

Preparing for the Third Wave of Cyclists- Cycling facilities designed for the future cyclists: Experiences from Amsterdam

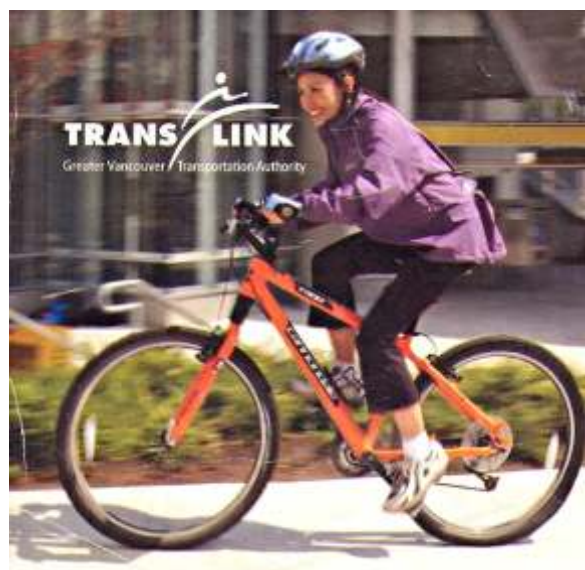
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“Preparing for the third wave of cyclists”: the title of this symposium implies that Vancouver can, or has to, learn something from experiences and practices elsewhere. So, is there something Vancouver can learn, and if 'yes', what can it learn. I have found one image which sums it all up:



Vancouver knows about cycling, and wants to provide facilities, but the know-how is lacking; imagine this as a road for cars, a traffic lane ending right on a perpendicular shift to the left! Bicycling is not in the genes of the designers and planners; the seawall between Granville and Cambie is in that respect a good, and thus a bad example: there are more places here where the design just does not make sense for the bicyclist.

There is an obvious difference between the use of cycles in Amsterdam or the Netherlands in general, and Vancouver, which is immediately visible when we compare the picture on the Translink Cycling map:



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Cycling in Vancouver means special bikes and special gear; it is more associated with sportive activity, exercising, not with it being a means of transportation, as it is for Minister Donner in the Netherlands, advising the Queen during the formation of a new cabinet in 2003:



So, how do we get somewhere near Minister Donner? Let me first give some data on the Bicycle situation in Amsterdam.

Report 'Amsterdam op de fiets' (2003)

| | | | | |
|---------------------------|------------------|------------------|-------------|--|
| | 1980 | 1999-2002 | 2006 | |
| possession of bike (>12y) | <u>56%</u> | <u>77%</u> | | |
| use (>1 per month) | | 67% | 80% | of those who posses a bike (2006: several times a week) |
| daily use | | 50% | 41% | of those who posses a bike |
| | | | | |
| bike trips | 1994-1997 | | | |
| total | <u>34%</u> | <u>39%</u> | | less trips in general by inhabitants; longer distance per trip |
| city center | | 55% | | |
| Periphery | 23% | 22% | | reason: more immigrants live in the periphery; facilities |
| | | | | |
| to work | 1991 | 2004 | | |
| bike | <u>30%</u> | <u>34%</u> | | |
| car | | 32% | | |
| school/Univeristy | | | | |
| bike | <u>47%</u> | <u>27%</u> | | students have a public transit pass |
| public transit | | 56% | | car is less popular |
| big shopping | 25% | 33% | | |
| | | | | |
| injured | | -41% | | over the period 1990-2001 |
| deaths | | -40% | | absolute number: 15 deaths per 100.000.000 km |
| | | | | |
| marks for quality | | | 7 | out of 10 |

77% of the inhabitants older than 12 y. have at least one bike; 67% the same group uses the bike at least once a month (2006: 80% several times a week); 50% of Amsterdam inhabitants use the bike daily.

The group who uses the bike most is between 25 and 55 y.o. Under that age, bike use is declining: this group consists for a large part of youth of Turkish, Moroccan, and Surinam descent, and they use the bike far less (the most infamous exception being the killer of the film maker Theo van Gogh) -- that also partly explains the decline in bike use in the periphery, where more immigrants live. Also facilities are mentioned here. Otherwise, in the core bike use has gone up.

Biking has a good, sportive image, and about 63% of the respondents disagree with the statement that you only use your bike when the weather is nice, or when you don't have enough money.

People use their bike mainly for going to work, and for shopping. Those who use the bike for going to work are also more frequent users of combined transit: using the train, metro, and bike.

School kids and students use the bike less: public transport is more often used by both groups (for school kids, this might have to do with the distances to the highschools or schooling centers, and also with the 'ethnic' composition; for students it goes that part of their student support of the government is a mandatory transit pass).

Why the bike/why not the bike?

Most important factor to choose to use the bike is the speed of transportation, and being independent of transit schedules; for longer commutes health reasons are given.

Of those who don't use the bike for relatively short distances (<5km), the lack of comfort (rain, getting your clothes dirty) is mentioned as a reason, and the fact that one cannot load enough baggage (when going shopping). Also, car drivers have the idea that the car is faster for these distances (which is, in my experience, sometimes true, and sometimes not, so it is an important obstacle for car-addicts; research has shown that the bike is faster in about 83% of the cases for distances averaging 2.6 km). Using public transit is the choice mainly when people judge the distance they have to go as too long.

People who have a bike are more positive towards biking than people who do not have a bike. This sounds like kicking down an open door, but attitudes and behaviour are closely related, and there is no use in preaching for one's own parish.

What is on the wishlist of Amsterdam bikers?

60% wants more space on the road for bikes, but only 44% would have more space at the expense of space for cars. Of the measures Amsterdam has put in place to counter the downward trend in bike use that appeared in the '70's, people especially mention the free bike paths in the city, and people want these facilities also in their own area (the suburbs). Further on, putting in more free bike paths and more bike storage facilities at railway/metro stations and shopping centers is regarded as a way of making biking more attractive. However, the presence of these latter facilities has no influence on the actual choice for or against using the bike: destinations with locker facilities do not attract more biketraffic -- not only is our behaviour more a matter of habit than a rational choice, this finding also tells us that people will go where they have to go, independent of the facilities provided. I take it that the City Council of Vancouver, as every good democratic government, is aware of this and does not simply cater for the immediate demands and actual behaviour of people, but looks further down the road, creating facilities that improve the quality for all inhabitants, thus caring for the common good and public life of citizens (and not listening to the daily changing whims of 'taxpayers').

Heaven on earth?

Yes, there are splendid facilities and attitudes so that parents are not afraid to have their kids bike in the city -- mark that the kid is in the right position, at the right from the mother, the mother protecting the kid from traffic, and preventing it to swerve all over the road). But we also just have to cope with the limited space, partly due to bicycle cadavers. Or, we can say: we still have to share the road, and that is not bad at all; it is quite possible!



Backgrounds of Amsterdam's bike policy.

Objectives are to consider and approach the bike as a full participant in traffic, and to make biking more attractive, to concentrate on issues as safety (identifying black spots, construction of safe bike routes in the City) and theft. Bike matters are managed by the bike-section of the DIVV: Dienst Infrastructuur Verkeer en Vervoer, the Department Infrastructure Traffic and Transit. This institutional department has a six-point bike policy:

1 A clear bicycle policy;

(DIVV is primary responsible for bike policy and advises and coordinates)

2 Choosing for the bike;

(construction of the Principal Bike Network, and through-routes; promotion of bikes at schools)

3 Bike and car, bike and public transit;

('chain' transit: combining car and bike, car and public transit, bike rental facilities at P&R facilities)

4 Traffic safety;

(identification of black spots; information and awareness for bikers, also at schools, via the 'bike exam')

5 Bike theft;

(bike theft is about 20%; development of registration systems; the Locker Network, guarded bike storage throughout town; in 2006 4700 spots in guarded parking; use of bate bikes)

6 Information.

(via internet, flyers, public awareness campaigns)

This six-point bike traffic policy is the final result of the decision in 1978 to reverse the trend of decreasing bike use.

The short distance

The main target of Amsterdam's bike policy are the the trips up to 5 km, and especially between 2.5 and 5 km, trips where quite often the car is used, but where the bike is a much better alternative. If we want more bike use in Vancouver, this is the segment in which one can make the most progress, and if Vancouver achieves to get people to use the bike for the short distance, the longer commute will automatically benefit, and become more attractive.

What facilities are necessary for these distances? For Amsterdam, it is mainly bike storage, either on the street, or in guarded compounds near important commercial and touristic venues (Locker Network), or in inside storage next to railway and metro stations. These latter facilities include bike rentals and repair services. (Lockers for storage bikes at home in the 19th century area is a separate issue). Due to the geography of Amsterdam, there is not a big need for special end of route facilities such as showers -- for distances up to 10 km you don't need to dress up. Not that these facilities are absent; many workplaces do provide shower facilities for their employees who commute from longer distances (think of distances up to 30 km).

Bike parking space is never enough:



though on a Sunday afternoon (picture right), next to the University's main building downtown, one can find a spot (clearly, you don't need to work or study 7 days a week to get ahead). One can see on the picture on the left how the road is separated into a lane for the cars (just visible in the left), a separation lane that doubles as a bike parking place, the bike path, and the walking path. Separate bike paths are presented as the key to the success of Amsterdam, but equally important are the accompanying measures to rationalise and channelize car traffic. Let us look at three examples:

Road design



The first example is a typical street in the west of Amsterdam, a development laid out in the early '60's. The road you see would have been a road with two lanes for cars, a parking lane, and a footpath. With the policy change towards better bike facilities, the road has been reconstructed, allowing for a separate bike path and only one lane for cars.



The same goes for this road which is in an older part of Amsterdam; here, there is just enough space on the right to keep bikes and pedestrians separated.

In both cases, car traffic is channelled into one lane, with only at crossings a two-lane (sometimes three) separation, mostly a separate left-turn lane (right turns on red are not allowed in The Netherlands, in fact nowhere in Europe, and this rule is one important factor that makes Vancouver traffic not bike friendly). Accompanying the construction of separate bike paths, there has been thorough study in traffic/human behaviour, road design, and traffic flow. I have been biking all my life, only got my drivers license when I was 31, and the remarkable thing in Amsterdam is that over the last twenty years the flow of car traffic has been concentrated into certain arteries, taking away the traffic from some formerly important and busy arteries, without making it more time consuming to get around town by car.



Another example is the Haarlemmerdijk, in the 17th century center, where there used to be two lane traffic with tiny sidewalks, and now one way car and bike traffic, and a separate bike lane in the opposite direction. And more pedestrian space. It is one of the funkiest streets in Amsterdam.

Orderly car traffic is an essential key to bike safety. Vancouver has too many overdimensioned roads which invite to undisciplined car behaviour (I found it pathetic that I had to do a road test to get a BC-drivers license, seeing how badly people drive around Vancouver; I found it even more pathetic after going through Roads Sense of ICBC: the requirements and rules are about the same as in the Netherlands, so why are people behaving so erratic and unordered on the road?)

Does it always work?

Despite all the theoretical and practical knowledge, Amsterdam gets it wrong at times, notably in the newest developments, where there is again a decrease in bike use. Look for example here:



Designed in the early '90's, finished about 1997, this former harbour island is served by a 600 m long central artery: a racetrack, thus, because it invites to speed. The cobble stones in the middle were no deterrent, the speed bumps neither, and the little poles increased the conflict a bit, and did not survive very long (a moving truck or a lift for cleaning the windows was enough to kill them).

The secret is, provide space where you need it, and limit space where you don't need it; all Vancouver roads would have no problem with only two lanes for traffic (merging is always the bottle neck).

The other secret is to consider bikes as full participants in traffic, with their own needs. Mixed use paths are not an option because bike speed is always conflicting with pedestrian speed. This is a good point to make a little excurs to

Sharing the space

Ideas from sharing the space were referred to here on the vacc-web recently as anarchism on the road, because of the experiments in Dutch and German cities of removing traffic signs in order to enhance traffic. Anarchism? "I'll fatten you up!" Sharing the space has nothing to do with anarchism, it all has to do with carefull analysis of human behaviour in traffic and applying that knowledge to traffic and road design, in order to force people into proper behaviour. It is about knowing why people behave the way they do on the raod; if the road looks like a race track, people will race, even if you put a speed limit of 5k/h on the side.

See this tabel:

Figure 2
Overview of the differences between social behaviour, social traffic behaviour and traffic behaviour.

| | Social behaviour | Social traffic behaviour | Technical cum legal traffic behaviour |
|--|--|---|--|
| Characteristics of behaviour | Pluriform and pluralistic | Pluralistic | Uniform |
| Movement mode | Unfocused | Largely focused | Extremely focused |
| Appropriate speed | < 30 kph | < 50 kph | > 50 kph |
| Predictability of behaviour | Largely unpredictable | Limited predictability | Largely predictable |
| Eye contact | Frequent | Limited | Minimal |
| Determinants of behaviour | Social environment (people) and physical environment | Social environment (people) and physical environment + basic traffic rules | Control system - Traffic engineering and legal system (vehicles and traffic engineering environment, road markings and road signs) |
| Behaviour expected from other road users | Social behaviour | Social behaviour with legal and technical constraints | Technical and regulated traffic behaviour |
| Signals from spatial layout that are relevant to behaviour | Context of built and natural environment | Built environment, design of public space, road design, and contextual references | Signals, traffic signs and lights, traffic lights, speed-humps, instructions from authorities |
| | | | |

Sharing the space is about 'determinants of behaviour', 'expected behaviour', and the signs form the spatial layout that elicit the right behaviour. In essence this is about getting people to interact with each other and to use people's reactions to undefined situations: when there are no signs and no road-divisions, people slow down and take care. If the road is clear, i.e. well marked and without visible obstacles, the speed will go up — that is why it is called a 'free way'. Likewise, surveillance is necessary when we are in traffic mode, but if done properly, there is no surveillance necessary in social/public mode. The point is to know what to apply and use where, knowing in fact what you demand of people in a particular road — the race track where I lived is a clear example of wrong design: it tells you: speed, but the context is: social, at most an intermediate area.

One can see that clearly comparing the column 'social behaviour' and 'traffic behaviour': social behaviour is unfocussed, unpredictable, in a context of social interaction in a specific physical environment; social behaviour, or as I would call it, public behaviour, is being there just for enjoying being there — meeting, (window-)shopping, strolling around, the 'flâneur'. Traffic behaviour is extremely focussed — we want to get to our destination, and therefore speeds are high and control is provided by an engineered environment and the legal system.

Vancouver has a lack of public spaces: all roads and streets are made for cars, and only the smallest necessary space to get from your car to the house or the shop is provided [the 'flâneur' cannot live in Vancouver]. Basically, all roads are 'traffic' oriented, even if it is a walkway; only the mixed use paths, such as parts of the seawall around False Creek, are for social/public use, but are designed, marked, and partly used as traffic space; they are also mixed spaces in the sense of 'sharing the road'. Only Granville Island comes close to the public/social space above — there one sees it works: speeding is hardly a problem on the Island. The biggest issue here is a general issue in Vancouver: the lack of eye contact and coordination between traffic participants, especially pedestrians; however, it does not matter much in the social space of Granville Market.

There are possibilities for creating more mixed social spaces, meaning creating spaces where there is designated space for different traffic participants, allowing the total traffic pattern to go more to being social than to being traffic oriented — the downtown core (a big one-directional U from Burrard, over Davie, Denman and back via Robson?), but also Broadway and Granville have potential. Main Street is a step in the right direction.

Conclusions

Something very practical; it is not really possible to relocate Vancouver to Burns Bog, so we have to live with some steep hills. As far as manmade slopes are concerned: a 2 to 3% slope is the maximum which is generally bikable.

But then more substantial.

First, and foremost, the bike is to be recognised as a normal and equal participant in traffic, needing its own space. Mixed use is below suboptimal and should not be chosen in the future! Bikes need their own space, and so do pedestrians.

Second, put the bicycle into the genes, into the core of planning and design; that means that bicycle facilities have to be integrated from the very first brainstorm about new roads, new infrastructure, and the redesign of existing infrastructure.

Third, concentrate on bike facilities for the short distance: 2.5 till 5 km. It would be a gradual development where in the beginning loose parts fall into place, stretches that at least should invite and be useful for short distance traffic, being connected in the longer run, till there is an extensive connected network of facilities, which serves both the short distance user, doing the shopping or taking the kids to school (sorry, that is maybe too Dutch), till the long haul commuter. That does still mean that plans for Greenways and other major bike arteries connecting the GVR municipalities should be speedily implemented.

Fourth, proper legal status for the bike on the road, and for the bike facilities on the road and the highway; the rules should be 110% protecting the bike -- as an example: if you open your car door and 'catch' a bike, it is your fault, no matter what: you did not look and thus endangered other people (it simply is already there in ICBC's Road Sense!). (In Holland, you fail your drivers exam when you do not look in your mirror (inside and left) and out of the window before you open your door, no matter how

splendid your ride has been!!)

Fifht, in the mean time, a lot can be achieved by increasing the safety of the roads in Vancouver by redesigning the profile of the roads to rationalise car traffic (limit all roads to at most two lanes for each direction, **even the bridges**). Planning the flow of cars on the through roads, and around town is essential to getting disciplined car traffic. Bike safety is disciplined car traffic!