jurisdictions, oversight agencies and individual citizens to address transportation matters with input and guidance from professional staff. The $463 million invested in these six projects will pave the way for an integrated transit system as part of full realization of the PIMUS at over $8,500 million (including Metro expansion). With the establishment of the GMM, the Panama Metropolitan Area will achieve an unprecedented degree of coordination and attention to long-term sustainability in the transport sector.

Currently, responsibility for transport planning, coordination and oversight within the Metropolitan Region rests with a national entity, the Transit and Ground Transportation Authority (ATTT). But this agency has not been completely successful in developing new projects or carrying out long-term strategic planning. As noted in the PIMUS:

> "[Specific laws] confer upon the ATTT a gamut of responsibilities and function that cover in broad form all fundamental aspects associated with the public transport system in all its

	modalities, ground transit and associated regulatory services…. It should be noted that a significant weakness exists in this institution due to… a lack of human, technical and financial resources necessary to carry out its functions. …[T]hroughout much of its fifteen years of existence [ATTT] has not had the capacity to deliver satisfactory results in achieving the tasks assigned to it by law." For these reasons, the PIMUS recommends establishing the GMM and endowing the new agency with the resources, authority and autonomy required to fulfill its mission. GMM's institutional groundwork is now being laid with support of the World Bank through a Reimbursable Advisory Services agreement. Additional support from the GCF will be used to purchase equipment and hire staff for first two years. The six targeted projects will help the organization "learn by doing", building capacity in every aspect of project management from pre-design to financing to contracting to public outreach. By creating an agency that integrates mobility management, land use planning and urban design, the Panamanian government aspires to leverage its investment in the Metro system and catalyze a shift in real estate investment toward transit-oriented development (TOD), thereby creating an urban landscape more amenable to low-carbon and no-carbon transportation modes. The PIMUS states: "The absence of complete communities (with mixed uses, or at least with local commercial uses) creates excessive automobile dependence…. Increasing [land use] density is critical. Promoting mixed uses is important." The plan was developed to extract maximum benefit from the government's investment in rapid transit; the PIMUS horizon extends twenty years to the expansion of the Metro from its current single line (15.8 km and fourteen stations) to a network of three lines (80.5 km and 59 stations). The GMM is charged with carrying out the PIMUS's 149 progressive actions (beginning with the six put forth in this concept note), all of which flow from and support the overarching theme of "Avoid-Shift-Improve" and will ultimately lead to a transformation to a lower carbon urban mobility and land use system.
D.3. Sustainable development potential *[Potential to provide wider development co-benefits]*	Sustainable urban mobility programmes such as this NAMA can have a wide ranging long term effect on an area, transforming the land use and transportation patterns in such a way that a variety of benefits accrue. In general, implementing the NAMA will be likely have the following types of economic, social and environmental benefits for the Panama City Metropolitan region: • Traffic congestion reductions – improved quality of life and more reliable travel • Travel time reductions – opportunity costs of time spent in travel • Travel cost savings and affordability (especially to lower-income households) – more money to spend on other items • Improved mobility for non-drivers – improved access to markets and jobs • Improved safety – reduced mortality, injury and economic impact from accidents due to reduced Vehicle Kilometers Travelled • Energy conservation and GHG reduction – reduced fuel costs and social cost of carbon. • Air, noise and water pollution reductions – improved quality of life, attractiveness to business, land value • Habitat protection – reduced urban footprint of Transit Oriented development creates value for biodiversity, tourism • Support for local economic development – local jobs building and operating system, better accessibility and distribution ability leading to increased land values • Improved public fitness and health (from increased walking and cycling) – reduced health

care costs

Reduced travel time and fuel costs:
The magnitude of some of these benefits has been quantified in travel demand model studies done for the PIMUS. For example, the PIMUS estimates that implementing this NAMA will reduce average travel time by about 20 minutes in the year 2030. Average speeds will increase from 13 to 17 km/hr. Completing all 3 lines of the Metro system and integrating them with the additional transit investments of the NAMA, would reduce fuel consumption while returning a savings of over $11,800 million over 15 years, with a cost benefit ratio greater than 2 to 1. These numbers refer to the complete implementation of the PIMUS.

The pre-feasibility analysis done for the six selected catalytic projects estimated the net present value of the fifteen year economic benefits from travel time savings and reduced operating costs:

Project	NPV ($)
Carriles Preferenciales	43,291,314
Estaciones Metrobus	17,942,120
Cuenca Norte La Cabima	38,388,618
Cuenca Norte San Isidro	68,510,683
Cuenca Oeste	47,071,190
Acupuntura Urbana Chorrera	N.A.

Given that the Project in La Chorrera is a targeted improvement of the urban landscape, it is hard to estimate its economic benefits.

Reduced criteria pollutants and accidents:

The six selected projects will have various mechanisms of leading the transformation to low-carbon transport that will also yield substantial co-benefits. The La Chorrera and Oeste ride shed initiatives will start to transform the western side of the region from a low density residential area into a more efficient urban model with transit and pedestrian alternatives. The northern ride shed projects will begin to integrate those areas into the SIT system by feeding travel into the Metro system and away from car or bus-only trips. The Central ride shed projects will start to transform the downtown area into a more walkable, transit-oriented zone to attract more businesses and more residents into the existing and future housing stock. Together the catalytic projects will create a full spectrum of examples of the benefits from integrated urban mobility that will be replicated in the remainder of the Panama Metropolitan Area. Based on the estimated reduction in VKT, the co-benefits of reduced air pollution and accidents are projected below.

	Quantified Co-Benefits of PIMUS and of the Six Projects 2020 - 2035							
	Cumulative Reduction in emissions (tons)					Cumulative Reduction in accidents		
	VOC	THC	CO	NOx	PM10	**non injury**	**injury**	**death**
PIMUS	17,380	18,106	157,924	6,417	65	196,804	42,016	656
Six Projects	8,134	8,474	73,911	3,003	30	92,107	19,664	307

Reduced urban footprint:
Implementation of the NAMA is expected to increase the population density within the urbanized area, leading to a reduced urban footprint. The reduction in the amount of natural areas converted to urban areas has benefits for bio-diversity, water pollution, and tourism. Land use models estimate that the population density per hectare will increase by 2035 under any scenario.

	However, under BAU the density will be 65.1 persons per hectare whereas under the NAMA the density will be 67.2 persons per hectare. This will result in 1,339 fewer hectares of land being needed to house the population. **Reduced transit subsidies:** The restructuring of the bus systems (SIT) would reduce the need for government subsidies while still benefiting the lower income population of the region. Currently the break-even cost of the Metro Bus is $0.45 higher than the fare charged to users. With an average daily usage of 500,000 riders requires a subsidy of $82 million each year. In addition the Metro (rail) breaks even at $0.60 per passenger, and is currently charging $0.35, leading to a subsidy need of $18 million a year. According to the World Bank an average household can allocate up to 30% of their income for transportation. The poorest households in Panama, i.e., those with a monthly household income of below $1,000, have an average of 3.5 people, and generate about 4 trips per day. According to calculations in the PIMUS, the maximum rate that a user could pay per trip would be around $1.08. Although this is a higher figure than the Metro Bus and Metro is charging, the informal transit providers charge double or triple this amount. The SIT would allow passengers to use a combination of Metro Bus and Metro as a substitute for the informal sector without sacrificing travel time. This would permit a slightly higher fare to be charged than is currently applied, while still being lower than what was paid for informal travel options. The PIMUS consultants calculated that the proposed SIT fare scheme would save about $42 million a year in subsidies and the government could apply that money to infrastructure.
D.4. Needs of recipient *[Vulnerability to climate change and financing needs of the recipients]*	*Describe the scale and intensity of vulnerability of the country and beneficiary groups and elaborate how the project/programme addresses the issues. Examples of the issues include the following:* • *Level of exposure to climate risks for beneficiary country and groups* • *Does the country have a fiscal or balance of payment gap that prevents from addressing the needs?* • *Does the local capital market lack depth or history?* • *Needs for strengthening institutions and implementation capacity* Panama needs improved transportation options for its lower income citizens. Although the nation has strong GDP growth and the poverty rate is dropping, about 25% of the population is still below the poverty line. Many of these groups live on the outskirts of the metropolitan region where travel times are long. Travel options are limited due the fact that large buses cannot easily access hilly or remote areas. Without appropriate transfer stations and formal timetables it is difficult to make convenient connections onto long distance trunk lines that go downtown or feed to Metro. This also makes the population in these areas more vulnerable to travel disruptions from climate related events such as flooding. Panama needs a clear demonstration of how a sustainable urban development model would work. The country has a strong commitment to preserving bio-diversity, but urban sprawl is claiming valuable parts of the natural environment. Although the populace strongly supports habitat preservation, people still see a detached home and a car as aspirational goals. This NAMA will set the framework for a more compact urban footprint and fewer new roadways, preserving land that would otherwise be lost. Panama needs to strengthen the local and regional transport and land use planning institutions. There is little coordination between the levels of government on the regulations and development programmes that address mobility and urban growth. The ATTT in particular has been diagnosed as strongly in need of reform in order to address the needs of a regional urban mobility system to complement the large investment the country has made in Metro. GCF support for this NAMA would provide a catalytic effect not only for immediate urban mobility change but for institutional transformation to inform long term

	replication. A new decentralization law has given new land use powers to city governments. The exercise working together with ATTT while implementing the supported phase of the NAMA will serve as a way to improve inter-agency coordination and set a course for further cooperation on PIMUS implementation. While Panama's credit is good and the country has easy access to the international capital markets, the government's ambitious public investment programmes have widened the fiscal deficit in recent years. It is important that climate and sustainable transport projects, which may be less attractive to investors than other debt, are given a chance to compete in the market. Smaller, localized projects, such as the La Chorrera urban acupuncture, also need support.
D.5. Country ownership *[Beneficiary country ownership of project or programme and capacity to implement the proposed activities]*	*Provide details of the below and specify other relevant factors.* In 2015 the Inter-American Development Bank published results of the first-ever inventory of GHG emissions in the Panamá Metropolitan Region, executed with the goal of identifying reduction potential in every sector. The study fixed annual per capita emissions at 4.9 tons, or nearly twice the national average. Of total GHG emissions, 46% are generated by mobile sources. The Government of the Republic of Panama, in accordance with its commitments under the Government Strategic Plan 2015-2019 (PEG, Spanish acronym for Plan Estratégico de Gobierno) has developed the Panama National Strategy for Climate Change (ENCCP, Spanish acronym for Estrategia Nacional de Cambio Climático de Panamá), which aims to increase adaptive capacity of the most vulnerable populations and promote the transition towards a model of low-carbon development. It lists the following as goals for the transport sector: • Integrate multimodal transport systems; • Diversify land use to facilitate accessibility to places of business; • Reduce distances between sites accessible to public transport and areas where the service is needed; • Design and build infrastructure for non-motorized users (pedestrian-oriented design); • Promote the use of alternative fuel vehicles; • Build lines 2 and 3 of the Panama Metro. Panama's Comprehensive Plan for Sustainable Urban Mobility (PIMUS) seeks to address these goals and mitigate GHG in the transport sector by prescribing urban mobility strategies under the three-pronged approach "Avoid-Shift-Improve" mentioned above. As the plan explains: *Projected growth represents, on one hand, an opportunity, and on the other hand a risk for the development of the Metropolitan Region. Confining transport infrastructure investment to patterns of the past runs the risk of escalating already existing problems of inequity, excessive resource and land consumption, road congestion and a decline in quality of life. If, however, the opportunity is seized, errors of the past can be corrected by means of redeveloping problematic zones, holding back expansion of the urban footprint, and providing equitable access to opportunities within the region.* *In the first place we look to minimize the number of motorized trips, or at least to decrease their length, by providing an urban structure that encourages non-residential uses (commercial, work, education, etc.) close to where people live. Secondly, our strategies seek to make it possible and even preferable that trips which must be made by motorized means are carried out on public transit. Our goal is to connect all inhabitants of the region to the public transport system. This*

system, in addition to offering the means to travel anywhere within the region, should also become the most attractive way to travel, based on high quality of service (frequency, comfort, reliability, etc.), as well as widespread awareness of the true costs of private vehicles. Finally, our strategies are oriented toward assuring that all motorized trips are made as efficiently as possible, with the least impact on the transport system and the city as a whole.

The six projects outlined in this note were drawn directly from the PIMUS's list of 149 recommended actions and will catalyze the transition described above.

- ***Brief description of executing entities (e.g. local developers, partners and service providers) along with the roles they will play***

The Metropolitan Mobility Directorate (GMM) is charged with overseeing the execution of all actions proposed in the PIMUS. The GMM will take over from the nationally-oriented Transit and Ground Transportation Authority (ATTT) responsibility for all transport planning, environmental review, and project execution, coordination and oversight within the Metropolitan Region. In carrying out its functions (including the six projects outlined here), the GMM will synchronize transport-related actions and policies of all municipal governments within the Metropolitan Region, and coordinate with several regionally-active autonomous entities:

Metro de Panamá: The Secretariat of the Panama Metro was created by Executive Decree No. 150 of 2009 to be attached to the Ministry of the Presidency with responsibilities for coordinating and planning the construction of rapid mass transit in Panamá. Law 109 of 2013 created the regulatory framework for the Metro System for Transportation of Persons and authorized the establishment of the company Metro de Panamá, S.A., a technical and administrative corporation charged with executing all of SMP's activities.

In January 2015 Metro de Panamá became a joint stock company owned 100% by the State. The company is responsible for planning, managing, monitoring and maintaining all Metro infrastructure and equipment, as well as for operation, security, management, maintenance, expansion and provision of other Metro-related services at all stages. Metro de Panamá must develop, adopt and monitor policies and administrative, operational and safety procedures, plans, regulations and other actions necessary for effective development and operation of the Metro system.

Metro Bus: In October of 2015 Panamá Metro S.A. acquired 100% of the shares of Transporte Masivo de Panamá S.A., the private company which operated public bus system in the Panamá City metropolitan area. The new company hired First Transit Inc., of Cincinnati, USA, as technical-administrative consultant.

For construction-related tasks, contractors will be chosen by a competitive process. The ATTT, through the GMM section, will work closely with real estate developers to create favorable conditions for directing private investment toward Transit-Oriented Development.

- ***Stakeholder engagement process and feedback received from civil society organizations and other relevant stakeholders***

The process of selecting these six projects for presentation to the GCF was facilitated by the Center for Clean Air Policy (based in the USA) under the auspices of the Ministry of Environment. Meetings were held to gather input from Metro de Panamá, ATTT, the Ministry of Housing, the Ministry of Economy and Finance, and the municipal governments of Panamá City, San Miguelito, Chepo, La Chorrera and Arraiján. Stakeholders discussed their priorities and necessities with regard to the PIMUS-recommended actions, and also became more informed about NAMA and

the criteria for evaluating project potential for reducing GHG emissions.

The PIMUS itself has a process of extensive public outreach and consultation described below in section G. In addition to the entities mentioned above, the plan's developers met or will meet with other branches of the national government, every neighborhood council in the Metropolitan Region, transport service concessionaires, bus operator unions, educational institutions, business associations and private advocacy groups. The final report describes the guiding principle of inclusiveness: "A formal process of communication and participation must be established, one that involves the relevant institutions as well as the citizenry, with the goal that they all contribute not only to the content of the plan, but also to its legitimization, with a real sense of ownership."

D.6. Effectiveness and efficiency *[Economic and financial soundness and effectiveness of the proposed activities]*

The total investment proposed in the overall NAMA programme and the cost of new Metro lines, is estimated at $8,500 million. The travel time savings as a result of these investments are valued at $14,300 million. This is a net savings of $5,800 million. The cumulative GHG reduction of the overall NAMA is estimated at around 5.2 million tons so the economic impact of each ton reduced is -$1,115 (the negative cost indicates net savings).

In addition the overall NAMA will result in substantial savings in fuel cost. Based on the change in estimated fuel consumption of the BAU scenario versus the NAMA scenario there will be a cumulative savings (2020-2035) of over 2,300 million liters of fuel, a cost savings of over $1,700 million dollars at today's prices for gasoline and diesel fuel.

The following table shows the estimated cost per ton of the six catalytic projects proposed for support, first considering the investment cost of implementation and then considering the net present value of economic benefits of time savings and operating costs. In the first case the full cost including pre-investment and construction of each project was divided by the cumulative tons of CO_2e expected to be saved over the life of the project. In the second case the overall net present value of the economic benefits from time savings and operating cost savings (such as fuel) was divided by the cumulative tons. As can be seen, the cost per tCO_2e when only the investment cost of the project is considered is in the range of $18 – 515. When considering the economic impacts, all projects have a negative cost per ton, that is to say, the economic benefits from travel time savings and operating cost savings exceed the cost of the investment, so the project will generate economic benefits along with each ton of CO_2e that is reduced.

Estimated investment cost per ton and economic benefits per ton by project

Project name	Investment cost ($)	Cumulative economic benefits 2020-2035 ($)	Cumulative emissions reductions 2020-2035 (tCO_2e)	Abatement costs based on implementation costs ($/tCO_2e$)	Economic benefits per reduction unit ($/tCO_2e$)
Carriles preferenciales	**312,000,000**	43,291,314	605,266	515	71
Estaciones Cuenca Centro	**30,200,000**	17,942,120	201,755	150	89
Cuenca Norte La Cabima	**20,150,000**	38,388,618	505,257	40	303

Cuenca Norte San Isidro	**17,200,000**	68,510,683	936,385	18	73
Cuenca Oeste	**73,350,000**	47,071,190	551,221	133	85
Acupuntura La Chorrera	**10,150,000**	N/A	56,432	180	N/A

The overall cost of the Panama sustainable urban mobility NAMA is $8,500 million if the new Metro lines are included. Panama is requesting $100 million from the GCF for a ratio of 1.5%. The total cost of the capacity building support and the six catalytic projects is $468.1 million. The requested GCF support of $100.4 million is 21.4% of total costs.

- *Economic and financial rate of return*

The economic and financial evaluation of the projects shows that they are economically profitable. The benefit / cost ratio varies between 1.1 and 5.0 for financial costs and between 1.6 and 5.2 for economic costs. The internal rate of return varies between 14.5% and 54.1% for financial costs and between 21.7% and 55.7% for economic costs. It is noted that projects with highest profitability are the ones that restructure current northern ride shed bus routes to reduce their length while simultaneously improving the quality of service to users with the construction of appropriate transport terminals. As previously mentioned, the lack of straightforward economic returns in the La Chorrera project makes it unfeasible to calculate a rate of return for the specific action.

Project name	NPV ($)	B/C	IRR	NVP ($)	B/C	IIR
	Financial			Economic		
Carriles Preferenciales	43,291,314	1.173	14.5%	108,024,059	1.816	21.7%
Estaciones Metrobus	17,942,120	1.688	21.9%	15,250,802	1.688	21.9%
Cuenca Norte La Cabima	38,388,618	3.665	41.9%	33,197,574	3.711	42.4%
Cuenca Norte San Isidro	68,510,683	5.043	54.1%	60,913,479	5.229	55.7%
Cuenca Oeste	47,071,190	1.781	22.1%	40,010,512	1.781	22.1%
Acupuntura Urbana Chorrera	N.A.			N.A.		

E. Brief Rationale for GCF Involvement and Exit Strategy

Please specify why the GCF contribution is critical for the project/programme.

The Panama metropolitan region is poised to change. With the construction of the Metro transit system the country has made an enormous investment on the path to low-carbon mobility. Approving the PIMUS as a long-term planning document continues that transformation at the policy level. However the institutional structure of transport planning and operations is not focused on sustainable mobility. There is a lack of coordination between land use and transport planning. Transit management is not aimed at maximizing efficiency of public transport but at maintaining the status quo. As a result not only is the infrastructure lacking for more efficient, integrated transit but there is little impetus for change among the concessionaires operating the bus systems. There is a state of inertia that cannot be overcome from within the system.

What is now needed is a catalytic initiative so that the framework of sustainable urban mobility will permeate the institutional culture of the transportation agencies and private sector and changes to infrastructure and operations will be effected. The new infrastructure built for the catalytic projects will generate early enthusiasm for continuing the changes. As the urban development model becomes more oriented towards transit, the economic benefits of lower infrastructure and operating costs, reduced travel times and higher quality of life will become evident, and the paradigm shift will be self-sustaining.

The key to the transformation will be the reorganization of the ATTT. Creating the Metropolitan Mobility Directorate within ATTT will be the first step towards fulfilment of the longer-term plan for an independent Metropolitan Mobility entity. Currently the Metro is the only organization with a true transit culture. Their responsibility and funding is limited to planning and operating the fixed rail Metro system. GCF support for the NAMA will provide a focal point for coordination among ATTT and the various transportation agencies within the region, including the cities, the operator groups and the other national agencies such as MOP and MIVIOT.

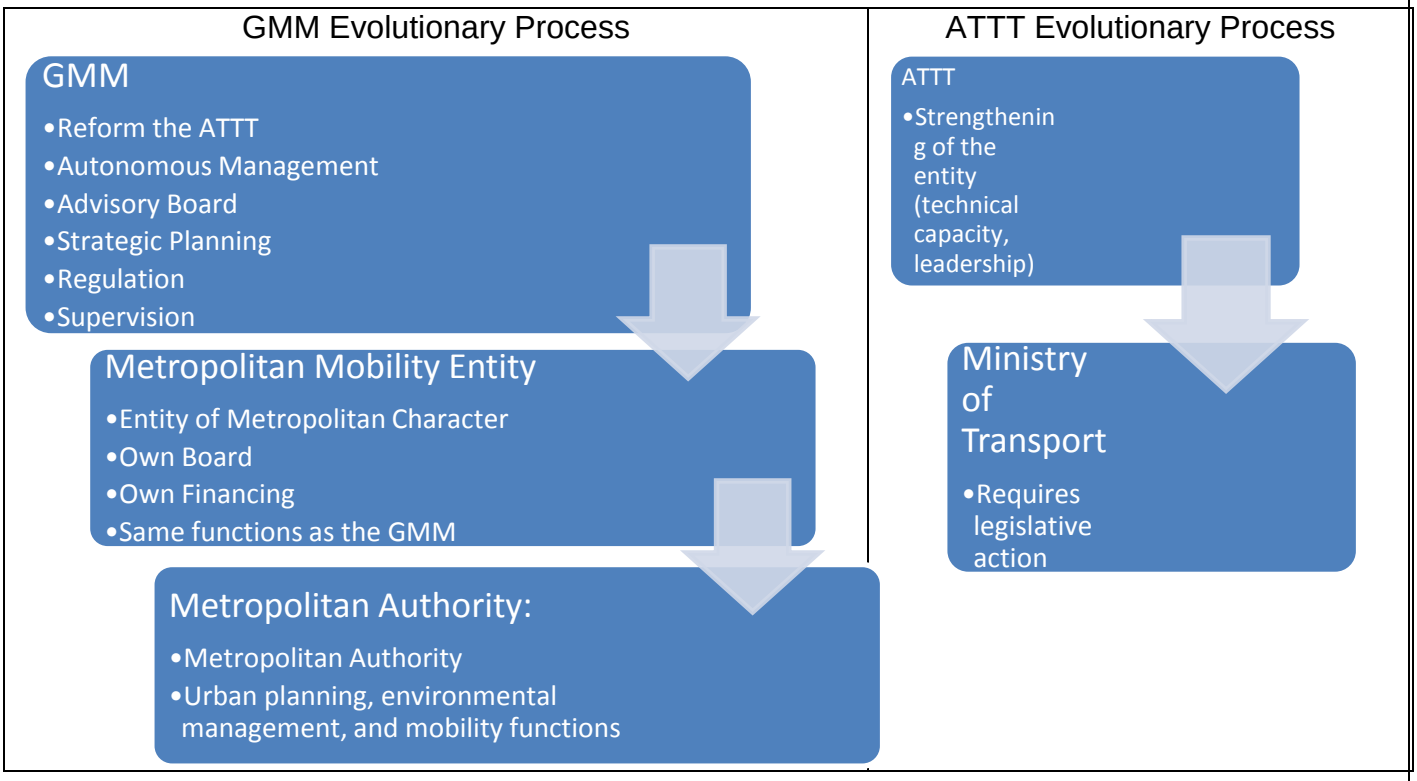
With the GMM in place ATTT will be able to take a leadership role in sustainable urban mobility. They can begin negotiating the restructuring of the bus system in the various ride sheds while using the timely funding for the catalytic project infrastructure implementation activities to underscore the urgency of change.

GCF support will supply the necessary impetus to start this next stage of change. Not only will the requested grant funding provide ATTT with the resources to build the new organizational structure of the GMM, but the political resolve of the Ministry of Environment and the President that was created during the NAMA development process will be reinforced, leading to the longer term sustainability of the programme.

The creation of the GMM within the ATTT will require budgetary, technical and human resources. The central government will need to take necessary measures to guarantee the resources necessary for the proper functioning of the Metropolitan Mobility Authority after the NAMA funding. These resources could come from:
The general budget

- The ATTT budget from fees for services.
- Additional credit from multilateral banks specifically to fulfill the objectives of mobility management.
- Resources from fees or taxes that are created and dedicated purposes specific to the development of mobility (e.g., fuel tax, tolls)
- Value capture mechanisms for real estate improvements and other economic benefits

The government has developed a long-range plan for making the transition from ATTT, a national agency, to a regional Mobility Management Entity. This entity could then be replicated in other areas of the country. The general outline of the plan is shown below.



In addition to sustaining the GMM, or a regional agency, the infrastructure and operating costs will need to be found for each aspect of the NAMA beyond the catalytic projects. Urban transport financing in particular needs to be based on an appropriate mix of complementary financing instruments. In particular for capital investments, a combination of grants from multiple levels of government and loans together with investments through public-private partnerships could finance large projects that benefit society. The GMM or the future regional urban mobility entity will need to develop financing schemes that consider the following options:

Revenue sources for repaying finance of Sustainable Urban Transport projects

Type of source	Examples	Potential for funding NAMA projects
Public Sector funds	General budget funded by general taxes	Public financing is realized from conventional taxation and other government revenue sources (resource taxes, excise duties).
	Funding programmes from other government agencies	Direct revenue sources for sub-projects may exist at municipal level. Especially feasible for projects to improve walkability and bicycle facilities, sidewalks, access to public transport system, information services, bus stops and other local facilities.
	Grants or other support from international development or climate funding agencies	Multi-national development banks are the most common source of infrastructure finance. Certain projects or programmes could apply for additional support from climate funders
Revenue from direct users	Transit fares, advertising fees	Ticket revenues, social payment (public subsidy or payment for socially disadvantaged passengers), advertising (typically less than 5% of passenger revenues).
	Vehicle tolls, parking fees, congestion	Funding for highways is done through private or

	fees, fuel taxes, fines, etc	public investment companies. Parking on public roads, and the fines they generate, is managed by municipal governments and has no direct allocation to investments in the transport sector. Revenue from fines and property registration fees are incorporated into funds for management, operation and maintenance of the system of traffic lights, road signs and administrative management of ATTT.
	Vehicle registration fees	ATTT manages the revenue from registration of vehicles that is also currently incorporated into funds for management, operation and maintenance as the system of traffic lights, road signs and administrative management of ATTT.
	Other user fees, eg, bike sharing, entrance fees	Currently there are no fees for these services.
Revenue from indirect users	Land value capture taxes on property , impact fees on developers	Land value capture is a potentially valuable source of funding. There is legislation allowing the collection of a value recovery rate, charged to landowners who benefit from infrastructure investments, which has been applied in the past. But nevertheless; when the Cinta Costera built - Phase 1 proposed to use this mechanism to partially recover the investment, it generated strong public opposition. This indicates that an education and communication strategy and active citizen participation is required to achieve its implementation.
	Joint development, land leases, air rights, etc	Depends on the ownership of land around stations by public entity
	Tax increment districts, special assessment districts	Based on the tax structure and local practice implementing such a scheme it is not seen to be feasible.
	Employee transit subsidies from companies	Some companies provide resources to transport their employees, providing transportation through their own buses, or more commonly hiring services of private transport operators. These operations are regulated by ATTT This practice indicates that there is potential for participation of companies in paying for transportation of their employees.
	Business improvement district contributions	Could be implemented by the private sector as a form of voluntary contribution.
	Carbon market schemes	Might be possible for certain projects

F. Risk Analysis

Please describe the financial and operational risks and discuss mitigating measures.

Some of the primary risk factors are described below, along with actions that are planned as part of the overall NAMA to mitigate the risks.

Risk: Lack of institutional capacity within implementing agencies (mainly ATTT).

Mitigation: Capacity building in the implementing agencies, as well of a coordinated institutional restructuring as proposed in the PIMUS will reduce this risk. Efforts are already underway in ATTT in cooperation with Panama Technological University for restructuring ATTT and implement the creation of the GMM. The National (financial) contribution, as well as some of the grants requested to the GCF would be used for this purpose.

Risk: Difficult to demonstrate conventional financial feasibility for sustainable transport projects and especially pedestrian projects.

Mitigation: Incorporating concessionary or non-reimbursable financing as a component for projects that may not offer short-term return on investment to private financers. Applying for GCF financing for transit and Non-Motorized Transport projects from the PIMUS leverages the climate benefits of the project to access finance.

Risk: Tax receipt collection has stagnated relative to pace of growth in Panama. Sovereign bonds are still somewhat weak from negative publicity.

Mitigation: Develop innovative revenue sources such as value capture mechanisms to fund operations. The GMM will be able to advocate for better funding of transit and promote legislation to set up new taxing mechanism to capture value from gained by private landowners from transit access and public investment in infrastructure.

Risk: Region has an oversupply of office space – 7-10 year absorption – may make TOD development difficult and reduce tax revenue in transit neighbourhoods.

Mitigation: Develop more compact TOD neighbourhoods. Improve local accessibility downtown. Improve non-motorized infrastructure around neighbourhoods. The catalytic projects have complete streets and NMT infrastructure components. The GMM will offer a forum for coordinating land use planning with transport to promote a return to the centre of the city by residential uses. The Municipality of Panama has started efforts to re-densify the La Exposición neighbourhood, which could also catalyse similar projects in the metropolitan area.

Risk: Public may not support another restructuring programme after problems with MiBus roll out.

Mitigation: Demonstrate short term success of six catalytic NAMA projects through new ATTT urban mobility directorate. Show investment in transit infrastructure in neighbourhoods to build enthusiasm for new transport model.

Risk: Market is still strong for sprawl housing; auto ownership is a sign of status and free road usage considered a right.

Mitigation: Create local nodes w/good transit accessibility in new areas. Demonstration effect of catalytic projects should attract interest in TOD. Create convenient alternatives to private auto that have better travel time and convenience.

Risk: There is no legacy of coordinated planning for transportation and land use.

Mitigation: The NAMA is moving ahead under environmental auspices. This will complement the traffic congestion and travel time improvements and add additional urgency to the need to transform the mobility system.

Please briefly specify the substantial environmental and social risks that the project/programme may face and the proposed risk mitigating measures.

Risk: Many diverse private transit operators make it hard to negotiate restructuring and some will resist. There is a perception of poor transparency at ATTT, and a majority of the Board represent transit unions.

Mitigation: Organize into consortiums for negotiations and offer generous buyout to remaining operators. Demonstrate reduced operating costs of restructured system. Board of GMM will have a more diverse membership.

Risk: Perception that most changes in transportation system are not done for the good of lower income population.

Lack of awareness about the consequences and the costs of externalities of the indiscriminate use of private transport.
Mitigation: The public participation plan is a key element of the overall NAMA. A transparent planning process with strong public engagement and input will legitimize the transformation of the urban mobility system.

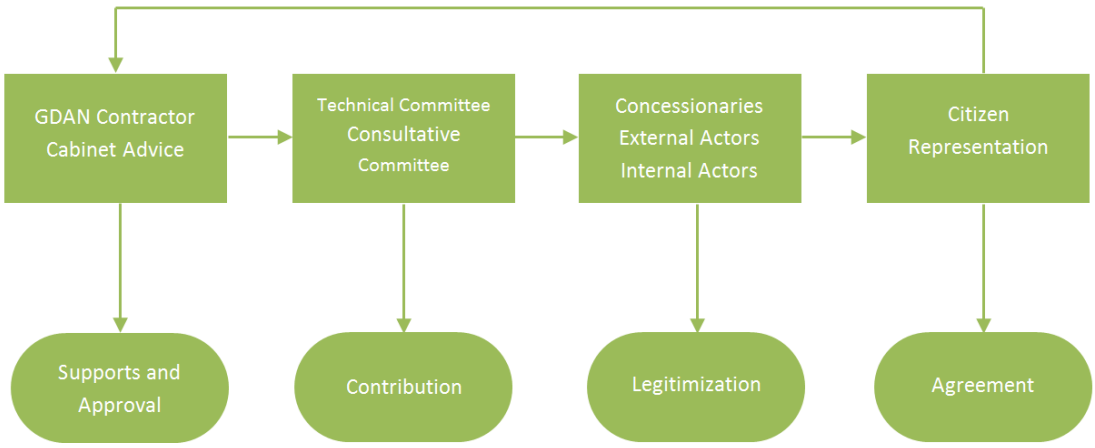
Risk: The PIMUS has numerous roadway improvement projects that can improve traffic flow in the short term, leading to induced traffic. There may be pressure to focus on those projects first.
Mitigation: GCF support of the transit and NMT portion within the NAMA framework will emphasize those aspects and ensure that a balanced programmatic approach is taken to urban mobility.

G. Multi-Stakeholder Engagement

Please specify the plan for multi-stakeholder engagement, and what has been done so far in this regard.

Section D5 described the stakeholder engagement process and feedback received from civil society organizations and other relevant stakeholders as the PIMUS concept was adapted into a NAMA and the institutional restructuring actions and the six catalytic projects were selected for this GCF proposal. This process was part of the larger public input process that has been ongoing as part of the Metro implementation and the PIMUS development.

As it moves forward the NAMA will continue the extensive public input process following the detailed framework that was originally developed and begun for the PIMUS. The central principle of the NAMA is to implement a long-term comprehensive programme of sustainable urban mobility. Doing this requires coordinating the policies and investments of all the relevant stakeholders with the needs of the general travelling public. The organizational structure of the GMM will serve to provide a forum for implementing agencies to evaluate and discuss the competing demands for transport solutions. The PIMUS serves as the initial documentation of how these demands might be met programmatically. A schematic of the public participation scheme is shown below. In this concept, communication flows from the top down into the community and then responses from the community flow back upward to the higher levels of government. This continuing process will persist as part of the legacy of transformation of the mobility planning institutions in the region.



The process of public participation has already been defined and begun for the PIMUS. The first step of the stakeholder engagement plan was to present the Sustainable Urban Mobility Plan to the Board of Directors of the ATTT. This Board consists of representatives of government, the private sector and the community. After the Board had commented the plan passed to the High Level Decision Group (GDAN, Spanish Acronym for Grupo de Decisión de Alto Nivel). This group is a subset of the entire Cabinet (Consejo de Gabinete) and consists of the President, the

Administrator of ATTT, the Minister of Government, Minister of Public Works, the Minister of Economics and Finance, and the Minister of Housing and Urban Development. This allowed them to grasp the scope and nature of the Plan and start to understand the role of their particular agency would need to commit to for the successful implementation. At this stage the political will to carry out the NAMA began to coalesce and the remainder of the public input plan could begin. The concept of the NAMA as a commitment of the nation to implement the PIMUS is being integrated into the public input process.

Advisory committees (Comité Técnico and Comité Consultivo) will be formed to make recommendations about the technical aspects of the plan including the human, technical and financial resources that they might be able to contribute. This group will have representatives of the agencies that are expected to act at the managerial level, i.e., contracting with operators or construction companies. This will include technical experts from various cities, the Metro and the ATTT as well as other government agencies.

External stakeholder groups such as concessionaires (e.g., transit and freight operator groups and unions) and social actors (e.g., chambers of commerce, real estate associations, universities, advocacy groups) are another interest sector to which relevant information about the PIMUS will be submitted for feedback. Various topics raised and discussed in the PIMUS will become constituent elements of the plans to be developed by these actors and have immediate consequences or effects on their activities such as investment of financial resources and the incorporation of human resources. This outreach will be done in part by the ATTT as they begin to create the GMM within their structure. Preliminary negotiations with transit operator groups have already begun in the Northern ride sheds (San Isidro and La Cabima) and are on schedule for the west ride shed.

The ultimate and most important level of stakeholder participation is that of the citizens of the metropolitan area in general. The transformation of the urban mobility paradigm will require the active cooperation of all travellers. Behaviour at the individual level will need to change if the motorization rate is to remain moderate and the housing market to shift towards more compact forms. As the NAMA moves forward the general citizen outreach plan outlined in the PIMUS will be implemented. This plan is structured in three parts. First the NAMA will be presented to the city councils of the six municipalities in the Panama Metropolitan area: Panama, San Miguelito, Chepo, Arraijan, Chorrera and Capira. Then the outreach teams will go into the communities and gather input at neighborhood meetings across each city. Depending upon the size of each municipality there will be more or fewer meetings. For example, Panama will have 24 meetings while Chepo, which is much smaller, will have 4 meetings. Input from the neighbourhood meetings will be presented to the respective City councils and then the results from each city will be reported back to the Comité Consultivo.

Finally the input from the citizen outreach process, including the external stakeholder groups, will be considered by the Consejo de Gabinete before they make the final approval of the PIMUS and NAMA at the national level.

H. Status of Project/Programme

1) A pre-feasibility study is expected to be completed at this stage. Please provide the report in section J.

2) Please indicate whether a feasibility study and/or environmental and social impact assessment has been conducted for the proposed project/programme: Yes ☐ No ☒
(*If 'Yes', please provide them in section J.*)

3) Will the proposed project/programme be developed as an extension of a previous project (e.g. subsequent phase), or based on a previous project/programme (e.g. scale up or replication)? Yes ☐ No ☒
(*If yes, please provide an evaluation report of the previous project in section J, if available.*)

I. Remarks

Through the substantial, time, effort and public engagement that resulted in the PIMUS, Panama has charted a course to low-carbon, sustainable and inclusive accessibility and mobility. Through over $1,500 million in past and millions more in future investments in the Metro system, Panama has demonstrated their seriousness in turning vision into reality. GCF support would actuate PIMUS implementation through catalytic projects that will inform and inspire replication and through institutional reforms that will sustain continued progress and ensure long-term success. Success breeds success – the catalytic projects will demonstrate that sustainable urban mobility and transit-oriented development are attractive both to neighborhood residents and to private investors seeking high quality investments with sustained returns. NAMA implementation will enable the government of Panama to make substantial progress on environmental, social and economic goals, while reducing the fiscal strain from inefficient transport systems, uncoordinated land use planning and high user subsidies. The new paradigm for urban transport and development will yield greater returns from infrastructure investments and reduce operating and fuel costs. The residents of the Panama City Metropolitan area will benefit from: reduced travel times and costs; enhanced access to jobs, services and recreation; safer trips; and healthier travel environments.

J. Supporting Documents for Concept Note

- ☒ Map indicating the location of the project/programme
- ☐ Financial Model
- ☒ Pre-feasibility Study
- ☐ Feasibility Study (if applicable)
- ☐ Environmental and Social Impact Assessment (if applicable)
- ☐ Evaluation Report (if applicable)