



TRANSPORT HOW JORDANIANS MOVE AROUND THE CITY



Highest Emitter:
ROAD TRANSPORT

CHALLENGES

The transport sector is the second largest contributor to emissions in Amman, and traffic congestion is the top challenge facing the city. On-road vehicles contribute to the majority of transportation emissions. The number of private vehicles in Amman has increased dramatically, exceeding 1.2 million vehicles and 7.5 million daily internal trips (GAM 2017). The growth in vehicular traffic has risen by over 10 percent per year since 2005 (GAM 2017).

There is a lack of reliable public transport, as well as safe pedestrian and bicycle areas, making private vehicles the safest and most efficient way to get around. Additionally, non-motorized transportation faces a perception challenge in Amman. Specifically, there is a social opinion that cars are superior, especially given the hilly topography and extreme hot and cold climate in Amman, which does not favor walking or biking.

Current services are operated by a mixture of large buses, minibuses, service taxis (on fixed routes) and regular taxis. Coordination of these services is limited, and insufficient travel schedules, routes, or ticketing information are available. With the rapid increase in population, the lack of adequate public transportation has led to massive traffic congestion issues, a lack of parking and a reduction in the productivity of residents.

Traffic congestion has negatively affected the air quality in Amman, especially during the hot summers. However, the large-scale infrastructure projects needed to provide a transformational shift away from personal cars are expensive and require long-term planning and financing. Now is the time to plan for a transformation, not just of infrastructure but of local culture and behavior.

KEY GOALS AND OPPORTUNITIES

KEY SHORT-TERM GOALS

- Conduct a new transport survey and update the Transport and Mobility Master Plan (TMMP) alongside an integrated land use planning exercise.
- Improve pedestrian and bicycling experiences and safety.
- Incentivize electric vehicles and show leadership by electrifying the municipal bus fleet.
- Prioritize low carbon modes of transportation in infrastructure investments.

The city has well managed and extensive road ways. It has also implemented an initial technology system to help manage traffic. There has been significant investment in recent years in the road network. In addition, the transport sector has seen an opening of the market to private operators and investors. There is much interest from international partners in this sector, as well as opportunities to leverage private sector interest. Additionally, there are multiple examples of cities overcoming cost barriers to implementing small and large transport improvement projects.

The Greater Amman Municipality developed a Transportation and Mobility Master Plan in 2010, based on data collection and surveys. The plan established a framework for the city's growth and identified corridors for intensification. The plan has faced barriers to implementation, but the two lines of the Bus Rapid Transit system is now undergoing development.

CASE STUDY ELECTRIC CAR

CHALLENGE • Emissions from gas-fueled, on-road transport are one of the largest contributors to poor air quality in Amman. Existing infrastructure for electric car charging, which would reduce emissions, is minimal.

SOLUTION • The national government has provided some incentives for purchasing electric vehicles, but barriers still remain. The municipal government has purchased 100 electric cars for city government use, as well as 30 electric taxis as a pilot and will expand in the future. There is now legislation that requires all new gas stations to install electric charging stations.

In 2018, the German based company, E-Charge, signed an agreement to install 10,000 electric charging stations across the country, many of which will be located in Amman. The GAM can further expand on their efforts by creating an awareness program for electric car incentives.

BENEFITS • Reduced local air pollution and reduced operating costs for owners of vehicles.

The information from the former TMMP is now almost a decade old. A new TMMP should be developed. Indeed, there is a great opportunity to plan new development alongside an integrated mobility plan that looks at all possible forms of public, electric, and non-motorized transportation.

BENEFITS

Enhanced bus networks and a shift from cars to public transport will help to ease traffic congestion, reducing the number of polluting cars, decreasing other air pollutants associated with traffic, and lowering emissions from public transport vehicles. According to the Amman traffic model, 4,720 tons of CO₂/year could be reduced based on the results for the Amman-Zarqa BRT system. Research indicates that by 2030 these transport improvements would help avoid 1,000 premature deaths per year due to air quality improvements in the Middle East (Global Covenant of Mayors Opportunity Dashboard).

Better transit systems also reduce commute times and minimize traffic related deaths. Fewer vehicle kilometers travelled and less cars lead to safer streets. In South Asia, bus rapid transit systems have reduced commute time by 45 hours per person/ per year. In this context, it is projected that road fatalities could be reduced by up to 35 percent in a city the size of Amman by 2030 (Global Covenant of Mayors Opportunity Dashboard).



CASE STUDY BUS RAPID TRANSIT (BRT)

CHALLENGE • Private vehicles dominate the roadways and public transportation is not efficient.

SOLUTION • Create an integrated public transport network for Amman, based on BRT which will connect with the proposed BRT between Amman and Zarqa and will also serve the neighborhood of Ruseifa. In both BRT systems premium, high-capacity buses will run on segregated lanes. Development of two main lines within Amman is completed. When the whole system is completed, it will consist of 25 kilometers (km) of BRT with small feeder buses that deploy into key neighborhoods off the main lines, thereby improving access to public transportation.

The BRT lines are largely being built along existing bus lines and will replace the slower buses. Amman's BRT is expected to reduce the distance traveled using private vehicles by 85 million kilometers per year, and the distance traveled using taxi by 12 million kilometers per year. Each BRT bus will accommodate up to 150 passengers, or the equivalent of about 110 private vehicles. By 2020, the 150 rapid buses in Amman will be carrying 315,000 passengers a day.

BENEFITS • Benefits include shorter commutes, improved mobility, increased productivity, and improved air quality.

PARTNERS AND STAKEHOLDERS

Amman currently partners with private operators to run portions of the public transportation system in the city. This model will continue, and these operators will be key stakeholders in developing low-carbon solutions to public transport. In fact, there are many opportunities to engage with the private sector to bring the necessary technology

and smart cities infrastructure to Amman to support the electrification of its transportation.

Amman will work closely with the Ministry of Transportation and other neighboring city governments to explore more sustainable modes of inter-city transport.

ACTIONS FOR IMPROVING SUSTAINABLE TRANSPORTATION

ACTIVITY	TIMEFRAME	VOLUME OF EMISSIONS REDUCED	SUSTAINABILITY BENEFITS
Plan and construct a Bus Rapid Transit system	● Medium/ 2 lines completed	High	Reduced commute times, improved productivity, and better air quality
Implement a public transportation awareness plan to change perceptions and behavior	● Short	Unknown	Awareness raising
Install electric vehicle charging stations around the city	● Short	Unknown	Improved infrastructure
Give preferred treatment for zero/low emission vehicles, including fast lanes, parking discounts, and reduced fees	● Medium	Unknown	Reduced costs
Replace GAM-owned fleet vehicles with electric vehicles	● Short	Low	Reduced operating costs for city
Replace 75 percent of taxis with electric taxis	● Short	Medium	Reduced local air pollution
Install bike paths and other bike safety measures	● Short	Unknown	Improved land use, and preserved open space
Promote walkability through installation of new sidewalks and maintenance; improve existing sidewalks; increase green space; and introduce pedestrian safety measures to enhance use	● Short	Unknown	Improved public health, and enhanced livability of the city
Enhance the efficiency of the city bus network using improved fuel specifications	● Short	Low	Reduced local air pollution, and improved public health



SOLID WASTE REDUCING AND TREATING CITY WASTE



Highest Emitter:
LANDFILL

CHALLENGES

Inadequate solid waste management is a serious threat to the environment and public health in Jordan. No significant amount of solid waste is recycled in the country. Furthermore, solid waste generation is growing and Amman accounts for almost half of the total solid waste generated in Jordan according to waste disposal data from 2014 and 2016. However, Amman is also home to one of the only lined landfills in the country, and the solid waste infrastructure in the city has improved greatly in the last decade.

Municipalities are fully responsible for solid waste management operations in the country. However, they often lack the funds to establish modern waste collection infrastructure, recycling facilities and waste disposal systems. Source-segregation is not practiced in the country and mixed waste

is collected and dumped without any treatment. Recycling, both formal and informal, is in the early stages due to a lack of trained manpower and modern machinery. The role of the private sector in solid waste management is also limited, except for some new pilot projects.

The GAM operates the Al Ghabawi landfill. It has the responsibility to collect, transport, and dispose of waste to the Al Ghabawi landfill, which is the largest and only sanitary landfill in Jordan serving Amman and four major Municipalities (Zarqa, Russaifa, Sahab & Muwager). Waste collection contributes significantly to emissions because Amman lacks an adequate number of transfer sites. In addition, collection trucks travel longer distances to the dumpsites and landfills, increasing collection intervals and total management costs.