Transportation Innovation
Freiburg, Germany

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December 2008

Figure: City of Freiburg. Image acquired from: http://www.nottingham.ac.uk/german/ yearabroad/cityguides/freiburg.shtml
Introduction

“Freiburg is one of the "greenest" cities in Germany, not just from the political perspective, but also in terms of nature. No other city of comparable size has more forests and vineyards and such a diversity of landscapes, which range from the rough heights of the Black Forest down to the alluvial forests by the River Rhine. The geographical location, the mild sunny climate and the relaxed way of life all contribute to Freiburg’s image as a truly green city” (Climate 2007). The focus of our paper is however a different aspect. Freiburg has a policy that gets people out of their cars and into other modes of transport. So how did Freiburg get people out of cars? It started with the ‘green’ movement in response to both the citizens’ demands and policies initiated by the local government. Freiburg’s transportation policy of mixed land use and the ‘five pillars’, car discouragement, and highly convenient public transportation, biking, and walking, make it all work together. In studying this city, one cannot avoid also taking a look at the Vauban district, where there is an even greener approach than the city itself has taken.

Transportation Policy

In 2007, Freiburg was named the “Gold Star” winner of the Osmose Awards for its success in the area of transportation management (Osmose 2007). Freiburg achieved this award by integrating policies on land use with policies on transport planning. By developing residential areas into areas of mixed use, people were able to access more services closer to home, and by combining this with improvements to public transit and cycling services, as well as restrictions on car traffic, Freiburg found that it was able to drastically reduce the use of automobiles in the
city. Freiburg’s goal was to strengthen the city center and the district centers through urban planning and transport policies, creating a more walk-able city. Freiburg’s transportation policy was developed around five main pillars (see Figure 1). These five pillars are: extension of the public transportation network, promoting cycle traffic, traffic restraint, channeling individual motorized vehicle traffic, and parking space management (Osmose 2007). By using this integrated approach to transport policy, Freiburg manages to make the use of automobiles less appealing while at the same time turning public transit and cycling into more appealing and viable forms of transportation. This two sided approach to the problem makes it easier for people to make the shift from cars to greener modes of transportation. But so far we have not discussed many specific policies. So what does Freiburg actually do to implement the five pillars of its transportation policy?

The first part we will focus on is Freiburg’s car discouragement policies. In Freiburg, severe restrictions are imposed on cars. Laws restrain automobile traffic by reducing the speed
limit on many roads to 30 kilometers per hour (approximately 18 mph) and on a growing number of “home zones” and “bicycle streets,” the speed limit has been lowered to 15 kilometers per hour (Melia 2007). This creates a safer environment for pedestrians and cyclers, as well as children playing in the streets. It also makes traveling by car less appealing because it is no longer the fastest and most efficient way to get to your destination.

The inefficiency of the car is increased by the fact that many streets and urban areas are blocked off to automobile traffic. Freiburg has created an extensive traffic management system that channels as much automobile traffic as possible onto a few main streets in order to keep traffic light on the majority of other streets (Melia 2007). This is mainly accomplished by lowering the speed limit to 30 kilometers per hour (kph) or less on streets that are not meant for car traffic to encourage drivers to stay on the main roads and by using one-way streets to reduce the traffic volume in local street networks and channel through traffic onto arterial routs. In total, Freiburg has 120 one-way streets (Transport 2008).

Another method Freiburg uses to channel automobile traffic is to close certain areas off to car traffic all together. For example, the historic center of the city, which was built in the medieval style with narrow, winding streets, was traditionally plagued by congestion and exhaust from cars, but because of Freiburg’s transportation initiative, the city center (shown below) has been progressively pedestrianized and is now closed to all private vehicles (Melia 2007).

Freiburg also restricts automobile use through parking space management. In Freiburg, on-road parking has progressively been replaced by multi-story and underground parking garages, which are often expensive to use (Melia 2007). By limiting the number of parking
spaces and making it more expensive to park, the city of Freiburg further reduces the appeal of driving a car.

However, making it more difficult for people to use their cars will not produce a change in behavior unless there is an alternative form of transportation that people can use to replace their cars. That is why Freiburg has put a great deal of money and effort into improving their public transit system and making it easier for people to walk and bike around the city.

Freiburg already had an extensive public transportation system before the city started the initiative to become greener, but having a good public transportation system is only the first step. One of the most important things Freiburg did to increase walking, cycling and public transit use was to create stronger city and district centers and to promote areas of mixed use. This made it easier for people to access supplies and services closer to home, and it gave Freiburg the

Figure: Freiburg City Center. Image acquired from: http://shizzyinfreiburg.blogspot.com/2007_04_01_archive.html
nickname “city of short distances” (Osmose 2007). Also, since cars are forced to travel slowly on most city streets, Freiburg was able to create a public transit system that is faster and more efficient than cars, and the city trams run frequently so passengers are not inconvenienced by a long wait. Freiburg has also implemented programs like Park and Ride as well as Bike and Ride, which make it easier for people to mix public transit with other forms of transportation. These programs make people willing to travel farther distances to access public transit because it is not necessary for them to walk the whole way. If they prefer, they can bike to the public transit station and know that when they get there they will have a safe place to store their bike until they return. Even if people decide to drive to the public transit station, this is still better than the alternative, which would be driving the whole way and not use public transit at all.

Freiburg was also successful in finding a balance between the different green modes of transportation. The city accomplishes this partly through its creation of separate lanes or paths for each different type of transportation whenever possible. Freiburg has taken a huge initiative to create an extensive system of cycling paths throughout the city. It uses 120 km of cycling paths, 150 km of separate cycling lanes, and 130 km of cycling-friendly streets to create an extensive cycling network totaling 400 km in length (Freiburg 2008). This network, in many cases, gives cyclers and sometimes pedestrians their own domain where they can travel at their own pace. Even when bicyclers or pedestrians do have to use the same streets as motorized traffic, the danger is minimized by a 30 kilometers per hour speed limit. Furthermore, cyclers and pedestrians are often given special privileges that are not extended to motorized traffic. For example, a new initiative is opening up one-way streets to contra-flow cycling traffic, allowing bicyclers and pedestrians to take a more direct rout to their destination than automobile drivers,
who are burdened by extra regulations (Transport 2008). This type of traffic management prevents bicyclers and pedestrians from being crowded out by motorized traffic and is partially responsible for making walking and biking more appealing in the city.

But this kind of cycling network doesn’t come cheap. Since 1976, Freiburg has invested $1.3 million annually to promote cycling in the city (Roney 2008). This is a large investment, but it obviously paid off. Figure 4 (acquired from Transport 2008) shows that between 1982 and 1999, bicycling (the green columns) and public transit use (the purple columns) increased significantly. Walking (blue) decreased following a country wide trend, and car use (yellow) also decreased. In 1982, the majority of trips were traveled by car or on foot, but in 1999, the different forms of transportation became more evenly distributed as shown.

**Vauban**

Vauban, an eco-development built on the edge of Freiburg, has taken green living to a whole new level. Vauban consists of around 6,000 residents, but despite its small size, its
residents have taken it upon themselves to build a community at the forefront of current green technology. According to Purvis (2008), about a hundred families in Vauban live in homes built in the “passive house” design, meaning that they use almost no energy to heat or cool themselves. The houses are well designed and highly insulated, allowing them to be heated by 150 liters of oil per year where a normal house of the same size would require 600 liters of oil per year. On top of that, many of these houses are equipped with solar panels, but since the houses need so little energy to heat them, most of the energy captured by the solar panels is sold back to the grid, giving these homes the nickname “plus-energy” houses. Furthermore, the solar panels make the residents a 6,000 euro profit each year, and this income is guaranteed by the government for twenty years, although it can take up to nine years to pay for the solar panels.

These are just some of Vauban’s accomplishments, but the thing it may be the most well known for is its goal of moving toward a car-free community. Vauban has greatly reduced car use in the community by ensuring every resident can access all important goods and services within walking distance. It provides a reduction in the cost of their housing once they sign a contract stating that they will live without a car. So far 40% of households have chosen this option.

In the image of Vauban below, take note of the lack of cars on the street. The most drastic of Vauban’s anti-car policies is the elimination of street and driveway parking in the housing communities. According to Purvis (2008), cars are only allowed into the residential areas for pick-ups and drop-offs, and even so, they can travel no faster than 30 kilometers per hour. All Vauban residents who own a car must purchase a parking space at one of the multi-story “Solar Garages” located on the outskirts of Vauban in order to park their car, and this
parking space costs them 18,000 euros a year. Because of the steep price, only 20 percent of Vauban residents own a car, another 20 percent own a parking space but only use it for visitors, and the other 60 percent signed a declaration that they do not own a car in order to avoid the parking garage fee (Vauban 2006). However, about 5 percent of Vauban residents are reported to pretend they don’t own a car when the actually do (Purvis 2008). In order to pull this off they just have to find someplace to park their car other than the parking garage, but Vauban residents who sign a declaration saying that they will not own a car and are caught cheating may have a portion of their property confiscated as punishment (Purvis 2008).

Figure: Vauban district. Image acquired from: http://bikeportland.org/2007/01/05/germanys-car-conscious-community/

To some people, Vauban’s policies may seem too extreme; however, Vauban is attractive to others. For an urban community, Vauban is unusually popular among families with children.
In Vauban, 76 percent of households have at least one child (Vauban 2006). Families with children like the Vauban district because its car-free objective provides a safer outdoor environment where children can play. With cars traveling at slower speeds and fewer cars on the roads, there is less of a risk that children will be injured by a car. The Vauban lifestyle may not be right for everyone, but the people who live there seem to enjoy it, and according to a study by Scheurer (2001), 40 percent of Vauban residents cited the car-free and ecological objectives of Vauban as one of the reasons they moved there (Vauban 2006).

**Conclusion**

The key to success in the German city of Freiburg has been their consistent integration and application in practice. By decreasing the use of personal vehicles, public transportation, biking, and walking have been made more cost-efficient, energy-efficient, convenient, and easy for residents to use daily. With its mixed land use and high density, there is more room for natural beauty, even further promoting families to live in the city, as well as the aspect of children’s activity outdoors because of a safer environment without the risk of injury by cars. And if all of these are not enough of a positive effect, the CO2 emissions have reduced from 413,000 tons in 1993 to 393,000 tons in 2003- a 4.8% decrease. Cities around the world can follow Freiburg’s example in becoming a green city, if its residents are willing to impose new policies and be patient with the change that will occur. Even a small city like Ithaca can use the transportation policies of Freiburg and have mixed land use, car discouragement, and public transportation, biking, and walking promotion.
References


