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What are the alternatives to the personal vehicle in Greater Paris?

By Jean-Pierre Orfeuil (Urban planner)

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The car is one of the preferred modes of transport for those who reside in the Paris region. What are the alternatives strategies to reduce the use of cars in Greater Paris? Jean-Pierre Orfeuil, a specialist in urban mobility, examines the question.

The evolution of **mobility** in the Paris region has long been driven by an ambition to facilitate travel on a regional scale. Many urban highways and high capacity, frequent regional train lines were built. The goal was to build a unified regional offering of employment, leisure activities and consumption. These programs succeeded in terms of their objectives: they made it possible to travel farther without increasing transport time.

The 1990s were characterized by a change in vision. The focus was on another priority: reducing the use of automobiles in order to protect the environment. Consequently, the focus shifts almost entirely from increasing the capacity of roads to valuing alternative forms of public transportation. Starting in the 2000s, the space allocated to traffic decreases in various ways, and speed limits are reduced. A discourse in favor of the bicycle emerges. In terms of objectives, this strategy is again a success: the use of public transportation increases, albeit less than what had been hoped for, but it increases significantly. The number of cyclists skyrockets, although the starting point is low. But even if the ratio of cars decreases and the role of the automobile in mobility diminishes, the automobile continues to represent 60% of the distance traveled in the region.

However, this comes at price and it would be a mistake to forget it. In the 2000's, for the first time in history, there are decreases in the speed of travel, the number of jobs people can get to in a given amount of time, and the average distance traveled. Despite this, the

time spent in transportation increases.

A simulation of the alternatives to the personal vehicle in Greater Paris

Marie-Hélène Massot and I used this diagnostic to build our simulations for the alternatives to cars. What we are looking for, if you will allow me to use a colloquial expression, is to have our cake and eat it too: reducing the use of cars without increasing time in transport, and without changing people's destinations; we conserve the places people go.

First alternative: public transportation

We first tested public transportation as an alternative to the car, supplemented by the bicycle in some cases. In this simulation, limited to Paris and its surrounding suburbs, people always travel to the same locations. But they prioritize public transportation. They take public transportation... "unless". I will now detail the "unless" exceptions below :

- "Unless" they travel at night when transportation is unavailable.
- "Unless" the arrival or departure location is too far from an entry or exit point to the transportation network.
- "Unless" they transport heavy and cumbersome objects.
- "Unless" they accompany children or an elderly person.
- "Unless" they cannot walk or use public transportation to cover the distance between the point of departure and return.
- "Unless" a change in the mode of transport significantly increases their daily time transport.

We rule out solutions that would increase the daily time spent in transportation by more than a quarter, or that would cause certain people to spend more time in transportation than other people in their same category (professionals, retirees, students, etc).

Encouraging results...

When we apply this rule to everyone - and limit the increase of time spent in transportation to 25% - we are able to eliminate 16% of car trips and 9% of the kilometers covered. With a more developed rail network and more frequent buses, traffic could be reduced by 13%.

13% of people are unable to use public transportation due to a lack of options – they travel at night or the station is too far away. 33% due to practical reasons (such as groceries that are too heavy) and a little more than 50% due to an unacceptable increase in the time spent in transportation.

A reduction of 9 to 13% in traffic may seem quite modest, and it could be argued that the same results were obtained in the 2000s without resorting to this model. But this would be inaccurate: traffic did not decrease all that much, and even more, the actions taken in the 2000's led people to change their destinations. People moved closer and the time in transport increased.

... .. but still too much time spent in transportation

So why is it complicated? Two main reasons explain why its difficult to switch from cars to public transportation while maintaining the same departure and arrival destinations. The first is that drivers, a minority in Paris and its near suburbs, travel longer distances than average. They already spend two hours in transit, while the average person spends 1 hour and 20 minutes. It is understandable that change would be difficult for drivers who spend 2 hours or more in transportation. They already spend a significant amount of time in transit. The second is that public transportation suffers from a longer door-to-door transportation time. This is due to the time it takes to get to stations and the time spent waiting, which together represent 40% of the total time spent in public transportation. For this reason, we have explored the potential of another alternative: small personal vehicles for urban use.

Second alternative: electric bicycles, mopeds and scooters

What are small personal vehicles for urban use? They are one or two seat space saving vehicles that are silent, light and electric. They are the electric cousins of bicycles, mopeds, or scooters. They are more commonly used by our neighbors in Germany or the Netherlands. In France, their use remains relatively limited. They are a family, but in this family there are two key differences: the maximum speed and the cost. They have their advantages: they are little, do not take up much space, do not make much noise... They also have their disadvantages: they are designed for one or two people and cannot accommodate families. In terms of comfort, they can only replace cars for short distances, for example 20 kilometers per day for an electric bicycle and 30 kilometers for an electric scooter. They have their pros and cons, and simulations show that technically they are a high-potential mode of transport. We could replace up to two-thirds of trips in cars with electric scooters, for example. That is enormous.

Limits that cannot be overlooked

That being said, there is a limit on what can actually be achieved. Either due to transport time: outside of Paris, an electric bicycle is not as fast as a car. Or for financial reasons: an electric scooter, in addition to the other vehicles, comes at an additional cost. It has to be amortized, parked, and insured. It becomes less expensive when it replaces the car, but then other costs have to be accounted for like the occasional cost of renting a car when it is not possible to use a scooter, such as when traveling with family. **Car sharing** has reduced these costs but they remain quite significant. And a better protection of these types of users who are, in theory, more vulnerable than motorists, should be ensured.

Alternatives that are complementary and not in competition

When all of the above-mentioned factors and costs are taken into account, the number of cars on the road can be reduced by 10% to 20%. These results are overall better than with public transportation and, even more, this second alternative covers a wider variety of trips. On the whole, the two strategies are complementary, not in competition. We could take the simulation even further by increasing the cost or the difficulty of parking cars, but this would result in an increase in the time spent in transportation evoked earlier.

There will always be a portion of the population that is unreachable by changes in modes of transport: they are relatively few in number, but they travel long distances in cars in areas with poor access to public transportation. They may be few, but they represent an

important number of cars on the road. Their situation can only be improved by changing how we occupy space. And the remaining issue of delivery and transportation of goods will guarantee that the roads will never be empty...

The importance of listening to the needs of citizens

In conclusion, we can affirm that even a modest shift towards public transportation can have a positive impact, provided it does not increase the time in transport. That it is possible to shift to more virtuous modes of personal transportation than the car, provided we facilitate and secure access to electric scooters and bikes. That these two options are not in competition with each other, but rather complementary. That they can be supplemented by the development of taxis, minibuses, chauffeured cars, as shown by other researchers in the case of Lisbon. A Greater Paris, with far less personal vehicles, is possible. However, it has to be built starting with the needs of citizens.

We must beware of simplistic anti-car discourse that fails to provide any viable alternatives. It only slows down mobility, and prevents the Paris region from becoming the metropolitan "Greater Paris" (Paris and its closest suburbs). Greater Paris must include all territories, and provide mobility solutions that are adapted to different contexts. Putting forward unrealistic solutions causes citizens to distance themselves from elected officials. This is something we really do not need today.

Mobility

Broadly, the word mobility can be defined as the intention to move and the realization of this movement in geographical space, implying a social change.

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Car sharing

Car sharing is the pooling of one or several vehicles for different trips at different times. Three types of car sharing exist: commercial car sharing, peer-to-peer car sharing and "informal" sharing between individuals.

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Keywords : [cars](#), [mobility](#)

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