Arequipa, Peru

Sustainable Urban Mobility Plan — Completed

Basic information

Urban area	→	3,057 km²
Population	→	910,000
Growth rate	→	1.09%
GDP per capita	→	USD 10,277
Baseline motorisation rate	→	151/1000 inhab.
Modal share		
Formal public transport	→	46%
Private cars	→	18%
Taxis	→	13%
Walking	→	17%
Cycling	→	1%
Private motorbikes or 2-wheelers	→	1%
Other	→	4%
Annual transport emissions per capita	→	2.82 (tCO2eq)
Exposure to climate change	→	HIGH

Context

Arequipa is Peru's second-largest city and the principal urban centre of the country's southern macro-region, strategically located between the Pacific coast, the Andean highlands and corridors linking to Bolivia and northern Chile. It functions as a major logistics and trade hub, serving agricultural valleys, mining operations (notably copper), and export flows through the nearby port of Matarani. At the regional scale, Arequipa concentrates higher education, healthcare, industry and administrative services, making it the economic and institutional anchor of southern Peru.

Support from the Partnership

Technical Assistance: Support to develop a Sustainable Urban Mobility Plan (SUMP)
Funded by: European Union
Funding amount: EUR 500,000
Implemented by: Agence Française de Développement (AFD) through the EUROCLIMA+ Programme
Local counterpart: Municipality of Arequipa, Municipal Planning Institute (IMPLA)
Consultant(s) involved: Egis & Rupprecht Consult
Final Sump report: Arequipa SUMP | MobiliseYourCity

SUMP Summary

SUMP Status	Adopted
SUMP Development Timeline	Arequipa joined MobiliseYourCity in Q1 2021 Start of SUMP in 2020 Q4 SUMP completed in 2023 Q1 SUMP adopted in 2024 Q1
SUMP Vision	"Metropolitan Arequipa that has an urban mobility that prioritises pedestrians, bicycles and public transport; it makes rational use of private transport and intelligently manages a multimodal system in which negative impacts are reduced, and environmental, social and economic aspects are enhanced, seeking to improve the quality of life of citizens."
Key expected results (GHG, modal share and access)	Compared to the baseline of 2017/2021, in a SUMP scenario by 2042, Arequipa expects to • Spatial coverage of the cycleway network from 3% to 58% • Increase access to formal public transport from 61% to 70% • Annual greenhouse gas emissions reduced by 30%
Total SUMP Investment Requirement	Total plan USD 1.7 billion

The SUMP preparation process and stakeholder involvement

The Arequipa SUMP preparation was framed as a structured, long-term planning process (2022–2042) that combined institutional coordination, technical development, and participatory mechanisms. The SUMP was developed by a core team composed of the consulting consortium EGIS–Rupprecht Consult, IMPLA–MPA and AFD, with regular follow-up meetings every 2–3 weeks; the SIT also participated in coordination meetings on relevant topics. The process required alignment with local planning instruments and coordination agreements with key actors to define the functional urban area and ensure institutional anchoring. The functional urban area (Área Urbana Funcional) of the SUMP corresponds to Arequipa Metropolitana, which is explicitly defined as the plan's geographic scope. This metropolitan area comprises 19 of the 29 districts of the Province of Arequipa. Therefore, the PMUS does not cover the entire province (9,689 km² and 29 districts), but rather the consolidated metropolitan area forming the functional urban system of daily mobility flows. Arequipa Metropolitana concentrates approximately 95% of the provincial population (1,030,492 inhabitants in 2017).

Governance structures were strengthened before and during the SUMP elaboration through the creation of dedicated committees. Under the Agenda MUS 2018, actions to improve governance led to the establishment of the Consultative Committee "Dialogue MUS" and the Municipal Committee "MUNI MUS" to reinforce coordination, cooperation and institutional capacity. MUNI MUS, formally created by mayoral resolution in October 2020, brought together multiple municipal departments (transport, urban development, planning and budget, environment, SITRANSPORTE, among others) and had the mandate to validate consultant deliverables and guarantee the participatory formulation and implementation of the PMUS. A broad range of local, regional, and national actors was mapped and engaged at different levels, including ministries (MTC, MVCS,

MINAM), CONADIS, professional associations, universities, transport operators, and civil society organisations.

A formal Citizen Participation Plan structured engagement throughout the process, despite COVID-19 constraints. A "Módulo Participativo" was designed for each phase (diagnosis, vision and objectives, measures, implementation and monitoring. In the first module (Sept–Dec 2021), activities included thematic workshops (on pedestrian and cycling mobility, public transport, private transport and road safety, logistics), focused virtual meetings with key stakeholder groups (e.g., CONADIS, OMAPED, CCL, professional associations), an online perception survey, and public presentations of the diagnostic results; 383 people participated, with reported gender distribution. Additional participatory activities included drawing and photography contests to build a shared long-term vision for 2042, as well as public consultations and validation meetings embedded in the overall participatory framework.

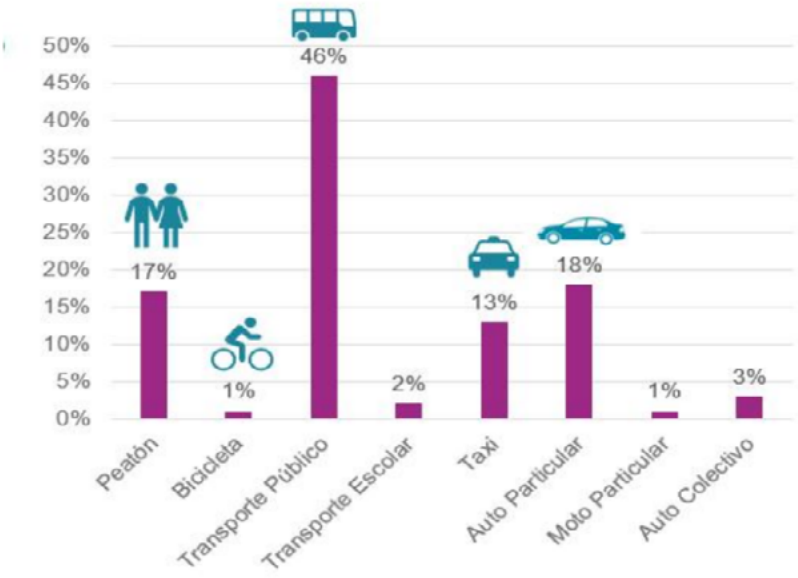
Diagnosis of urban mobility in Arequipa

Existing Mobility and transport services

Urban mobility in Arequipa presents challenges, according to 2016 transport data, which reports 52,877 infractions, 5,410 accidents, 128 fatalities, and 5,282 non-fatal victims. In 2008, public buses accounted for 63% of the modal share, while walking represented 16.6%. By 2017, on the main north-south and south-north axes of the city, which traverse the historic centre, 46% of journeys were made by public transport, 18% by private vehicle and 13% by taxi.

Several factors explain the modal choice, including:

- Growth of the vehicle fleet without consideration of service and demand; as of 2016, there are 261,600 vehicles present (25% taxis and 46% private cars).
- Low-quality public transport service. Users perceive public transport as unsafe due to its low capacity and poorly maintained units, which operate 240 routes with an average age of over 20 years.
- Disjointed urban infrastructure between the activity centres, road discontinuity and the variation of sections within continuous corridors. The overlay of the urban centrality and the historic centre exacerbates urban mobility challenges.



Elaboración: Equipo consultor EGIS–RUPPRECHT Consult

Figure 1 Overall modal split (motorised and non-motorised) in the updated PMUS model

Transport and mobility challenges in Arequipa were key elements that prompted the development of the SUMP. The lack of an integrated, agreed-upon vision for mobility in the city has compromised the system's quality and coverage, leading to isolated actions and significant infrastructure investments with little return for residents' quality of life.

Social, environmental, and economic aspects.

According to data from the IMPLA, the Metropolitan Area of Arequipa comprises a consolidated urban area of 25,884.69 ha. Areas occupied by urban activities with water, sewage, electrification, roads, and transport services account for 78%, while the remaining 22% is in the process of population growth and expansion. Additionally, the area not covered by the regulated public transport service is approximately 39% of the urban area; the current public transport system covers approximately 61% of the urban territory. This indicates that there are areas where residents do not have direct access to the service and are served by other modes of transport, such as motorbike taxis for connection to public transport, making several transfers during their journey, or, in any case, they choose other modes, such as buses for direct journeys to their destination, increasing their daily transport costs.

According to the Action Plan for the Improvement of Air Quality in the Priority Attention Zone of the Arequipa Atmospheric Basin (2016), mobile sources are among the main contributors to air pollution. About the pollutant CO2, the following results are taken as a reference scenario:

Tabla 24. Cálculo de emisión de CO2 para Arequipa Metropolitana – Escenario de referencia 2017

Escenario de referencia 2017	
Modo motorizado	**Km recorridos/Año**
Transporte público	199.7 millones
Taxi	350.5 millones
Transporte privado	538.4 millones
Transporte de carga	148.7 millones
Total, de Km recorridos/año	**1 237.3 millones**
Total, de Emisiones CO2/año	**360 200 de toneladas**

Fuente: Análisis en base a la actualización del modelo de transporte (2021)
Elaboración: Equipo consultor EGIS-RUPPRECHT Consult

Figure 2 CO_2 emissions calculation for Metropolitan Arequipa – Reference scenario (2017)

Institutional and financial situation

The SUMP Arequipa should be framed within a series of policies, laws, and regulations established by the Peruvian Government that relate to mobility planning, transport, and/or affect sectors such as the economy, the environment, or socio-economic aspects. When mapping the public actors involved in urban mobility in Arequipa, one can clearly distinguish the three levels of government: national, regional, and local. The following graph clearly shows the various actors involved in the different spheres.

Transport spending accounts for about 8% of the annual Initial Budget (2021). As explained above, this initial budget is supplemented by balances from previous years, which, in some years, can increase the budget several times over, resulting in a much larger Modified Budget. In 2021, it rose from 8.3 million soles to 99 million soles, although much of this increase was due to outstanding payments for completed or ongoing programmes. Transport spending is divided into three categories:

- Works: public works contracts for construction or improvement.
- Activities: mainly maintenance contracts
- Investment actions: studies and supervision contracts

Figure 3 Map of public stakeholders involved in mobility in Arequipa

On the road to mobility transformation, in addition to the leadership of state agencies, the commitment and action of various local non-governmental actors, such as academia, the private sector, NGOs, and civil society, are needed. These non-governmental organisations show interest, but their levels of involvement and commitment vary across three levels.

SUMP visions and goals

> "Metropolitan Arequipa has an urban mobility that prioritises pedestrians, bicycles and public transport; it makes rational use of private transport and intelligently manages a multimodal system in which negative impacts are reduced, and environmental, social and economic aspects are enhanced, seeking to improve the quality of life of citizens".

SUMP Goals and targets

- Promote greater participation in Pedestrian and Bicycle Mobility
- Promote a transformation of public transport towards a massive, integrated, and multimodal system
- Promote more rational and efficient use of private transport
- Promote more sustainable management of freight transport and urban logistics
- Promote intelligent traffic management for regulation, monitoring, and control
- Promote a reduction in the environmental impacts of mobility and traffic crashes
- Promote an improvement in universal accessibility, inclusion, equity, and gender
- Promote institutional strengthening, governance, and civic culture
- Promote a financial sustainability scheme for sustainable mobility
- Promote a mobility model that supports sustainable urban development in the metropolitan area.

Test scenarios and selected scenario

The three scenarios considered in the SUMP report are the following:

BAU Scenario (Business-as-Usual)

This scenario takes into account the specific actions, efforts, and projects currently being implemented in accordance with the provincial entity's planning and those identified when

developing the analysis and diagnosis module of the SUMP; this scenario is known as the baseline scenario. The construction of the baseline scenario is based on indicators for diagnosing the current mobility situation in Metropolitan Arequipa. It projects the future mobility situation if no significant changes or improvements are made, aggravating the negative externalities identified in the diagnosis, such as:

- Increased road saturation
- Increased congestion points on roads
- Increased travel time
- Reduced PT travel speeds
- Increased private vehicle traffic
- Increased private transport and taxi journeys
- Increased presence of informal vehicles in the PT
- Increased number of people injured and killed in traffic accidents
- Increased environmental pollution
- Reduced space for active mobility
- Increased points of insecurity, robberies and assaults
- Reduced modal integration

Alternative Scenario 1: Central

Based on the analysis of the resulting data in the analysis and diagnosis module and the previously defined strategic objectives, this alternative scenario to the BAU scenario is made. The most likely scenario encompasses a set of measures and challenges, through investment, efforts, and sustainable development impacts, that are acceptable to the city's needs. In addition, this scenario aims to significantly improve the efficiency of the public transport sector and the transport network by developing transport infrastructure and demand management initiatives to encourage a paradigm shift and a modal split towards more sustainable modes, with an impact not only on the environment but also on road accidents. It also proposes organising the different transport sectors to sustain the long-term development of services and networks, not only financially but also institutionally, laying the foundations for the planning process for the territorial and mobility sector.

Among the main proposals and interventions foreseen in this scenario are the following:

- Improving pedestrian accessibility at intersections in the CHT and central areas.
- Growth of the infrastructure offer for active mobility.
- Strengthening of the Arequipa Integrated Transport System (SIT).
- Increase in the spatial coverage of the Public Transport service.
- Increase in the supply of road infrastructure.
- Management of the demand for the use of private cars and taxis (-10%).
- Ordering and regulation of the freight transport system.
- Optimisation of traffic management and control devices.

Alternative Scenario 2: More Ambitious

This scenario aims to achieve, in a shorter period, improvements in mobility indicators, greater reductions in GHG emissions, and faster construction of new road infrastructure, allowing, among other things, to deconcentrate travel demand from the centre and the negative impacts this generates. This ambitious scenario imposes a greater restriction on the use/circulation of private vehicles in a shorter period of time, thereby seeking a greater impact on the reduction of negative externalities of private transport and an increase in the use of public transport, which has implications from the perspective of the kilometres travelled by each mode of transport. For public transport, there is also a more ambitious proposal in terms of deadlines for the technological improvement of public transport systems (in terms of capacity and performance) in the corridors

with the highest demand, as well as in terms of clean energy. On the other hand, this scenario prioritises the quality of urban public spaces. It strengthens active modes by supporting efforts to implement and/or improve infrastructure for cycling and pedestrian mobility, and by fostering a change in mentality toward a culture of long-term mobility. Greater emphasis is also given to demand management actions for private transport and taxis, in favour of walking and cycling.

- Consolidation of pedestrian accessibility at intersections in the CHT and central areas.
- Consolidation of the infrastructure offer for active mobility.
- Consolidation of the Arequipa Integrated Transport System (SIT).
- Spatial coverage of the Public Transport service to 100% of the urban area.
- Consolidation of the supply of road infrastructure.
- Management of demand for private car and taxi use (-20%).
- Consolidation of the freight transport system.
- Systematisation of traffic management and control equipment.
- Consolidation of the Sustainable Urban Mobility Observatory of Arequipa.

SUMP key measures

Measure	Cost estimate (EUR)[1]	Proposed financing source	Implementation schedule
O1. Promote greater participation in Pedestrian and Bicycle Mobility	143,826,470.57	Local, regional and national government, public private association	2024-2042
O2. Promote a transformation of public transport towards a massive, integrated, and multimodal system	749,021,849.13	Local and national government, international cooperation	2024-2042
O3. Promote more rational and efficient use of private transport	361,729,950.86	Local, regional and national government, public private association	2024-2042
O4. Promote more sustainable management of freight transport and urban logistics	7,359,464.88	Local, regional and national government, public private association	2024-2042
O5. Promote intelligent traffic management for regulation, monitoring, and control	35,680,580.67	Local, regional and national government	2024-2042
O6. Promote a reduction in the environmental impacts of mobility and traffic crashes	33,772,848.26	Local and national government	2024-2042
O7. Promote an improvement in universal accessibility, inclusion, equity, and gender	132,654,919.8	Local and national government, international cooperation	2024-2042
O8. Promote institutional strengthening, governance, and civic culture	5,625,892.44	National government, international cooperation	2024-2042
O9. Promote a financial sustainability scheme for sustainable mobility	1,675,392.67	Local and national government, international cooperation	2024-2042
O10. Promote a mobility model that supports sustainable urban development in the metropolitan area	0.00	Local, regional and national government, public private association	2024-2042

[1] Exchange rate (USD→EUR): 1 USD = 0.85 EUR

SUMP expected results and impact

Indicator	Baseline – 2017-2021	Projected 2042 SUMP scenario
Total annual GHG emissions (Mt CO_2eq)	360,200t CO2eq	252,140 t CO2eq
Annual transport-related GHG emissions per capita (kg CO_2eq/ capita)	1923.6 kg CO2eq / capita	Not available
Access Increase in the proportion of the population living within 500 m or less from a public transport stop	61%	70%
Air pollution Decrease in the mean urban air pollution of particulate matter (in µg PM2.5) at road-based monitoring stations	9 µg/m³ of PM2.5	Not availabe
Modal share Increase in the modal share of trips by public transport, walking, and cycling	Formal public transport: 46 % Informal public transport: No data Walking: 17 % Cycling: 1 % **TOTAL : 62 %**	Not available
Road safety Decrease in traffic fatalities within the urban area (per 100,000 inhabitants)	9.1 fatalities/ 100,000 inhab.	≤5 fatalities/ 100,000 inhab.
Affordability of public transport Share of disposable household income spent on public transport for the second quintile income group	12%	Not available

Insights from practice: Lessons learned from the SUMP development process

SUMPs offer an opportunity to prioritise limited resources based on a collectively agreed-upon long-term perspective

Addressing urban mobility in a sustainable way amid significant challenges in the transport sector and resource constraints requires a strategic roadmap with a forward-looking vision. Arequipa's SUMP proposes an ordering and prioritisation framework with robust opportunities for adaptation. While the project shows potential for scalability, local political dynamics may complicate adoption.

In 2023, due to political and administrative processes and changes in the city, the Municipal Council's schedule, presentation, and approval process for the SUMP were delayed. However, at the end of March 2024, the city's Plan was finally approved. The SUMP offers innovative solutions that prioritise cleaner, safer, and more efficient modes of transportation. From promoting public transport to creating infrastructure for pedestrians and cyclists, this plan focuses on improving the quality of life for all residents of Arequipa.

SUMP finance leverage

Description	Source of financing	Type	Status	Amount (EUR)
Financing coordination for SIT (Sistema Integrado de Transporte)[2]	KfW and CAF	Loans	Secured	Kfw: 55,000,000 CAF: 39,625,700

Perspectives for implementation

The SUMP was considered by plenary councillors in March 2024, culminating in its approval by the Municipal Council through Municipal Ordinance 1340 of the Provincial Municipality of Arequipa, and is currently in the early stages of implementation.

Transitioning to sustainable urban mobility systems requires both initial capital investments and ongoing revenue streams to ensure long-term sustainability.

Meeting the high infrastructure endowment requirements entails financial contributions, not only from the State but also from other sources. The allocation of funds from each source will ultimately hinge on technical feasibility, project inclusion in the Multiannual Investment Programming (subject to meeting their requirements), and alignment of SUMP objectives with the Development Plan, including Metropolitan and Master Plans, and other technical instruments. The ultimate goal is for the SUMP to evolve into a comprehensive mobility planning tool with a sustainability approach. Primary financing sources, categorised as central and complementary, are developed by program, implementation horizon, and potential funding source.

Highlights in the last year

Ongoing institutional collaboration with MTC Promovilidad to advance SUMP rollout and broader policy alignment

Peru's Ministry of Transport and Communications (MTC) and its Promovilidad programme continue to support Arequipa in the execution of its SUMP actively and the implementation of its integrated transport system through coordination platforms and technical cooperation, as reaffirmed in intergovernmental meetings with municipal authorities. This aligns with CIMO and Promovilidad's institutional strengthening role. The Cities in Motion (CIMO) project, implemented by GIZ and co-financed by BMZ and SECO, is supporting the implementation of Peru's national urban transport policy, including in Arequipa, Trujillo, and Piura. Its work includes capacity building, the formalisation and professionalisation of private transport operators, the introduction of digital technologies for mobility management, and the development of public transport emissions estimates (for the first time available for Arequipa). Specific results from CIMO in Arequipa include bus stop improvements and safe school roads, as well as training on gender-equitable transport and harassment prevention protocols for drivers and police, enhancing inclusiveness and safety aligned with the SUMP vision.

Last updated December 2025

[2] https://elgasnoticias.com/nuevo-sistema-integrado-de-transporte-en-trujillo-y-arequipa-sera-financiado-por-kfw-y-caf/