

Why Mobility Planning Matters

Case Study: City of Zurich

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Abstract:

The main objective of this study is to explore the rationale behind the success of the Zurich city in terms of the transportation planning. This city is one of the cities implementing most sustainable transportation system. This study explore the successful implemented strategies that can be adapted well in the Context of Memphis. There exist significant difference in both cities, however, there are many strategies implemented in Zurich which can be well replicated throughout the world.

This case study highlights the three major aspects of the transportation policy and implementation in Zurich; regional transportation planning, emphasis on trams, buses, bicycles and pedestrian and third aspect is street design. The combination of central city tram and regional rail services both supplemented by trolley buses and motor coaches has produced incredible rich and dynamic transit service.

The main intent of this Case study is too find out what mobility strategies we can implement in Memphis to assure the better mobility and accessibility. This will result in better quality of life of citizens in Memphis by improving walkability, reducing pollution, and designing streets for peoples and not for cars.

Introduction:

Situated in Switzerland, the city of Zurich (population 380,777) is the center of a conurbation Canton Zurich (population 1,443,436). City of Zurich is world headquarter for major financial institute.

City of Zurich is major employment center for people in region Canton Zurich. In 1970 34.2% of Zurich's worker arrived from outside the city by 1990 this share was up to 47.6%. The land area is 34 square miles/89 square kilometers, which yields a 2013 population density of 11,100 per square mile/4332 per square kilometer. (Swiss Federal Statistical Office 2014)

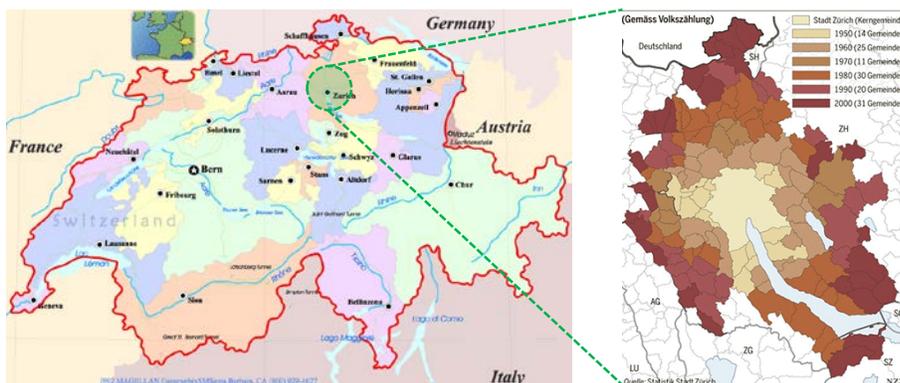


Exhibit 1 Zurich city in context with Zurich Urban Agglomeration

Policies and Strategies

Regional Transportation Strategies.

The city of Zurich is one of the 171 municipalities in the Canton of Zurich. In the nineties, the parliament of the Canton defined the guiding principles for settlement structure: compacting as well as concentration in areas with good access to public transport. With these guidelines the parliament reacted to the milestone on May 1990, namely the opening of the S-Bahn, the suburban railway.

- Primary Net: The city of Zurich is one of the 171 municipalities in the Canton of Zurich. In the nineties, the parliament of the Canton defined the guiding principles for settlement structure: compacting as well as concentration in areas with good access to public transport. With these guidelines the parliament reacted to the milestone on May 1990, namely the opening of the S-Bahn, the suburban railway. Radially oriented line-haul system that connects central city with rest of the region
- Secondary Net: Line haul buses and intercity rail connect to major stations on pulse schedules (timed transfer network)
- Supplemental Net: Fine grid of mainly tram lines that circulates within dense, built-up areas providing ubiquitous access and short-haul services within city. (Cervero 1998)

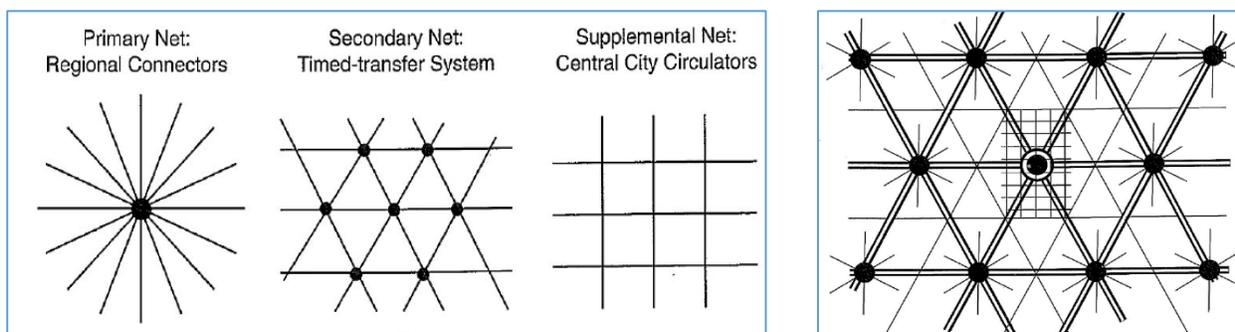


Exhibit 2 Regional Configuration of Public Transit Services in Greater Zurich: Integrating Three Levels of Network (Cervero 1998)

Surface Transit in City of Zurich

Zurich having invested in radial rail systems and retained their traditional, richly embroidered tram networks. Trams have been particularly valuable in maintaining a human scale co-habiting downtowns streets with pedestrians and cyclists. Only trams alone are allowed into several otherwise pedestrian zones. Combination of minimum-delay surface-street transit connections and fast suburban railway services has won over most Zurich residents to mass transit producing one of the highest per capita ridership levels anywhere.

Significant share of road space for trams, buses and bicycles, supplemented by numerous incentives on use these modes. This was followed by introduction of an imaginative traffic management program based on modern information technology and dynamic traffic signalization approaches.

Urban Design and Street Design Parameters:

Zurich city is one successful cities in terms of its high public transportation usage. This city exceptionally performs well with public transportation because of its direct and indirect strategies implemented in street design and traffic management.

In the city there are various areas and streets where cars in are not allowed, making these areas complete pedestrian and tram accessible. Restricted car usage accompanied by strong network and high frequency of trams makes these areas successful areas. For example the street of Bahnhofstrasse, this street is largely pedestrianized, but is also an important link in the Zürich tram network.



There are 17 road section where parking and stopping of car is prohibited and on 41 junctions there are bans on left turns. Residents parking cars along road are required to have specific permit. And for visitors on-street parking is fairly scarce and off-street parking is too expensive.

Dedicated bicycle lanes and frequent pedestrian crosswalks have further shrunk available right of way to cars. Even at the junctions the preference is given to the buses and trams. Zurich city has implemented one-of-a-kind traffic systems which allow flow of trams and buses uninterested.

Dynamic Traffic Signalization:

City of Zurich has taken all the benefits of improved information and technology and incorporated them in traffic signal managements.

If there is a series of traffic lights, the traffic computer usually actuates green all the way for public transport vehicles. When traffic lights are located directly after stops, the tram or bus signalizes its arrival at the stop. After 10 to 15 seconds the light switches green and stays on until the departure signal is given after the vehicle has passed. This continuously adjusted traffic signal is resultant of zero waiting time policy which suggests that trams and buses do not require to stop at junctions. (Stadt Zurich 2010)

This is achieved by introducing Induction loop sensors which can locate trams and buses when they approach the signal. Subsequently signal activates when bus or tram approaches to signal for a short while to allow tram or bus pass faster. (Cervero 1998)

Zurich city divided city onto sectors consisting of three to 12 traffic signals. Through real-time monitoring traffic in each sector are adjusted to keep traffic volumes and queues evenly spread throughout the city.



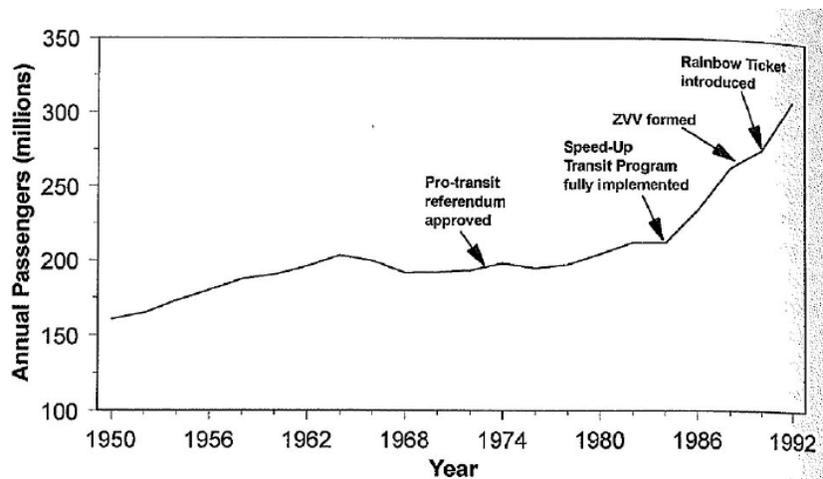
Time Frame for measured impact

In 1973 citizens of Zurich city declined the proposal for the underground transportation system for shortest distances. The rationale behind it was to preserve the urban fabric. One of the reasons was also that the underground transportation solution will not effectively solve the traffic problem of the roads and it will also disturb the walkability on streets. In the same year Transit First Policy was approved. It proved to be grassroots policy as it affirmed the improvement in existing tram system.

In 1979, Zurich's city council issued directive aimed at speeding up green modes of transportation. Consequently Speed Up transit Program was introduced. The purpose of this program was to accelerate the more sustainable public transportation trams and buses and reducing car and tram conflicts. Under this program the higher priority was given to trams and bus to public transportation at intersections. Under this program City built separate bus lanes and dedicated tracks (like LRT). This program directed the use of hi-tech traffic signal system that are directly actuated by trams and buses by means of dynamic traffic control system. Moving ahead, fare incentives were introduced throughout the city. In this tickets rates were discounted and multi-rides pass program was introduced.

Meanwhile the city kept growing as the major financial institution for region around it. By this time almost 47% of working population used to come to city from outside the region. This situation called for the solutions to resolve the regional transportation issue. Hence in 1990 Canton Zurich opened regional train service, S-train (S-Bahn) that connects outer region to the city. And Zürcher Verkehrsverbund (ZVV) formed to plan and coordinate all public and private transit within region.





Tram and Bus Transit Ridership Trends in the city of Zurich and Significant Policy event. (Source: The transit Metropolis the global Inquiry, Robert Cervero)

Lead Entities

The systems runs on the combined efforts of transit authority in Zurich Regional area (Canton Zurich and transit authority in the City of Zurich

- VBZ- Overseeing and operating the city’s tram and bus network is a municipal corporation VBZ Verkehrsbetriebe Zurich
- VZZ- Zuricher Verkehrsverbund ZVV formed to plan and co-ordinate all public and private transit within region.

Together they handle, the Zürich urban area (urban agglomeration) has a population of approximately 1.2 million and covers a land area of 420 square miles/1085 square kilometers.

Outcomes

The Zürich efforts have been gradual and long term, involving major improvements in the system over a twenty-year time period. A regional (underground) train system (the S-bahn) was added in 1990 and covers the area of the entire Canton Zürich. Together, the transit system provides 167 miles (270 km) of line within the city (including 72 miles (117 km) of tram lines) The total cantonal system includes 262 lines and covers some 1429 miles. (Beatley 2000)

The result of these many measures is an efficient, smooth-running transit system, one that citizens can count on for mobility. There are few areas in the Canton Zürich that are not within a few hundred meters of a station or a stop, and the frequency of service is quite impressive (most trams and buses in the city run every six to eight minutes). In addition, one ticket is good for all modes of transit in the city.

Transit ubiquity combined with careful integration of services means one need not to think too much about the availability.

Table 1 Statistical Transportation Data for City of Zurich

	Year	Statistical Data
Commuters, total	2013	408,724
by individual motorized transport	2012	26.34%
by public transport	2013	65.84%
by soft mobility	2013	7.82%

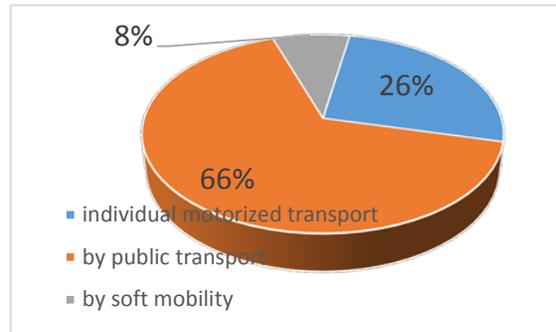


Figure 1 Percentile distribution of Modes of Transportation

Appendix



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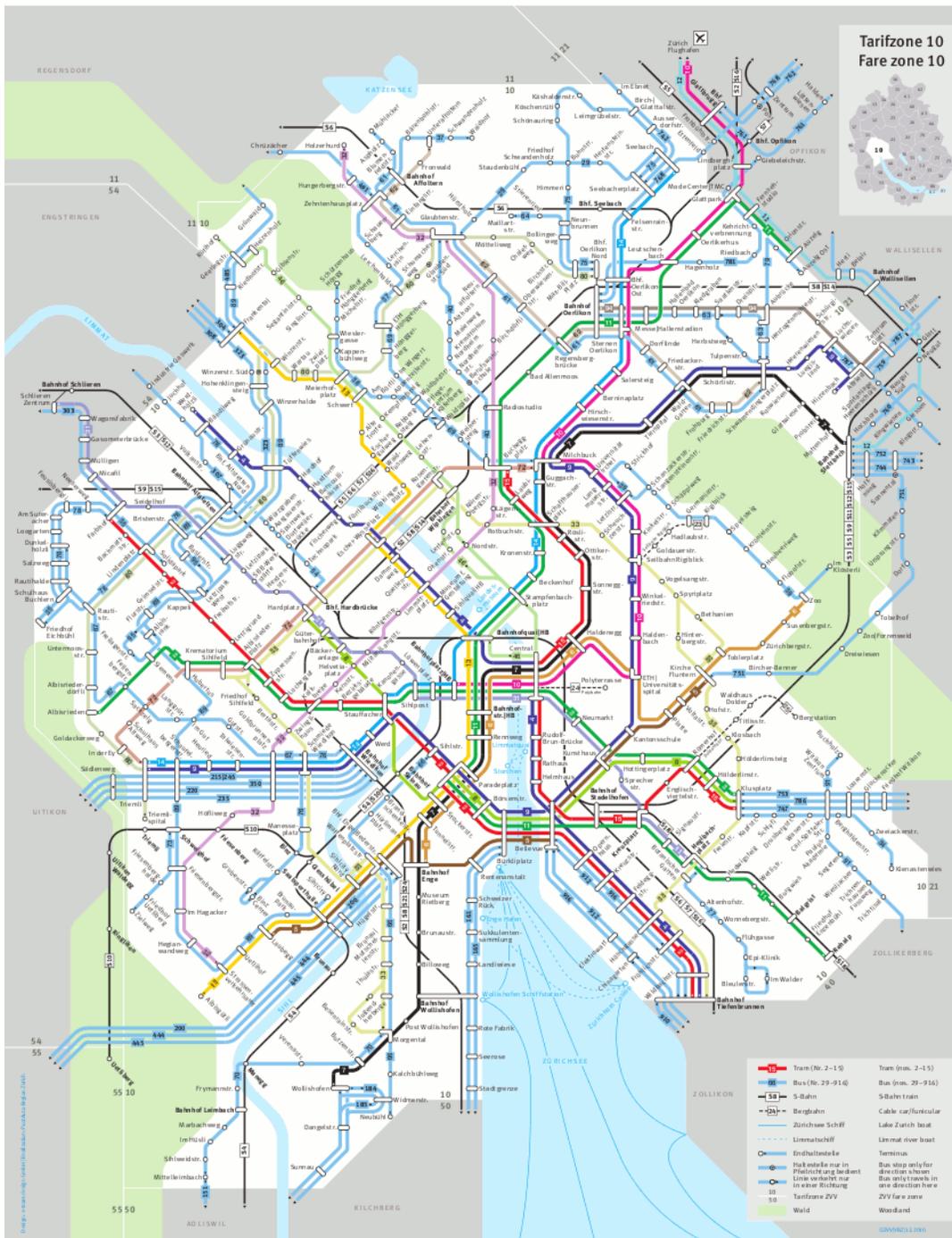


Exhibit 3 Map Showing The dense network of Public Transportation in City of Zurich (Zurich Public Transport Authority n.d.)

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