UMAM Roadmap Report 2020 – Rubí

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Document information

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List of abbreviations

UMAM	Urban Mobility Assessment Model
AMB	Barcelona Metropolitan Area
GHG	Greenhouse Gas
FGC	Ferrocarriles de la Generalitat
R&D	Research and Development
MaaS	Mobility as a Service
TMB	Transports Metropolitans de Barcelona

Contents

1. City Context

Rubí is a municipality in Catalonia, in the Vallès Occidental comarca and Barcelona province. It is part of the metropolitan region of Barcelona. The comarca had a population of 78,591 inhabitants in 2020[1].

We are currently working on the 2018-2023 Rubí Urban Mobility Plan[2], where the sustainability objectives are to:

- Establish a more efficient transport model to improve production system competitiveness.
- Increase social integration while providing more universal access.
- Improve citizen quality of life.
- Not compromise citizen health.
- Provide safe travel.
- Establish more sustainable mobility guidelines.

[1] IDESCAT: https://www.idescat.cat/emex/?id=081846&lang=en
[2] Ajuntament de Rubí: https://www.rubi.cat/ca/temes/mobilitat/pla-de-mobilitat-urbana-sostenible-de-rubi

2. UMAM Scoring

2.1. Policy and Innovation

The objective of this dimension is to analyse how city authorities manage urban mobility and their policy making process. This is done by analysing public policies, actions and protocols that are developed to think about the mobility of the future, today. The importance of this indicator is to be the first approximation of the strategies of cities, as a regulatory body and manager of urban mobility.

The analysis model is divided into three dimensions: mobility of people, mobility of goods and innovation.

Mobility plan

Mobility plan and policy making is analysed in the dimensions of network city integration, public transport service, reduced mobility, touristic plan and resilience and sustainability in terms of policy development and implementation. Each of the five dimensions is analysed using a scale of 1 to 5[3] depending on its level of implementation in public policies defined according to:

- Analysis of problems and opportunities concluded: working structures set up, planning framework defined, analysis of mobility city environment- 1
- Vision, objectives and targets agreed: build and assess scenarios, vision and strategy developed with stakeholders, indicators and targets are set- 2
- Policy adopted: measures/actions/projects are bundled and run through stakeholders, agree actions and governance for implementation agreed, develop implementation plan and finance - 3
- Measure implementation evaluated: actions and projects start implementation, outcomes are monitored, change management implemented, communication strategy deployed, plan reviewed - 4
- Process has iterated and it counts at least with 2 policy cycles - 5

[3] A letter N is shown where data was not submitted or is not available.

Cities with values between 1 and 2 will be those with greatest room for improvement, while those with 4 or 5 already have a more consolidated position. This is due to the progressive character of the policy making process based on the stages of the Sustainable Urban Mobility Plans.

Freight mobility plan

Freight mobility plan dimension is analysed based on the sub-dimensions of last-mile policies, delivery timings, virtual loading bays, digital management and resilience, and sustainability. Each of the five dimensions is analysed using a scale of 1 to 5 levels depending on its level of implementation in the public policies as defined above.

Innovation

The last dimension of the analysis is innovation. This is key to understand how the capacity and willingness of each administration is to seek and implement new mobility proposals in the city. The analysis is done by considering its innovation objectives, as well as the practice through the example of pilots already carried out. The ratio between total euros and number of pilots is also calculated, to understand an average value per pilot and the importance of each pilot project.

2.2. Transport Supply

This dimension analyses the infrastructure provision within the city and how well it supports a transition towards sustainable mobility. It analyses the availability of different modes within the city and how some infrastructure has been introduced. It is important in that it assesses the current situation and enables more detailed analysis with respect to criteria in other dimensions (e.g. modal split within transport demand). It further helps determine what kind of policies might be most beneficial in terms of infrastructure investment, improving accessibility and what the focus for provision of transport should be when considering availability of sustainable options for individuals.

Each one of the transport modes can be assessed both separately and as part of the total provision in the city. Each mode is scored separately using threshold values and allocating a score from 1 to 5 for each threshold. Additionally, UMAM assessed car ownership, number of charging stations, service reliability, and the number of consolidation centres (to show availability of last mile infrastructure).

2.3. Transport Demand

The transport demand section explores how the city is performing in terms of number of trips conducted by different modes of transport and the annual congestion levels which represent the additional travel time drivers experience compared to a free flow traffic situation with no congestion. Transport demand indicators provide an overview on how well the transport system of a city is performing, which can lead to insights regarding the improvement of traffic conditions and the modes of transport that are better suited to support sustainable mobility.

Within the modal split category, the aim for cities should be to achieve higher modal share for sustainable modes (i.e. active modes, public transport, sharing mobility) as opposed to private vehicles. The thresholds of scores for the different modes (1-5 based on the index) show whether the score for each mode is positive or whether there should be additional work and targeted intervention for this in particular. The criteria measured within Transport Demand is modal split and traffic flow and efficiency.

2.4. Data

The goal of this dimension is to analyse how city authorities divulge urban mobility data. The importance of this indicator lies on how best to benefit from the huge data flowing in our cities and determine recommendations to strengthen urban mobility. UMAM focuses on certain data types: travel behaviour, real time disruption, air quality, socioeconomic data, active travel, motorised traffic, public transport and road and street congestion. Each of these types is then assessed according to the actions taken in regard to their collection and availability: data collected, public authorities management, data availability to third parties, open data and data availability for application development. Each of one of these actions correspond to a point in a 1 to 5 overall score for each type of data.

2.5. Environmental Aspects

The goal of this section is to consider the environmental impacts of urban mobility systems on a local level. Currently, the transport sector emits 27 % of the European GHG emission[4]. But, decreasing local emissions does not only contribute to the current main

[4] https://www.eea.europa.eu/data-and-maps/indicators/transport-emissions-of-greenhouse-gases/transport-emissions-of-greenhouse-gases-12

political targets of the European Union (e.g. Green Deal) to reduce the global emissions but also to the quality of life of citizens.

The indicator considers four sub indicators: the presence of low emission zones, data on the European Air Quality Index, Green House Gas Emissions, and noise. The data cities input for these sub indicators are matches to a threshold and scored from 1 to 5.

2.6. Social Aspects

The objective of this dimension is to analyse how well urban mobility systems meet the needs of end-users from a social perspective. This is done by taking into account how people live and interact with mobility systems and infrastructure in their city, including socioeconomic and physical considerations.

The importance of this indicator is to be the first approximation of how closely aligned a city's mobility system is to the needs and desires of its users from a social perspective.

The analysis model is divided into four dimensions for assessment according to its objective in order to provide a holistic understanding of how well the system is meeting social needs: pricing of public transport, accessibility, traffic calming and traffic safety. The data is allocated to thresholds, which are link to a score from 1 to 5.

2.7. Roadmaps

After data is submitted, the UMAM score is generated. A brief literature review is completed to capture basic information of the city. With the information provided through the UMAM tool and the literature review, a roadmap is produced for each city. The roadmap follows a Avoid/Reduce, Shift/Maintain, and Improve approach.

The approach, known as A-S-I (from Avoid/ Reduce, Shift/Maintain, Improve), seeks to

- achieve significant GHG and air pollutants emission reductions,
- reduced energy consumption,
- less congestion,
- while increasing the levels of physical activity through walking and cycling as a daily mode of transport,
- more efficient use of public space,
- better accessibility, with the final objective to create more liveable cities.

Avoid/Reduce: Activities that are considered for this column are aimed to improve the efficiency of the transport system through integrated land-use planning and transport demand management, to reduce the need to travel and the trip length. There is a negative correlation between the activity and the objective, for instance: reduce car dependency in transport supply or demand to improve the city scoring.

Shift/Maintain Activities are aimed to improve trip efficiency, while encouraging modal shift from the most energy consuming urban transport mode (i.e. individual motorised transport) towards more environmentally friendly modes. There is a positive correlation between the action and the indicator, for example: Maintain and continue gathering Environmental data to keep the city score high.

Improve Activities focus on vehicle and fuel efficiency as well as on the optimisation and innovation of transport infrastructure and network. There is a beneficial correlation between the action and the scoring, for instance: improve stakeholder engagement practices for the city to achieve a higher score.

Additionally, each action is professionally assessed in terms of timeline and complexity. As regards timeline, the options are short, medium or long term, which can roughly be interpreted as 0-1, 1-3 and +3 years. Complexity is assessed at a high level according to the resources needed to implement such measures.

The analysis has been conducted on the basis of the data provided by the city of Rubí using the UMAM online platform. Rubí UMAM baseline score for 2020 is 1.48.

Figure 1: UMAM Scoring for the city of Rubí

3. UMAM Roadmaps

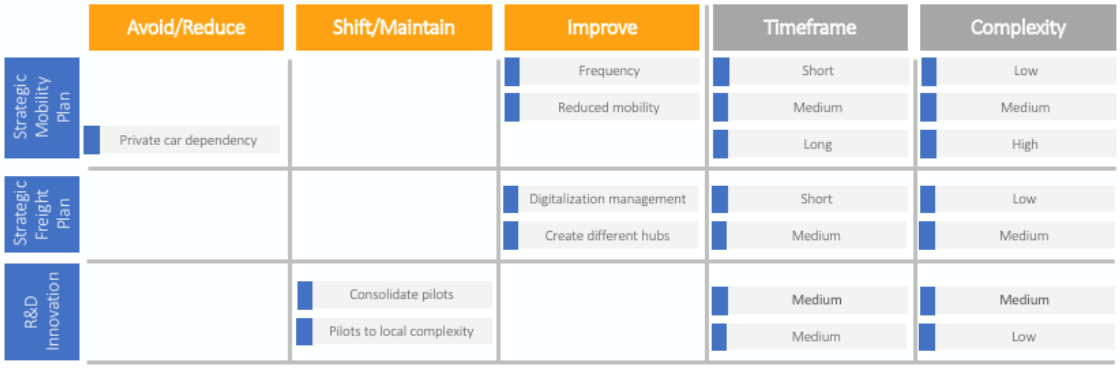
3.1. Policy and innovation

The general score for this indicator was low, partly due to the internal development processes of the administration, as well as the poor quality of the input data, since there are administration-issued scores that are not very consistent with the situation on the ground. The final score in this area was 1.2 out of 5.

Recommended actions

The following table presents a summary of recommendations for the city with regards policy innovation management, followed by an explanation of each.

Figure 2: Policy & Innovation: Recommended interventions



At the level of people mobility, it is necessary to work to reduce dependence on private transport for intra-city mobility. While trips to other cities are possible with the FGC or Renfe train systems, movement within the city is more difficult.

Freight mobility management must be improved. Rubí's strategic location could be harnessed to make it a distribution hub to supply the city and other municipalities around it, since it is close to the highway and the entrance to Barcelona.

With regards R&D Innovation, even though there is some information, it is not entirely clear the reach and scope of the projects. A pilot project on innovative parking is being

funded within H2020. The project supported by the Rubi's town hall is implemented by the technology partner "Parkunload"[5].

3.2. Transport supply

Transport supply is the first approach to understanding the ability of public and private enterprises to deliver a mobility service for people in each area. In the case of Rubí, the city's geographic and urban structure is characterised by both low as well as high density neighborhoods. The score for this dimension was 0.7 out of 5.

There are two train stations and 281 bus stations, showing firstly that there are good intra-city connections with other poles of attraction and that the bus is the only public transport system with a mass uptake by the population. There are also 25 taxi licences. There is one ride-hailing service and one carsharing service with two vehicles. There is no data on private car ownership per inhabitant but due to the urban structure and low supply of public transport, its assumed to be high.

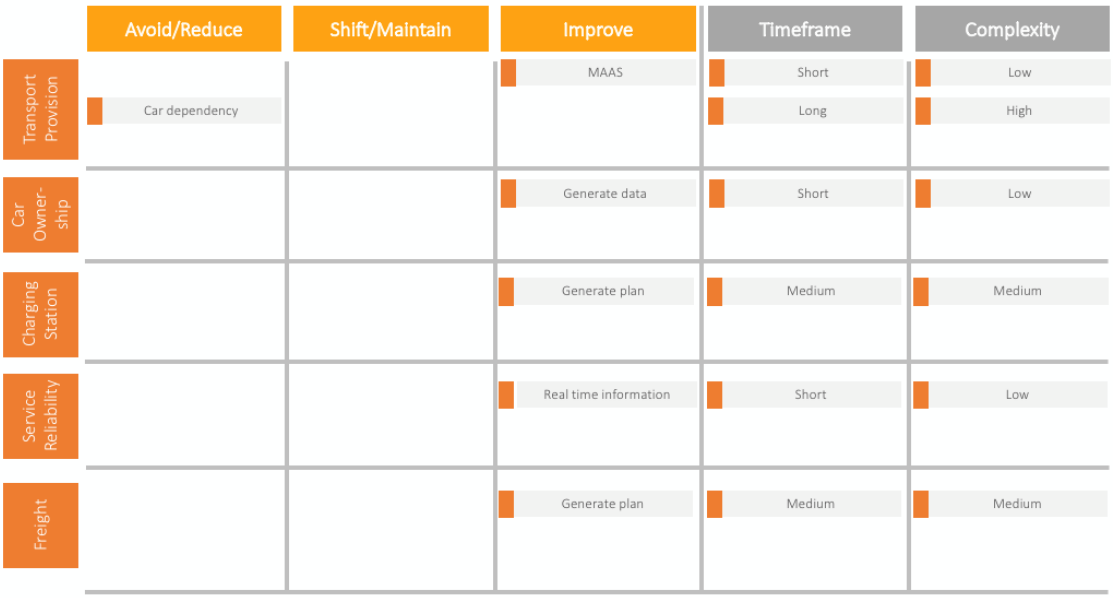
According to data taken from this project, there is one public electric charging point, although this information differs from other data found. Its strongly recommended increasing the number of chargers to be a pole of attraction for electric vehicles in areas with a high dependency on private cars. There is no data on the percentage of delayed public transport trips or number of consolidation centres.

Recommended actions

The following table presents a summary of recommendations for the city with regards transport supply management, followed by an explanation of each.

[5] https://www.rubi.cat/es/actualidad/noticias/rubi-amplia-la-zona-naranja-para-favorecer-la-rotacion-de-estacionamiento-sin-coste-para-las-personas-usuarias.

Figure 3: Transport supply: Recommended interventions



It is recommended to deploy MaaS between outlying areas and the city centre could make the system more sustainable and profitable, as well as reduce private vehicle dependence.

It is also recommended to produce data on car ownership per inhabitant to set a current standard and weigh improvements with the rollout of different specific policies. It is recommended to validate the information on charging points that has been provided by the administration with the situation on the ground, and encouraging policies to subsidise use to generate uptake among the population, with the aim of working towards a 24x7 provision. Finally, it is recommended to generate a defined plan to boost Rubí's capacity as a freight management and distribution centre.

3.3. Transport demand

Transport demand reflects the mobility of users. The score obtained in this indicator was 0.8 out of 5.

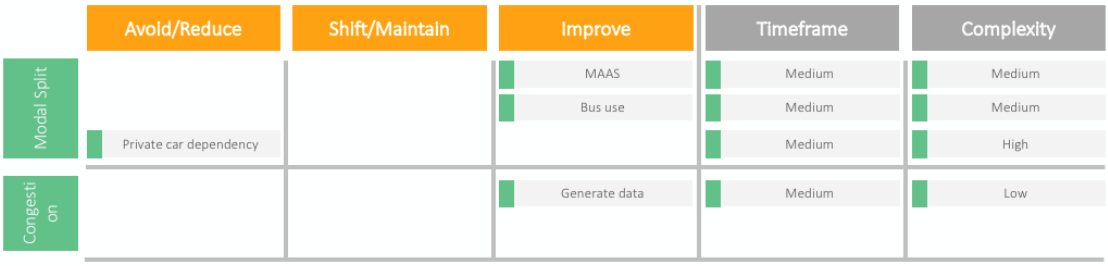
Mobility was highly polarised between private vehicles (48%) and walking (42%) followed, a long way behind, by train (8%) and bus (3%). Other forms of transport such as bicycles and carsharing did not represent even 0.5% of mobility.

We do not have data on traffic congestion, but we would expect average values, due to the high use of private vehicles.

Recommended actions

The following table presents a summary of recommendations for the city with regards transport demand management, followed by an explanation of each.

Figure 4: Transport demand: Recommended interventions



The first recommendation would be to implement MaaS across the city, starting with the electric car, since it is more suited to the urban and use characteristics of Rubí. The second would be to boost bus use, trying to encourage people to make the move from private transport to the bus. The third and final recommendation is an essential element for public management, i.e., generating good data for decision-making, so it is important to produce data on how the city is congested, particularly in the case of Rubí, since there is a high dependency on private transport.

The data in this study was developed in a scenario without COVID19, so it is more indicative of the trend of recent years than the real values of the year 2020.

3.4. Data

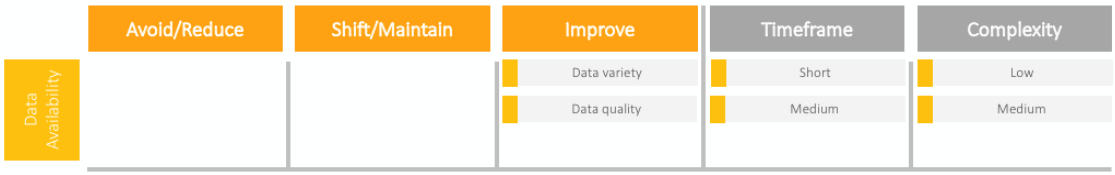
The quality and format of Rubí data collection and management scored 1.85 out of 5.

The city collects data on motorised traffic, public transport, and road and street congestion, but only has open data for air quality indicators.

Recommended actions

The following table presents a summary of recommendations for the city with regards data management, followed by an explanation of each.

Figure 5: Data: Recommended interventions



It is recommended to improve data with more variety and open-data features to start making more advanced traffic simulations correlated with different data types, as well as designing new public urban mobility policies. This first step in data governance could be developed by internal funds, or other administrations could support the project, e.g., at the national or European level.

3.5. Environmental aspects

Analysing the environmental dimension provided insights into air and noise quality in the city. The score for this dimension was 2.3 out of 5, the highest of all the different dimensions analysed.

Currently there are no Low Emission Zones in the city according to the classic definition, but there is awareness around it within the framework of the AMB and a commitment to generate these special protection zones by 2023 in municipalities above 50.000 inhabitants[6].

The air quality is good, despite the high dependence on the car, since the low population density offsets it. The C02 score came in at 99.9, and the N20 score was 0.05, while the percentage of people living in high noise areas was low, at 19.8.

Recommended actions

The following table presents a summary of recommendations for the city with regards environmental aspect management, followed by an explanation of each.

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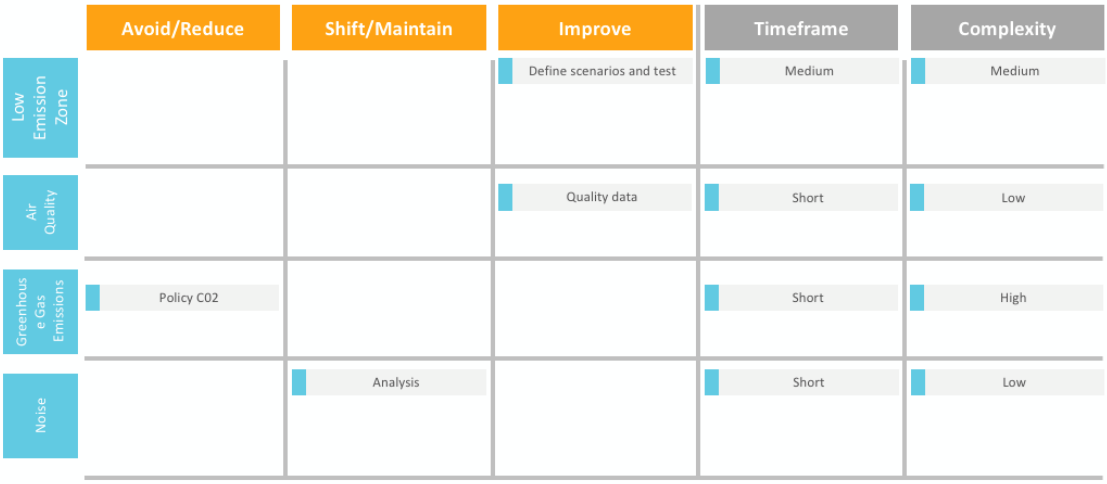
https://www.miteco.gob.es/es/ministerio/proyectodeleydecambioclimaticoytransicionenergetica_tcm30-509256.pdf

Figure 6: Environmental aspects: Recommended interventions



A first recommendation would be to develop and implement Low Emission Zones in Rubí. This approach might start by modelling different zone and condition scenarios. Secondly, it is recommended to improve the quality of the data collected at air quality level for more meaningful analysis and decision-making. Thirdly, it is recommended to produce a policy to bring down the very high C02 levels. The causes must be carefully analysed and a strategic plan at the municipal level be worked on in coordination with different stakeholders and administrations. Fourthly, it is recommended to analyse specific actions to improve the city's good noise-quality results.

3.6. Social aspects

By analysing the social dimension, we can address how citizenship is related to transportation. The final score for this dimension was 2.05 out of 5.

The price of as single transport ticket was €0.75 intra-city and €2.40 when integrated in the TMB, but there are other ticket types that are much cheaper, with a price reduction

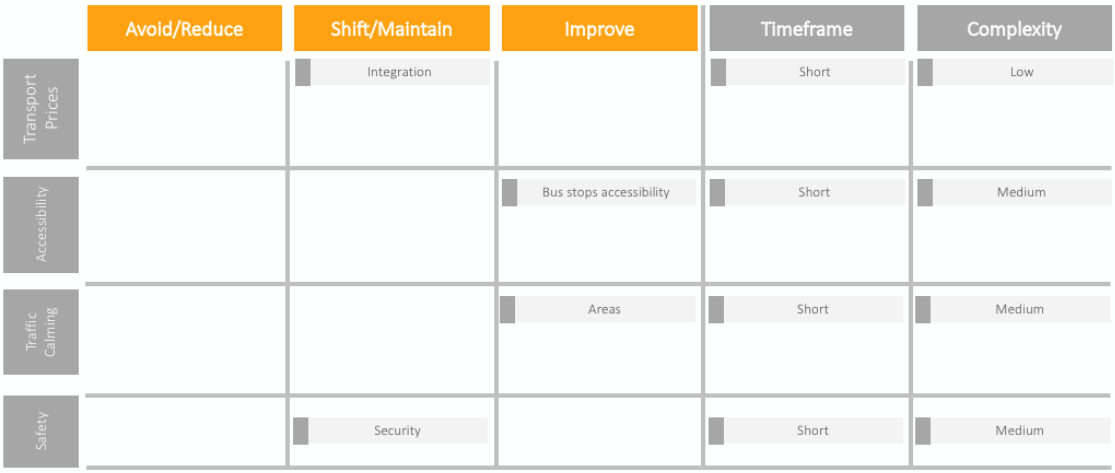
of 60%-plus compared to the single-ticket price and which are more common among public transport users[7].

Access to public transport scored poorly, around 30%, but the city is already beginning to develop calm areas for traffic and two are presently in operation. On the other hand, positively but the accident levels are really low.

Recommended actions

The following table presents a summary of recommendations for the city with regards social aspect management, followed by an explanation of each.

Figure 7: Social aspects: Recommended interventions



Firstly, it is recommended to continue with the pricing system and integration in TMB. It is also recommended to boost the percentage of buses with access to people with functional diversity, promoting their autonomy and reducing their dependence on private transport. The number of traffic-calmed areas must be increased across more areas of the city, structuring actions with a policy to protect commercial areas and children's playgrounds, for example. Finally, it is recommended to continue to develop policies to uphold the city's good safety performance.

[7] TMB: https://www.tmb.cat/en/barcelona-fares-metro-bus/single-and-integrated/choose-ticket