4Cities Master in Urban Studies

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The Production of Urban Highways in the 21st Century

Four European Examples in a Global Context

Best Practices viewed by different actors in Antwerp, Madrid, Genoa and Rome
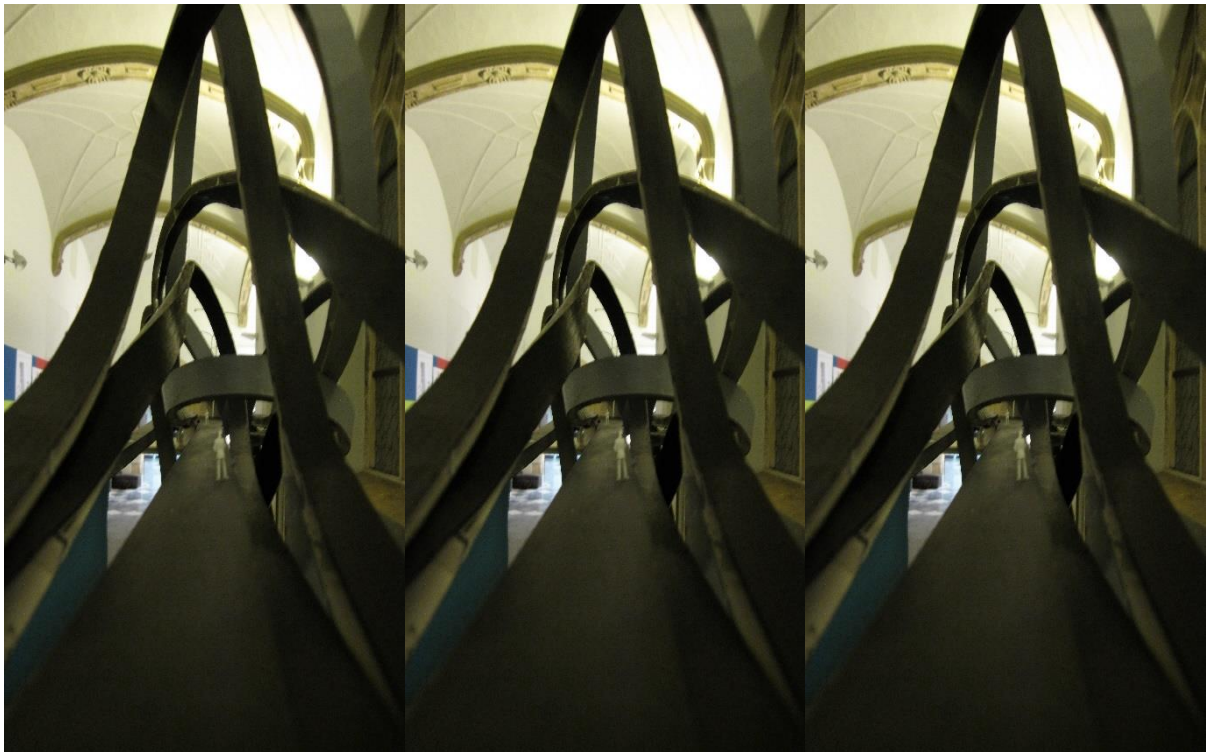
Ghent 29-03-2013: exhibition of flyover redesign in Sint Lukas Architectuur (own picture)

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Abstract

During the past few years there have been many discussions on abandoned urban railway lines. They often changed from derelict places to vibrant parks, now reconnecting instead of dividing neighbourhoods – as demonstrated by Paris' Promenade Plantée and New York's High Line. These developments inspired new projects worldwide or locally: like Rotterdam's Hofpleinlijn, or Queens' plan for a high line following Manhattan. The attention now shifts to reusing urban highways – which also grow older. More and more actors are arguing we need 21st century infrastructure in order to overcome the barrier effect caused by 20th century infrastructure – which has often been dominated by the car. This shift from public transport driven urban planning to car-centered city development changed the aspect of many cities. The recently regained attention for more livable cities and a more balanced modal split might also lead to a big city metamorphosis. However, the debate around urban highways and their production (be it different forms of reuse, extension or the combination of both) is problematic. This paper discusses this topic through best practices used by the different stakeholders during their interviews and in the literature.

It compares a realized project with three discussed ones. The realized project is Madrid Río, a park created on the Manzanares river banks after putting the M-30 ring road underground during the MadridCalle30 project. The first project in discussion is the debate around the closure of the existing R1 ring road in Antwerp – and the different alternatives proposed to it - which have been very polemic and continue to be a delicate discussion subject in Antwerp and Flanders in general. The third and fourth cases are the will of Genoa's mayor to transform the Sopraelevata into an elevated promenade, and the initiative by Rome's former 3rd municipality mayor to do the same with the Sopraelevata di San Lorenzo.

This paper illustrates the cross-fertilization of ideas by putting these four cases in a global context and emphasizes their importance in shaping tomorrow's cities. I analyse the different debates and stakeholders through the best practices they mention – generally through literature and also in the interviews for the Antwerp and Madrid cases. This study also opens the way for more comparative studies on the subject of urban highways in general or on the four analysed cases in particular.

Antoine Struelens

4Cities, 2011-2013

Acknowledgements

Table of contents

"They are part structure and part earthwork, occupying a formal position between architecture and landscape." (Tatom, 2006)

I.   Urban Highways in Context

"The introduction of railroads into cities was associated with butchering up urban spaces, chocking off existing routes of circulation, taking over recreational areas including cutting off access to the waterfront. Just at the time when some cities were beginning to grapple with these issues, highways were beginning to be introduced, bringing the same problems but in an amplified form." (Mumford, 1963)

I.1   Introduction – History of Urban Highways

"In recent years, American and European cities have debated on reusing derelict urban railway lines. These railway lines are often being reused by public transport – the U6 metro line in Vienna; or transformed into parks – the Promenade Plantée in Paris or the High Line in New York. In some cases – like with the Petite Ceinture in Paris, there is a competition between those possible public transport and green space re-uses." (Struelens, 2012)

This competition between possible uses is also present in the urban highway debate. Even though reused urban railways are often put forward as "best practice" examples for redeveloping or re-using (parts of) the urban highway infrastructure, there are important differences between both infrastructure types. The main difference is that urban highways, as they are more recent, are still used very often, while many urban railways used for freight transport have been abandoned. As they are often less derelict, there is a smaller incentive to reuse them – if there aren't alternatives provided for guiding the (car) traffic in another way. On the other hand, train beds, and especially elevated train viaducts, because of their ancientness are considered as more architecturally valuable than the more modern elevated or entrenched highways. So, once highways become unusable they are more likely to be dismantled than train roads. This attitude is however slowly changing because elevated urban highways are more and more seen as being part of a city's history and offering the possibility for panoramic views on that same city. Other possibilities are the reuse of some of the highway's structural elements into the new, or renewed infrastructure, or the reallocation of highway space from the car to other uses like public transport (rail, bus or BRT corridors), walking and cycling. This reallocation of space and shift of uses can mean that the infrastructure can function for the city in a more optimal way; preventing expensive maintenance, new infrastructure, or demolition. A lot of especially elevated urban highways

grow old and see their maintenance cost explode; this, combined with the costs for demolishing them in times of economic crisis, explains that reuse is explored for an ever bigger number of them.

After having introduced the technical specificities of urban highways, we shall now put the topic in a broader urban context. The discussion of what to do with highways is embedded in the regained emphasis on quality of life in cities, the plans to foster soft mobility and the growing ecological consciousness. This debate was recently boosted by the publication: "The Life and Death of Urban Highways" (EMBARQ, 2012). During the 1950s and up to the 1970s a lot of urban highways were created throughout Europe and North America. Thanks to public protests and policy changes, not all of them were constructed. Most of the ones that do exist are old, have high maintenance costs and are often looked at as urban scars dividing neighbourhoods. Until today the most likely is that elevated motorways in European and North American cities will be demolished or replaced by a tunnel. We will explore this debate and different possibilities offered by urban highways by analysing four case studies: the M-30 in Madrid; the debate around closing the Ring Road in Antwerp, meaning an extension of the urban highway infrastructure – but at the same time maybe the tunnelling or demolishment of big or small parts of the Ring road and the creation of a boulevard and park inspired by Madrid or the local context and a high line on the Merksem Road Viaduct which still faces destruction if the official plans by the Flemish Government are implemented; the project in Genoa to transform the Sopraelevata into a promenade – an Italian high line, linking waterfront and city centre; and the will of Rome's 2nd (previously 3rd) district mayor and the "Amici del Mostro" (Friends of the Monster) citizen group to initiate the same process for the Sopraelevata di San Lorenzo.

One of the main points introduced here is that urban highways must not always be:
1. maintained for vehicle traffic
2. demolished and replaced by an urban boulevard
3. tunnelled.
They can also be recycled for new uses. Inspiring cases for this include the transformation of Cape Town's unfinished highway into a public park, renewable energy station and Museum of City Planning and Transportation (images 1 & 2 + Inhabitat 2012); the proposition of using an inner-Chicago elevated highway as a farm (image 3 + Inhabitat 2012); the proposal to transform the elevated highway in Guangzhou into an elevated bicycle and pedestrian promenade with a bus rapid transit (BRT) corridor below (image 4, TheCityFix 2013);

proposals and realizations by architects and urban planners that make a better use of the derelict spaces under highways (this will be elaborated in chapter III); the proposition of a Toronto architect to wrap the Gardiner Expressway and put a green roof promenade on top of the existing structure (image 5, The Star 2013) and the Tokyo "sky park" roofing a junction (image 6) ; and Tun Fun in Amsterdam: a playground in an abandoned underpass (image 7, TunFun 2012). Other ideas are combining different elements like the Georgia and Dunsmuir 1960s viaducts in Vancouver:

> "The proposal is to selectively dismantle the existing structure, keep the core as a promenade for pedestrians and cyclists as well as recycling the derelict elements into access structure for the viaduct." (Toderian, 2013)

Here the winners of the design competition recycle the viaduct at the same time embracing the romantic concept of the ruin (image 8).

Urban highways do not function as an isolated topic. Both rail- and highway reconversions influence each other: with New York and Seoul, the High Line and the Cheonggyecheon Linear Park, being prominent examples of rail- versus highway removal or reusing approaches. The theme must be put in a wider context of urban regeneration plans, ecology, mobility and cultural heritage.

While urban highways are massively built in the Middle East, North Africa, China and parts of Latin America (recent works in Santiago de Chile and Mexico City), developments in Europe mainly focus on bypass infrastructure, which is often resisted or criticised by the population (like the Oosterweel connection in Antwerp, the Harbour Tunnel in Copenhagen, the Blanka Tunnel in Prague or the planned double deck enlargement for the north-eastern part of the Brussels' Ring Road).

This paper aims at introducing the urban highway debate and embedding it in a theoretical context by analysing the concept of "best practices" through four different cases in four different cities: the Mediterranean capitals Madrid and Rome, as well as the important – more middle-sized, regional cities of Antwerp and Genoa - having a similar size, and hosting the biggest harbour of their respective countries.

Image 1: Urban Highway Cape Town, today

Source:

Image 2: Urban Highway Cape Town, proposition

Source: http://inhabitat.com/tsai-design-imagines-soaring-high-line-park-for-cape-towns-unfinished-highway/

Image 3: Chicago, proposition

Source: http://inhabitat.com/feeder-an-elevated-highway-farm-to-feed-chicago/feeder-bridge-chicago-5-2/?extend=1

Image 4: Urbanus Architecture & Design's idea for Guangzhou's highway. Illustration via Our Cities Ourselves media kit

Source: http://thecityfix.com/blog/our-cities-ourselves-ten-architects-re-imagine-urban-transport-in-2030

Image 5 : Toronto, proposition

Source: http://www.treehugger.com/cars/toronto-architect-proposes-greenwrapping-elevated-highway.html

Image 6: "Sky Park" Tokyo, today

Source: http://www.japancrush.com/2013/stories/tokyo-city-planners-build-sky-park-above-highway-junction.html

Image 7: Tun Fun, today

Source: http://www.djguide.nl/nieuws.p?id=1009

Image 8: Vancouver, proposition

Source: http://www.osbornarch.com/portfolio/item/vancouver-viaducts
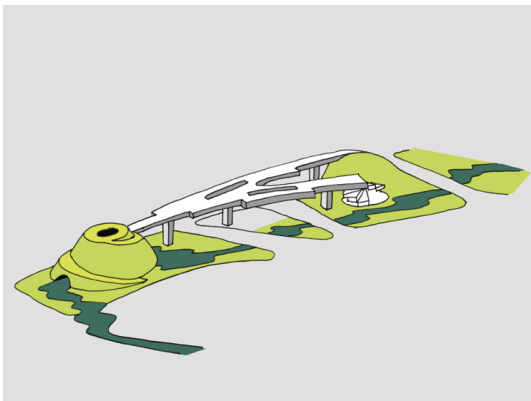
I.2 Evolution in the research: from elevated urban rail- and highways to ring roads

Over the past one and a half years, the interest of the research has evolved from a comparison between elevated urban rail- and highways and their respective case studies towards an also case study based comparison between elevated urban highways, to end with the actual topic of the production of urban highways in the 21st century. The four urban highway projects analyzed here and forming the cases of the research are urban highways of different types. All four morphological categories are represented:

elevated: part of Antwerp's R1 and the Sopraelevatas in Genoa and Rome

entrenched: R1, Madrid's M-30

tunneled: M-30, Madrid

the urban boulevard: M-30-Avenida de Portugal, Madrid.

 On the other hand, all four highways – even if they are sometimes penetrating deep into the consolidated city, are (part of) ring roads or at least bypasses surrounding the whole part of the central cities in Antwerp and Madrid or bypassing part of core city parts in Genoa and Rome (the attached maps in chapter IV will make this clear). Even though the initial focus of the research changed, the comparison between urban highways and urban railways comes back indirectly through the best practices from the interviews with stakeholders from Antwerp, as well as through the general literature on urban highways and the literature focusing on Antwerp, Genoa and Rome. The high line in New York appears as a best practice in the general literature, in the case study literature for Antwerp, Genoa and Rome, as well as in some of the interviews for Antwerp. The Promenade Plantée in Paris is an example in the case study literature and some of the interviews for Antwerp.

I.3 Urban Highway: Definition and Terminology

Before continuing to analyze Urban Highway let us first give a definition of it. We chose to define urban highways as a quite broad concept: urban highways are highways in an urban or suburban area. One of the characteristics of highways is of course the high speed they imply, which is often more pronounced in non-urbanized areas. The morphology of the city and the gridlock reduce the average speed. Important for intercity as well as urban highways is their barrier effect, cutting through landscapes or neighborhoods. Highways can also carry a high amount of vehicles. This capacity is often increased thanks to extra lanes in - or when approaching - big cities. Another characteristic often differentiating urban from rural highways, is that urban highways often carry a mix of local and through traffic whereas highways in rural areas mainly carry through traffic – which does not exclude that certain urban highways, like the R1 Ring Road in Antwerp and the M-30 (before the M-40 was built), also (mainly) carry through traffic. Highways, in general, are also characterized by high levels of air and noise pollution. This pollution has a bigger impact in urban areas because of the traffic jams and because more people are living close to this infrastructure. Cities are nodes of traffic: this obviously means that the percentage of urban space taking up by transport infrastructure – mainly car-related infrastructure - is proportionally much higher than in rural areas.

Within the urban highways category we can also define different typologies according to their structure, use or status. There are radial and circular urban highways (ring roads), entrenched, tunneled or elevated ones. Also the status and speed of a highway can vary: the R1 in Antwerp is part of the Trans European Network (TEN). So it is part of Europe's core infrastructural network. The M-30 in Madrid is a hybrid as the biggest part of this ring - the 80% which is not tunneled - also forms part of the TEN, but the tunneled part does not. The Sopraelevatas in Genoa and Rome are bypasses which compose a type of ring as in Antwerp and Madrid, but they are not part of the TEN. For this reason and because they are situated deeper within the consolidated city, they could be characterized as more urban than their neighbors from Antwerp and Madrid. We can conclude that there is no single definition of an urban highway. These different ways of interpreting or analyzing the phenomenon can create elements of discordance. One of the reasons why the department of urban planning of the City of Antwerp did not wish to be interviewed on the R1 in the framework of this thesis is that they do not consider their ring as a full urban highway, because it forms part of the TEN. Unfortunately the city planning department of the Madrid Municipality did not answer my mails, so it is impossible to check if they follow the same reasoning as their colleagues from Antwerp. But it would be doubtful if they did, because they presented the M-30 remodeling not only as a mobility project, but also as an urban one.

Urban Highway vs. Urban Boulevard

Another attempt to define the urban highway is to designate it in relation and opposition to the urban boulevard. Confronting both road typologies is interesting because urban highways are often said to transform into urban boulevards and in the past decades throughout Europe and the US a lot of urban boulevards and parkways were changed into urban highways. The main difference is that urban boulevards are more linked to the existing grid of the adjacent streets, that the speed of their traffic is often slower because of the crossroads including traffic lights – which pacify traffic. On boulevards, the local traffic is more dominant than on highways, and the car or truck has to share space with other transport modes like public transport, walking and biking. Urban boulevards are mostly situated in or closer to the core of the consolidated city and more often lined by trees.

In short, we can say that the difference between both is not always clear, especially if part of that "so-called" urban boulevard has tunnels where traffic drives faster than on the side lanes,

or when urban highways integrate non-car uses like a bike path or a BRT-system. Urban highways have various synonyms and comparable structures like urban expressways, bypasses, ring roads, over-passes or under-passes. Many of these synonyms can also be applied for urban boulevards. Because of this problematic definition an urban highway, as defined here, is a road situated in an urban or suburban area which apply to the criteria mentioned above. For defining urban highways it is important to not only consider legal or mobility aspects, but also urban elements : the way the road is embedded or not in the city. Legal frameworks giving a certain status to a road can change with a European directive, while the highway itself maintains the same relationship to the built environment as before.

I.4   Aim of the Research. Why Urban Highways? Why Best Practices?

> "The realization of limited-access divided highways in the second half of the twentieth century points to many of landscape urbanism's ambitions, notably to strategically engage the urban landscape at a metropolitan scale within the constraints of the prevailing political economy, and to consider environmental and infrastructural systems as primary ordering devices. Highways are public space writ large, in the metropolitan reach of their network as well as their sheer size." (Tatom, 2006)

After having touched upon the broader debate on urban highways by introducing it historically and analyzing concepts such as "disappearing traffic", induced demand, or gridlock, we will briefly overview how urban highways are being transformed:

1. using and maintaining them
2. re-using them for other purposes
3. demolishing and substituting them by an urban boulevard
4. tunneling them
5. building of new infrastructure
6. projects combining different of these approaches.

After this introduction, the focus will be the comparison between the four case studies. The mainly tunneled M-30 on its Manzanares section will be compared to: a) the highly polemic projects for Antwerp (different approaches on new infrastructure, as well as possibilities for tunneling part of the already existing road network); b) the Genoa project for a highline on the biggest part of the viaduct and a maintained elevated highway in the non-central parts; c) the Roman highline project on the Tangenziale di San Lorenzo. For Antwerp, Genoa and Rome

the outcomes of these discussions are not fixed yet, whereas in Madrid the project is fully realized.

This study starts by giving a state of the art on urban highway literature; at the same time the concept of "best urban practices" is analyzed. This concept is defined and narrowed down to the topic of "best urban practices" in transport infrastructure in which urban highways are directly or indirectly involved. Indirect involvement of urban highways could be a best practice resulting out of a "good practice" urban policy which explicitly rejected urban highway plans. The four case studies and the "best urban practices" from both the literature and the conducted interviews are all projects in which mobility and public space are strongly related. The analysis of the Antwerp and Madrid cases includes a literature review and an empirical part consisting of actor interviews. The Italian case studies will be less elaborate and will only review the literature.

> "[Many cities have] a lot of people who are specialists in proving change is not possible. What I try to explain to them when I go visit is that it takes the same energy to say why something can't be done as to figure out how to do it."
> Jaime Lerner, former mayor of Curitiba

The Concept of "Best Urban Practices"

In a globalized world best practices and best urban practices for our cities are becoming a key tool for local and regional planning offices going on study visits, participating at UN Habitat or URBACT conferences and often making study reports on how cities throughout the world deal with their infrastructure, technically and administratively, analysing decision-making processes and the urban environment, in order to make a balanced choice for their own city.

    a) **Bogotá, Curitiba, Seoul and Vancouver**

When we take a look at good urban practices for transport infrastructure and public space, we often notice that these practices were realized in cities which opposed urban highway construction. In Bogotá (the Colombian capital) and Curitiba (a mid-sized Brazilian city) the opposition by inhabitants and academics was translated into a political fight leading to key figures of these protest movements being elected as mayors and being able to realize their

alternative plans throughout the years. Bogotá and Curitiba both gained more green and open spaces, created an efficient public transport network and reduced traffic congestion. Curitiba is a 1.5 million city with urban forests and drainage systems (green and blue network). There "urban acupuncture" and "people-friendly planning and design" already started in 1971. The city is now widely recognised as a best practice and example to follow, by transport managers, urban professionals and international institutions like the UN.[7]

According to Jaime Lerner, cities are the solution to climate change:

> "When we realized that 75 per cent of car emissions are related to cities, we realized we can be more effective when we work with the concept of the city." (J. Green, 2011).

Concepts like the BRT, which has over 83 variants, have been implemented all over the world.

In Seoul, an elevated highway covering a river was built, but by 2005 this viaduct was removed and the water regained its place in a linear park. No bypass infrastructure was created to compensate the lost highway capacity, the number of traffic lanes dropped drastically and so did the car traffic itself. The highway-removal operation was combined with campaigns for carpooling, a congestion tax and an extension of public transport whose ridership increased by no less than 25%. Like in Curitiba and Bogotá, the Seoul metamorphosis was directed by a newly elected mayor who had made the Cheonggyecheon urban renewal a crucial point of campaign. Seoul is the most striking example of the article: "The Life and Death of Urban Highways", and possesses a very positive cost-benefit balance (EMBARQ,2012).

Vancouver is the only big North American city without urban highways, and the choice not to construct them together with the policy taken in 1997 of prioritizing the car as transport mode last (after walking, bicycling, public - and freight transport), and well-thought urban planning, played their role in putting Vancouver on the shortlist of the World's "most livable" cities.

> "In the field of urban transport, the exchange and promotion of best practices is one of the main policy tools that the European Commission possesses." (Eltis)

Best Practices as a Tool

International bodies like the UN and EU use best practices and best urban practices as a guideline for their members. One of the EC initiatives in the field has been The Urban Transport Benchmarking Initiative (www.transportbenchmarks.org), a EU Director-General for Energy and Transport funded project autumn 2003 - summer 2006. Next to the European Commission and the DGTREN themselves, its partners were: Transport & Travel Research Ltd., The Regional Environmental Center for Central and Eastern Europe, and UITP (interview 2). Through best practices exchange, the aim is to create: "a conduit for good practice in European Union cities".

Among the best practices quoted here are: ICT cyclist travel planner on the internet, different types of multimodality and multimodal interchanges: from London to Madrid, one-card systems like Lisbon's 7 Colinas Card, the Trondheim Toll Ring System, congestion charging in London, Freight Limited Traffic Zones (FLTZ) in Rome, transport plans for the Olympics in Athens, night bus systems, the Madrid Metro System (Metro Sur), strategic marketing RATP in Paris, free public transport in Hasselt or the S-Bahn network in Stuttgart.

(Public) transportation plans are linked to urban planning as a whole, leading to Sustainable Urban Mobility Plans.[1] Different organs, like ELTISplus, organize training sessions on SUMP's. They also give a definition of it:

> "A Sustainable Urban Mobility Plan is a strategic plan designed to satisfy the mobility needs of people and businesses in cities and their surroundings for a better quality of life. It builds on existing planning practices and takes due consideration of integration, participation, and evaluation principles." p.39 (ELTISplus)

They divided Europe into three categories:

a) countries with a well-established transport planning framework, among them Belgium and Italy

b) countries moving towards such an approach, among them: Spain

c) countries: "which have yet to adopt sustainable mobility planning", mainly Eastern European countries, but also Ireland and Greece.

The website www.mobilityplans.eu, notes also important regional differences with Wallonia "moving towards sustainable urban mobility planning" and Catalonia having "an established transport policy framework" ahead of the rest of Spain. These general characteristics will be checked upon our four case studies to see if the existence or elaboration of such a SUMP has an impact on the plans and their realization.

> "Congestion charging is very complex, very debated but it does work: where it is put in place, the car traffics' average reduction is about 20%. When Boris Johnson came to power in London, he didn't abolish the congestion charge as promised, he didn't extend the zone but he kept it. The running of the system is highly cost-intensive; half of the money goes back to the own system, the rest goes to mobility improvement. The charging zone is very small. " (Dauby, L. interview 2)

b) Congestion Tax: London, Oslo and Stockholm

Other cities which saw their traffic decrease are London and Stockholm where a congestion tax was introduced. Although the installation of a congestion tax system itself can be quite complicated and takes time to get paid back, in both cities this increased the fluidity in central areas, creating a better quality of life and even reducing average taxi-fares in London – as vehicles get less stuck in traffic jams(Jaffe 2011). As also demonstrated by Seoul, congestion taxes increase the pricing for car drivers, but can be very beneficial for the overall circulation – especially if the revenues generated by these taxes are reinvested in public transport or other soft transportation modes.

The example of Oslo is interesting because here the congestion tax combines new highway bypasses and an extended public transport network. Most mobility plans put forward a "balanced" transport solution – combining car, public transport and other modes prioritizing them equally. This however, in practice, favours the car and leads to more congestion – as we will see beneath when discussing disappearing traffic and induced demand. Oslo demonstrates that the traffic fluidity can increase with new bypass infrastructure if this bypass infrastructure is combined in an overall mobility plan including congestion tax. However, the question can be raised if investing in public transport combined or not with congestion taxes – without extra road infrastructure - wouldn't have been more cost-efficient. This problematic is

analysed in the following article which also focuses on traffic planning as a space ordering principle: "Oslo says goodbye to urban sprawl" (Naess 2011).

Stockholm introduced congestion charging in 2006. This led to a drop in traffic of 29% compared to 2006 which later stabilized. Where initially only 36% of the city's residents favored the charge, this has gone up to 70% in 2011. (source: http://www.eltis.org/index.php?ID1=5&id=60&news_id=3776)

> "Freedom from Communism means the freedom to park everywhere."
> Jan Gehl

I.5 Auto-mobility Regimes and Implicit Car-thinking

The car is as a top predator on top of the (resource) food pyramid: consuming space (land resources), raw materials and energy; and producing a lot of waste in different forms, like air and noise pollution. Car traffic also enhances insecurity and is positively correlated with growing crime rates. Urban highways need a lot of road space, not only for the highway itself but also for complicated interchanges and above all parking space.

Before analyzing the urban impact of the car, we should first focus on the mindset or psyche of the automobilist, and the socioeconomic context in which and through which car-dependency developed in order to understand what makes it so attractive. In: "The City and the Car" Sheller and Urry (2000) tell us that one billion cars have been manufactured throughout the 20th century, out of which over 500 million are in circulation; this figure was expected to double by 2015. Now, only 13 years later, we see that the number of cars already exceeded 1 billion 5 years earlier, in 2010, and it doesn't look like we have reached the peak yet. It is probable that the total number of cars will still increase a lot in the next few years; while in some, mainly European, countries the percentage of car owners is slightly declining and – as we will see, more and more cities throughout the world take action in reducing the number of vehicles obstructing their roads; car-ownership is exploding in developing countries such as China or India where cheap but not less polluting cars are being produced.

In rich countries the car's cultural dominance is very important: getting a driver's license in many European and American countries and states often functions as a *rite-de-passage* from youth to adulthood; the importance of car-thinking is also reflected in our vocabulary, and the implicit car thinking is easily discovered when we ask ourselves what the street is made for and the answer is: for driving. 100 years ago it wouldn't have been the same.

The "Regime of auto-mobility" or car regime is defined as a system where the private car is seen as a core-stone for society. The car is indeed "the quintessential production and consumption good after housing" (Urry 2000), and a big part of the economy relies on it. In Europe, the car industry is also the biggest investor in R&D. Furthermore, car regimes are expanding: with the fall of East Block and the economic boom of the Asian tigers and China, the car industry and car based models could spread to new territories and conquer new markets like Russia and China, which have now become big car producers and consumers. Other developing countries are following the same path. This change to mobility patterns which are favoring car use have an important impact on the cities in these countries – Moscow, Beijing and São Paulo being notorious examples on how the new car culture led to a city metamorphosis. These metropolises are now following the same path as European and North American cities between the 1950s and 1980s but at a faster pace. The most characteristic form in which the car changed both our lives and cities is the drive-in or drive-through culture and architecture. Another milestone are derelict buildings being functionally reprogrammed for care use, like the Michigan Theater in Detroit (image 9). According to Mumford, highways can have the side effect of turning cities into wastelands. The shrinking and bankrupt Motor City of Detroit could well express this image of a "cemetery of roads". Each year Inrix publishes a list of most traffic-jammed western cities. In the 2012 list Antwerp is only second after Brussels, before other cities known for their congestion as LA. The prospect of industry or commerce leaving the city because of its gridlock is not far away.

Image 9: Michigan Theater, Detroit

Source: http://www.rauwblog.nl/detroit-michigan-theater/
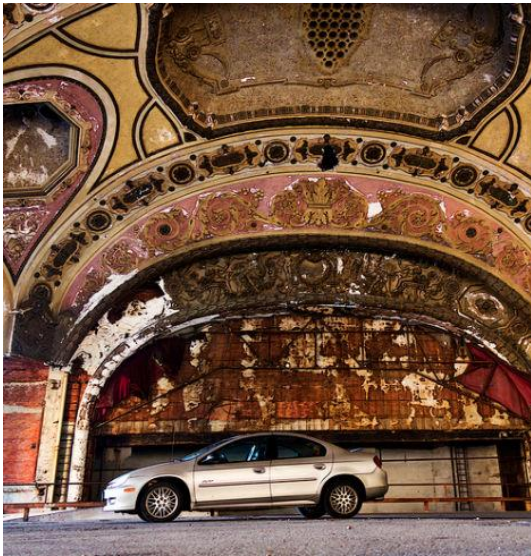
Why is it that, in the beginning of the 21st century, the city is still mainly planned through a car perspective, even if authorities pretend to favor the "alternative" modes, and a few examples mentioned above actively do this? Even when, next to traffic congestion itself, quality of life and healthy environment appear as main themes in the urban highway debate, they are often thought of from a car perspective, embedded in 20th century society.

These ideas are discussed in Kris Peeters' book, *Het voorruitperspectief. Wegen van het impliciete autodenken* (The windscreen perspective. The roads of implicit car-thinking). That the car plays an important role in our lives and thoughts is not only illustrated by the status symbol it has or its contribution in shaping our cities – with their suburbs and drive-in architecture. We can also analyze it through language. Although the Dutch language might be a little more car-centered than the English language, where *gridlock* is more used than *traffic infarct*, other medical metaphors like *traffic circulation* and *traffic arteries* are strikingly similar and give the impression that roads are vital and function as the nerves and blood vessels of our cities and countries. The choice of enlarging a natural vessel, or to tunnel it in order to reduce its negative externalities while at the same time keeping or extending its capacity, becomes more rational by using this approach. Investment in non-motorized or collective transport also often results in an indirect or implicit car investment. Digging a metro line being the most striking example, because it allows the car to be unchallenged on the roads by putting public transport underground. Till the seventies, the ideal of the highway

was also put forward in the cities, with the Italian Sopraelevatas, the Flyover of the E17 in Ghent leading right to the center, and many more examples of planned urban highways in cities as Antwerp or Brussels (DeMorgen, 2013). Interesting is that the mentioned medical language part of the implicit car-thinking is also used by urban highway detractors like Mumford: "Arterials must not be thrust into the delicate tissue of our cities. The blood they circulate must enter through an elaborate network of minor blood vessels or capillaries."

Traffic as a Self-fulfilling Prophecy 1963-2013

Congestion is often tackled by creating more and bigger roads which attract more traffic and legitimizes new road construction. This vicious circle or self-fulfilling prophecy was already mentioned by Mumford when writing about the cycle of congestion and induced traffic:

> "They create new expressways to serve cities that are already covered within, thus tempting people who had been using public transportation to reach the urban centers to use these new private facilities. Almost immediately, the new roads themselves are overcrowded. So clamor arises to create other similar arterials and to provide more parking garages in the center of the metropolises; and the generous provision of these facilities expand the cycle of congestion, without any promise of relief until a terminal point when all the business and industry that originally gave rise to the congestion move out of the city, to escape strangulation, leaving a waste of expressways and garages behind them." (Mumford, 1963)

Mumford also defends a *multimodal transport* when arguing for an "articulated" network of road and other systems. According to him, a "good transportation system offers a change of speed and mode to fit a diversity of human purposes". In other words: good transportation policy cannot focus only on high speed and continuous flow. He also says that we have developed the major arterials to the exclusion of the minor elements.

I.6 Conclusion

The urban highway can be considered as a *contradictio in terminis*, because speed and car thinking destroys urbanity – or creates new forms of it. Big road infrastructure played a prominent role in zoning and in the division into work, living and recreation areas within cities. Challenging both the place of the car and zoning will mean a drastic transformation for our future cities. We should stress that production of urban highways has been problematic since its beginning. From the start there was a lot of resistance. In *The Highway and the City*,

Lewis Mumford writes: "A city exists, not for the constant passage of motorcars, but for the care and culture of men." He warns about the disastrous consequences highway building will have:

> "When the American people, through their Congress, voted for a twenty-six-billion-dollar program, the most charitable thing to assume is that they hadn't the faintest notion of what they were doing. Within the next fifteen years they will doubtless find out: but by that time it will be too late to correct the damage to our cities and our countryside. Not least to the efficient organization of industry and transportation, that this ill-conceived and preposterously unbalanced program will have wrought." (Mumford, 1963)

Mumford stands against clearly separated zones; his analysis would rather fit today's planning approach of "mixed use": "A good transportation system minimizes unnecessary transportation." We should "concentrate the greatest variety of goods and people within a limited area". The recent attention on "quality of life" pushes many cities to evaluate the place of their urban highways – with or without evaluating their transportation system as a whole: especially in central areas urban highways are challenged. Removing or rethinking urban highways has become an important part of city regeneration. Dismantling highways is seen as a method not only for bettering traffic but also for liberating valuable land in core parts of many agglomerations. These revitalization processes are often linked to other developments like brownfield or waterfront redevelopments, or the installation of cultural venues.

> "In 1923, Le Corbusier compares the automobile to the Parthenon, because its style resulting from standardization reflects perfection and harmony. Fancy does not overload this machine made for men." (Tatom, 2006)

Urban Highways: a Modernist Idea?

Although urban highways were embraced by modernists as Le Corbusier, who built theoretical concepts around them but also played an active role in planning them (as we will see in the case of Antwerp), urban highways still play an important role in today's proposals. We can see clear parallels between Jaime Lerner's elevated parks concept proposal for Sao Paulo (2011) and Le Corbusier's never realized plan for Paris (1935). Both propose a segregated network between pedestrians and car traffic. This form of segregated networks does not only exists in movies such as Futurama (12): in some cities you can circulate on

different levels for kilometers without crossing a car, like in Lelystad or in Hong Kong with its impressive network of elevated skywalks.

Image 10 : Sao Paulo elevated parks concept. Image credit: Jaime Lerner Associated Architects

Source: http://dirt.asla.org/2011/03/07/interview-with-jaime-lerner
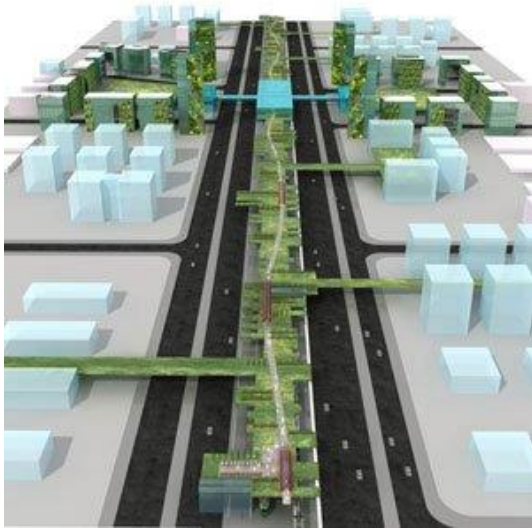
Image 11 : Illustrations for La Ville Radieuse (The Radiant City) of 1935

Source: http://www.themodernist.co.uk/2012/03/le-corbusier-modernist-of-the-month
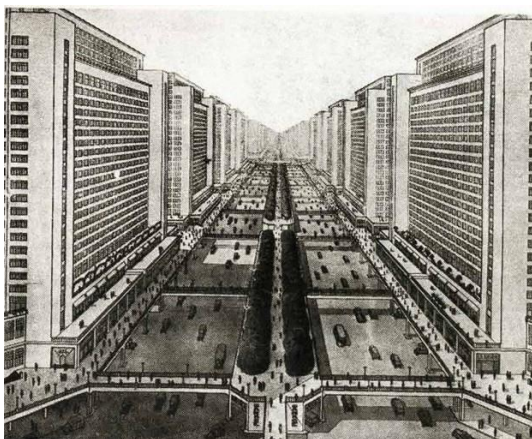
Image 12 : Futurama, 1935

Source: http://morrischia.com/david/portfolio/boozy/research/futurama.html
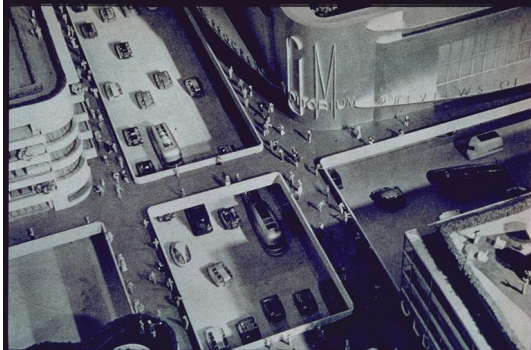
At the end of the 19th, beginning of the 20th century the car was seen as a major improvement for mobility in cities: "Cleaner, faster, quieter, and less cumbersome than the horse-drawn carriages, the car seemed to present many advantages." (Tatom, 2006)

The urban highway – and the automobile in general, started its breakthrough together with modernist ideas. As we saw in the previous three images, the greener and more transit oriented plans many cities have today – if realized in order to heal the urban highway wounds, wouldn't defer much from the modernist plans with its skyscrapers and traffic modes separated on different levels. We should also notice that the symbol of the postmodern city – LA, is the typical example of the car-addicted sprawled city: "As the polymer city reshapes itself, strings of traffic are the most solid structure remaining to fuse the urban sprawl into a bounded entity." This newly emerging urban form, according to Soja, is "shaped by a very complex redistribution of jobs, affordable housing, and access to mass transit, and modified significantly by income, racial, and ethnic differentiation" (Soja, 1995: 132). In the postmodern Los Angeles the Angelinos live a large part of their lives on the highway (Sheller & Urry 2010).

New urbanism does not break with the car but it reintroduces alternatives. The question of quality of life as a topic emerging in the 70s, was later seconded by the question of economic, social and environmental sustainability. Sustainability is now embedded in the hegemonic and

political correct discourse. Some cities increased their sustainability or reduced their ecological transport footprint:

> "Many cities such as Amsterdam, Stockholm and Portland developed explicit policies to upgrade and prioritize cycle lanes and public transport, in order to wean people away from their cars. Later, cities such as Athens attempted to control access of private cars in and out of the city center, with some success, while others imposed commuter restrictions or incentives such as park-and-ride schemes or enforced car-pool lanes with four occupants required per car." (Sheller & Urry 2010)

"The realization of limited-access divided highways in the second half of the twentieth century points to many of landscape urbanism's ambitions, notably to strategically engage the urban landscape at a metropolitan scale within the constraints of the prevailing political economy, and to consider environmental and infrastructural systems as primary ordering devices. Highways are public space writ large, in the metropolitan reach of their network as well as their sheer size." (Tatom, 2006)

Limited-access divided highways become metropolitan scale boulevards, the cities expanded together with their speedy road network. Los Angeles' move from a mono-centric to a poly-centric urban model, has been followed in a lesser extent by other cities around the world that saw different poles, or even edge cities, appearing outside their urban core. Cities and their urban highways are urban and suburban and should be challenged on both scales. Archidaily refers to Enrique Peñalosa (the former mayor of Bogotá), who "recently pointed out in his article for the *Urban Land Institute*, our future cities will need to depend on the densification and development of our suburban centers", emphasizing that "these new urban/suburban cities must look radically different, with thousands of kilometers of pedestrian greenways accessible by every building." (Quirk, 2013).

Even though the car tends to be more and more hidden in tunnels underground instead of using ground level grids or flyovers in central western cities (like Madrid, Rome or Brussels), or gets integrated better in the city (Barcelona and Birmingham), it is still very present today. Car and highway infrastructure adapted to new technologies and habits without losing importance, the car-regime through its economic lobby – oil industry, car industry and public works, could adopt different architectonic and urban styles. This has been the case in Europe, but even more in the US: "The entire automotive industry, according to D.J. St. Clair, would therefore actively have exercised its power as a lobby to develop urban highways and dismantle public transport, judged unsuitable for suburban needs." (Tatom, 2006)

II.   Research Question and Methodology

The main research question is whether the concept of "Best Urban Practices" is an appropriate tool for analyzing "Urban Highway Projects", and if that is the case, what does this tell us about the different types of actors in the four different cities and their way of using this concept. In other words: in which cases and under which conditions could it be appropriate to use the concept of best urban practices in urban highway infrastructure debates?

Next to this debate on Best Practices and Urban Highways, there are also sub-debates. Although the debates around participation, PPP management projects in Urban Mega Projects (UMP's) and communication strategies are important, this paper is not a classical actor-network- or stakeholder analysis; the stakeholders and their position in the general or case specific discussions are only (or at least mainly) analyzed through the best practices angle.

The two essential focusses are the literature and interview analysis. A state of the art on general literature around urban highways and best practices is provided. The interviews focus on the two main cases, Antwerp and Madrid. Three general interviews concern mobility and city planning: FIA, UITP and CIVITAS. The secondary Genoa and Rome case studies are only analyzed through literature, not via interviews.

The main hypothesis is that analyzing best practices in urban highways is an interesting and often used tool, but that the concept of best practice is problematic and can be defined in different ways. Therefore it is important to put these best practices, as well as the best practices context surrounding them, into their right context. As best practices are rooted in the local context, they can work as sources of inspiration, but cannot be copy-pasted.

III.   Best Practices in Urban Highways

"As the saying goes, building more lanes to address congestion is like loosening your belt to address obesity." (Toderian, 2013)

III.1   The Disappearing Traffic Mystery

As proven by many reports, scientific articles and practical examples (like the discussed Seoul case), giving less space to the car does not necessarily cause more congestion on adjacent roads, or overall congestion in the city or region. This can even be the case if alternatives like public transport and bike infrastructure are not provided or developed further. It can happen when a transport artery closes down because it is damaged by an earthquake (Embarcadero Freeway, Los Angeles) or has to be maintained for a couple of weeks, months or years (London's Tower Bridge). In many cases temporal lower capacity does not create bottlenecks or gridlocks. The traffic simply disappears, there is a behavioural change where car drivers change transport mode, drive a different route at a different time of the day, or simply reduce their number of trips. It is not true that the automobiles will stay in the traffic jam at any cost. More roads will generate more traffic, which is also true for other modes of transport: when bicycle lanes in Copenhagen are broadened, it will invite more people to bike. This is not only illustrated by Jan Gehl's theories, it is also proven by the biannual bicycle accounts of the city of Copenhagen (Gehl Architects, 2013).

The main idea behind disappearing traffic is that increased road capacity for motorized vehicles will almost automatically drag more vehicles into the network, in economic terms we also speak about induced demand. Transport of private vehicles is acting like a gas rather than a liquid. When the roads (arteries or tubes) are widened, the increased fluidity will only be temporal, the individual parts (vehicles) will soon fill up the available space creating a new congestion. On the opposite, many studies also demonstrated that giving less space to car traffic makes this car traffic disappear, find other roads, move at different hours, reduce displacements or change transport mode. This phenomenon also happens when a road is accidentally cut-off by a disaster like an earthquake, so not only through planned interventions by the city authorities. In the case of a catastrophe occurring a generalized traffic jam or gridlock is created which will often dilute after time, proving that people don't drive their cars at any cost – and that their often irrational love for the car also has its limits.

Although the theory of induced demand and the law of traffic congestion are more and more recognized and demonstrated in practice, they are still not taken into account enough when new transport plans are designed: in our four cases, additional road capacity is created or new bypasses have been realized or are planned in order to allow the refit of part of the old infrastructure for non-car uses. In other cases, the spectre of gridlock is raised in order to put forward the plan to destroy the Gardener Expressway Viaduct in Toronto and replacing it by a new one, instead of reusing it, because:

> "Such a reduction of road capacity would obviously increase traffic congestion and maintenance costs of the elevated expressway would eventually become a civic headache again." (Get Toronto Moving 2013)

The Braess Paradox, named after a German mathematician, proves that sometimes extra road capacity increases congestion over the whole network "when an improvement attracts a disproportionate number of traffic." The overall conclusion is that traffic forecasts for transportation networks should be done very carefully and take many parameters into account – such as the psychology of the driver, even if the Braess paradox 'disappears':

> "When designing transportation networks (and other kinds of networks), extreme caution should be used in adding new routes, since at worst the new routes will slow travelers down, and at best, the new routes won't even be used." (Debney 2012)

III.2   Producing vs. Recycling Urban Highway Infrastructure

> "Our cities, our towns and our landscapes are not only spaces of production and for socializing; they are also, above all, cultural heritage sites that should be preserved. They can be preserved by modifying them." (Lillo Navarro 2010)

Except for the obvious worth of artistic heritage, cities also possess derelict infrastructures like bridges, tunnels or brownfields. By "functional reprogramming" and maintaining them, their intrinsic qualities can prove valuable. This functional reprogramming doesn't only modify the use of the infrastructure, it also adds a new meaning, a historical layer to it. Functional reprogramming is a re-codification incorporating new uses.

Urban highways often fall into this category of obsolete infrastructure and can be reused in three main ways:

1. by recycling the (primary and secondary) building materials

2. by reusing materials, products or building systems

3. by reprogramming the entire structure.

In the last case, the infrastructure receives a new purpose, it is not about restoring or upgrading the infrastructure – although reprogramming can include different techniques.

Launching a debate on recycling places us at the heart of the production process. Ideas on recycling are important for sustainability and the ecological, economic and social pillars it is based on. Recycling and conservation are systems which are as – or sometimes more - complicated than production from scratch. Lillo Navarro explains that a building, or infrastructure has an individual, collective and economic life and can become obsolete in each of these categories (which are often in competition to each other):

> "In many cases, there is a conflict between these parallel lives, fc.: land value gains produce the disappearance of buildings with historical, typological and functional value." (Lillo Navarro, 2010)

Different infrastructures have different time layer functions. Many European cities preserve middle-aged street tracing. Built structures have an average lifespan between 30 and 300 years. The skin or façade on the other hand changes a lot : about every 20 years, on an average, for esthetical or technical reasons. Facilities are even more unpredictable and become obsolete every 7 to 15 years. Many big infrastructures, because of their complexity and long planning phase, are already obsolete when they are finished : train station Stuttgart21 and airport Notre-Dame des Landes being two ongoing examples. Besides street grids, buildings, façades and utilities, the fifth time level is the interior design which can change every 3 to 5 years in offices and public buildings; the sixth and final layer being the furniture. Those different time layers and the way they interact have consequences:

> "The degree of independence between the layers of time has economic implications, since the variability in time of some of them should be added to the initial costs of capitalization and construction." (Lillo Navarro, 2010)

An edification built for a precise function or purpose will quickly become obsolete, whereas allowing more flexibility will often lead to higher economic and energetic costs. The solution is to over-dimension everything: "So, a construction whose cumulative costs are relatively low compared to the initial capital will be interesting to conserve and reuse, and vice versa." (Lillo Navarro, 2010)

The total or partial reuse of housing is a well-known technique. Living and working spaces are often transformed by functional recoding. Infrastructures possess material conditions and durability which are way superior to the ones hosting people and their activities. The Zollverein in Essen is given as such an example of reused infrastructure. There is no type or functional structure, their massiveness transforms these constructions into raw material: "Its material constitution has much more to do with the amorphous capacity of a rock fragment."

Enormous quantities of reinforced concrete and steel face "the impossibility of their own elimination". Today the major parts of these infrastructures are "recycled" as soil fill to host new infrastructures resulting in a smaller need for extracting raw materials and less space consumption. This however does not break with the unsustainable never-ending growth paradigm or thought.

Lillo Navarro identifies seven principles applicable for effective reuse or recycling: economy, reprogramming, temporality, uncertainty, amnesty, dematerialization and proximity. *Economically* the process of architectural recycling mobilizes less material, energetic and labor resources than the ones required for replacement. For *reprogramming,* principles like typology and function must be relativized and replaced by quantitative arguments as dimension, proportion and bearing capacity. *Temporality* should be enhanced by building for easy disassembling and reuse of the constructive elements. The failure or success of reuse depends on complex interactions of renegotiation mechanisms, participation and auto-organization. *Uncertainty* could be translated by embedded openness. Some best practices where this uncertainty was applied are quoted: Christiania in Copenhagen, Tun Fun in Amsterdam, the Colonnade Park in Seattle and the Burnside Skate Park in Portland. *Amnesty* means that less strict environmental, security or technical rules should be applied to reused infrastructure opposed to entirely new one – keeping in mind the age and specific context of each construction. *Dematerialization* means that the added architectural layer (the recoding), can happen by reducing material additions to a minimum; this is the easiest when the infrastructure is well-maintained and preserved. Lillo Navarro concludes with the *proximity*,

which is two-sided: favoring the use of low-cost, low-tech, close and cheap technologies which use local materials, while also using local technical knowledge.

Although recycling is interesting in many ways, it is often blocked by the market or institutional barriers like fiscal incentives for new highways; we will analyze if this is also the case with our four case studies and why.

III.3 4Cities Highways: Brussels, Vienna, Copenhagen, Madrid

In and around all four cities visited during this master, new highway infrastructure was recently built or proposed, even if previous urban highways have not been built, were demolished or have been recycled. At the same time, elevated urban highways are planned to be dismantled and replaced by urban boulevards.

Brussels plans to tunnel parts of the small ring around the pentagon, while the Flemish Government plans to enlarge the northern part of the outer ring around Brussels (on Flemish territory) by using a double-deck. Back in Brussels, the municipality of Auderghem would like to dismantle the Hermann-Debroux viaduct and replace it by an urban boulevard.

In Vienna new highways bypassing the city and close to new development projects like Vienna DC have recently been built.

Copenhagen plans a harbor tunnel, which will be discussed in the part on worst practices, but at the same time they plan to tear down an elevated highway in order to put a small river on the surface again.

The city and autonomous community of Madrid built hundreds of kilometers of radial and bypass highways over the last decades.

III.4 Resisting Urban Highways

(Vancouver, Brussels, Paris, Bogotá, Curitiba, New York, Antwerp, Madrid)

Almost every major western city has unrealized highway plans. In Brussels there was a 1941-46 plan for a ring road inside the historic city center which would have cut the Queens Gallery in half. Close to the north station, in the so-called "Manhattan" neighborhood, there was

another plan, in 1967, for a double highway crossing between the planned Amsterdam, Paris, London and Cologne motorways. Theoretical plans for a modern neighborhood with a highway crossing next to the north station appeared as early as in 1929.

Although these plans were rejected, many urban boulevards lost their trees and their central parts, were partially tunneled and dedicated to be used at higher speed. Viaducts were also constructed. The Leopold II viaduct was conceived as a temporary infrastructure to attract visitors to the 1958 World Expo, but it was disassembled and shipped 26 years later, in 1984, to Bangkok where it now stands as the Thai-Belgian Bridge. Meanwhile, it had disfigured and degraded a 19th century boulevard. The previous stretch formed by the viaduct now forms an urban boulevard with tunnels underneath; the rundown areas disappeared and new trees create a quality space.

Madrid experimented a similar construction: in the 1970s. At the Atocha train station, an elevated highway called Scalextric - between the Retiro Park and the old city center - did not eliminate traffic jam, it only disfigured the old district. Between the middle of the 1980s and the middle of the 1990s 7 scalextrics were built. The one at Atocha was destroyed in 1992. Meanwhile, Madrid also rejected a 1997 proposition for 140 km tunneled network of highways till Plaza del Sol.

In Paris, there was the Plan Pompidou, next to the famous Ville Radieuse, proposed by Le Corbusier, to raze half the Parisian city center in order to create a new modern city with high rises, parks and highways. The Georges Pompidou Expressway was not fully realized on both banks of the Seine, and has now been pedestrianized. Many cities are performing well on livability and transport because they did not build, stopped building, dismantled or re-used urban highway networks and developed alternatives instead. Vancouver, Bogotá and Curitiba are notorious examples. Other cities destroyed, or re-allocated their highways to other uses. The Chinese city of Guangzou reused urban highways to install a BRT-system which is on its turn integrated in a bike-sharing system. Laos and Istanbul also both possess a very successful BRT corridor.

Bogotá cancelled the highway project by a Japanese firm, and built a BRT system with urban boulevards providing a lot of space for pedestrians and cyclists. This TransMilenio network is key to the mobility and environmental improvements of the city. The Colombian capital continues to improve its transportation system through the Bogotá 21 initiative, a role model

for sustainable urban development. A few decades before, Curitiba cancelled the plan to hide a riverbed behind concrete. Instead a blue and green network was created and TOD was put forward along BRT corridors.

In New York, many plans of Robert Moses were not realized; other elevated highways like the East Side Expressway were torn down.

In Antwerp, a second ring road was not built, but the R11/R1bis was partially realized. There were also plans for a radial highway entering the inner-city, from Berchem till Zuid or even till De Meir.

As in Brussels, Copenhageners resisted urban highway plans, like the City Plan Vest and Søringen -1958-1974 (image 13) which planned to build highway stretches over the full length of the lake side between the city center and Nørrebro. The citizens urged the politicians to change their attitude, the planned highway was stopped and the transportation policy of the city favoured walking and biking again while some of the previous protesters were elected at the municipality.

Image 13: City Plan Vest and Søringen - 1958-1974, Copenhagen

Source: http://www.copenhagenize.com/2012/11/city-plan-vest-and-sringen-1958-1974.html
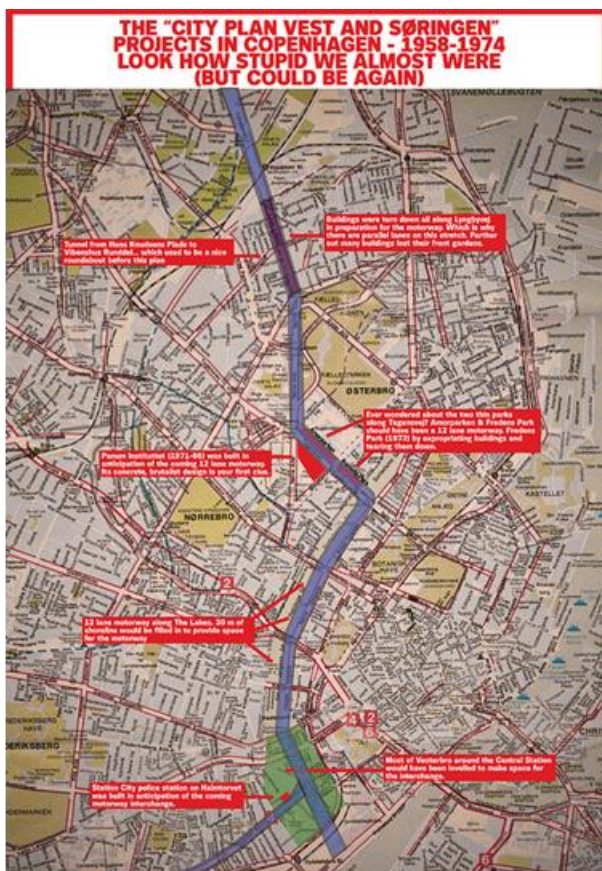
"Massive in scale and reductive in scope, they disrupt the physical and social fabric of the neighborhoods they traverse." (Totom, 2006)

III.5 The Economical Cost and Social Impact of Urban Highways

The maintenance of - especially elevated - highways and tunnels costs a lot of money, but tearing them down takes up an even bigger part of a city's budget. An interesting question with elevated urban highway removal, or with tunneling or entrenching ground floor highways, is the one if it is financially feasible, and if it is worth the investment. In some cases it is, considering that the removal of the elevated urban highways and their replacement by, e.g., a boulevard or parkway – with or without tunnels underneath - generates huge profits in the real estate market, making more building land available for city regeneration and, sometimes, leading to gentrification. Therefore we must be attentive that highway reconversion does not become an eviction process comparable to the one created by the installation of the urban highway itself. By the creation of urban highways, whether they are elevated or not, a big part of the population in the concerned area faced expropriation and others left the neighborhood because of the negative externalities produced by living in the highway's shadow. With the removal or reuse of the same infrastructure more capital is often drawn to the area, leads to regeneration, to a better built environment and quality of city life. However, we shall be on our guard for gentrification and skyrocketing real estate prices, leading to a second wave of exclusion. The point of this social impact or urban highways is raised in the article about Baltimore: *We Must Destroy You to Save You. Highway Construction and the City as a Modern Commons*, where the poor black and white communities in the neighborhoods successfully fought against the urban highway plans. These plans would destroy private property in the most deprived parts of town, property which the inhabitants paradoxically considered as public commons. Commons opposed to the highway viaducts. They did not view them as a public good, but as land grabbing by the middle and higher classes, the only ones benefiting an increased mobility driving their cars from the suburbs to the CBD. In the USA many houses were destroyed. As planning scholar Alan A. Altshuler has noted, by the mid-1960s, when interstate construction was well underway, it was generally believed that the new highway system would "displace a million people from their homes before it [was] completed." At the same time, Jane Jacobs' fight

against urban highways succeeded and ultimately led to the rebirth of Lower Manhattan and its gentrification. The opening of the High Line serves as a gentrifying tool by the municipality of New York. As with the reuse of urban railways, the broader social, economic and urban aspects of both highway creation and removal or reuse in terms of for instance gentrification or exclusion should be studied more.

> Portland, San Francisco, Milwaukee: "all three cities saved money over what they would have spent widening, rebuilding, or completing their existing freeways." (EMBARQ, 2012)

III.6   The Tear-down Movement

Death and Life of Great American Cities = Life and Death of Urban Highways

The report "The Death and Life of Urban Highways" refers to Jacobs' book "The Death and Life of Great American Cities". It declares the urban highway to be "a failed experiment" and describes cities that changed their highways for parks or mixed-use developments as good examples. Many European and North American cities indeed dismantled (part of) their urban highways.

Reasons for removing highways are also explained: "Cities are not removing all highways because of a sudden awakening of environmental consciousness or realization that car culture is bad," the report says. Instead, they're doing it because they can't afford to keep aging freeways from crumbling, and they're realizing that the space these roads take up is a hell of a lot more valuable, both socially and economically, when it's used for houses, businesses, and parks."

And many studies demonstrate that freeways worsen traffic instead of relieving it. Some mayors are, or are becoming, architects or urbanists; next to Jaime Lerner leading his architectural firm, we also have John Norquist the former Milwaukee mayor, now CEO of the Congress for the New Urbanism.

Cities should be for their residents not just for suburbanites driving through.

Although many cities dismantled their urban highways, others still plan to build them; one of the reasons is that budget allocation by administrations, follow the investments planned many years ago. This sometimes leads to new waves of highway revolts.

Plans for urban highway construction dating from the 1930s, were implemented in the 1950s and 1960s. Urban highway construction was a means for "clearing slum houses and blighted urban areas", and removing them also provides opportunities: "The land dedicated to urban freeways is an open faucet leaking money from the city."

In the following paragraphs we will analyze some cases of cities which removed their urban highways and others who are considering it. "Best Practices" is used as a tool by city planning offices to compare their situation with the one of similar cities. One example is the Seattle Urban Mobility Plan from January 2008. In this brochure different case studies are analyzed in order to provide insights for what to do with the Alaskan way viaduct.

The first presented case study is the Park East Freeway in Milwaukee, Wisconsin. In 2003 this elevated highway with 54,000 vehicles/day got replaced by a landscaped six-lane surface boulevard. The Park East Freeway began operating in 1971; it is an underutilized part of a never realized expressway loop around the CBD. Highways which are only partially realized are often underutilized; as they are not needed for traffic they can be changed by boulevards providing full connection to surrounding street grid. Lad value is another incentive: "The most important factor motivating the plan was the city's interest in encouraging redevelopment and reinvestment in the surrounding property." (EMBARQ, 2012)

Highways are seen as both a physical and mental barrier in the heart of the central city and: "new developments are attributed to freeway removal".

Another interesting case is the Cheonggyecheon Expressway in Seoul. Cheonggyecheon is a former seasonal waterway. We could compare it with the Manzanares which is also a crick or with the Arroyo del Abronigal which was and is still tunneled under the M-30. The comparison to Madrid is valid because keeping water the whole of the time in a seasonal river is costly and artificial. Moreover both rivers don't really flow but are channeled rivers with a

stream cut into parts. After having displaced the crick underground, the highway was built between 1958 and 1976 and saw 168,000 vehicles per day driving over it. In three years, between 2003 and 2005 the elevated highway was removed and the street grid restored. The result was a river in a 5km linear park with a two-lane one-way streets on each side of that park. Cancelling this highway resulted in 9% less vehicles passing through downtown; as in Madrid the restoration of the river also meant a cultural revival, with the restoration of historic bridges. Bringing more water and green into a dense urban fabric has also proved to mitigate temperatures by combating the "heath island effect".

In Seoul's case the freeway removal has been combined with demand management. Both incentives and disincentives were put into place. A voluntary "No Driving Day" program and bus system improvements got implemented before, during and after the demolition, road charging exists since 1996, parking has been reduced and paid parking has been introduced.

One of the best know examples (and most controversial projects) of urban highway transformation is the Central Artery in Boston. Destroying the elevated highway and its replacement by a tunnel and boulevard increased neighborhood property and commercial values, making overall downtown more attractive, including for tourists. On the other hand the operation in Boston proved to be technically more complicated than expected; the works lasted for almost twenty years and placed a big debt burden on the municipality, leading to "the elimination of some planned additional mobility improvements. Bostonians were asked to make a choice between freeway capacity and increases in non-auto travel." Here we clearly see the competition between transport modes with the car keeping its right of way: "In Boston, roadway capacity was not just maintained but increased, though at a very high cost." Today there are still about 200,000 vehicles/day driving through the tunnel and boulevard which compose the Central Artery.

The two west coast cities Portland and Seattle are both considered as environmentally and socially progressive cities. There modal split of bikes in traffic is way over the national average and is closer to European than to North American standards.

The Harbor Drive in Portland was a 4 lanes elevated highway having 25,000 vehicles/day. The capacity was increased to 6 lanes and new bypass infrastructure created.

100,000 vehicles/day drove on the Alaskan Way Viaduct in Seattle before it was demolished. These numbers are comparable to the Frederick G. Gardiner Expressway in Toronto, where planning documents and investment decisions are expending the share of transit for commuters to "accommodate future growth".

"The problem is in many countries, government wants to invest in everything. That doesn't work." (J. Lerner in: Green, 2011)

III.7   Sustainable Urban Mobility Plans. Vitoria-Gasteiz

The link between transport and urban planning is often missing. Sustainable Urban Mobility Plans should integrate this urban planning aspect. A Best Practice of an integrated urban mobility plan in the Basque city of Vitoria-Gasteiz, the transformation this Spanish city went through, is widely recognized as a best practice by different national and international institutions – including the EU and the UN. The metamorphosis of this medium-sized Spanish city is rooted in two main aspects, being the improvement of the public transport network and changes in the city´s urban grid pattern. Both interventions: the improved bus and new tram network and the renewed grid trough the so-called "Superblocks", improved the mobility as well as the accessibility.

As proven above, disappearing traffic can occur even if alternatives such as public transport and soft mobility aren't developed. On the other hand we should emphasis that a modal shift is way more likely to happen when investments in non-car related infrastructure is being made. This is demonstrated by recent examples like Vitoria-Gasteiz or Seoul, where the authorities drastically reduced lane capacity taking down the Cheonggyecheon elevated highway and replacing it by a boulevard and park, while simultaneously implementing a congestion tax favoring carpooling and investing in public transport – which saw its ridership explode.

The "Superblock model", changing the urban grid and facilitating the modal shift

The superblock is a permeable block structure regrouping the housing blocks into bigger blocks; these 68 superblocks that compose the dense urban structure are very well accessible for soft mobility and public transport. Cars aren't allowed within the block and must circulate around them. The policy choices on both planning and mobility provided more open space to the citizens; park and rides and higher fees for parking within the city center were combined with investments in new cycle paths, improvements in public space and a new tram- and bus network: "The new system is based on one tram line which now merges with two to nine bus routes, compared to the previous system of 17 bus routes." (E. Rojo, 2012). These changes made the city structure more efficient, the overall satisfaction of the inhabitants about this Sustainable Urban Mobility Plan was enhanced through participation, communication and the smooth transition from the one mobility system to the other. The new public transport system together with the new grid improves both mobility and accessibility while promoting inter-modality. The city center became even more pedestrian than before, the public transport network more efficient and used and the number of bikers increased a lot.

Vitoria is clearly a best practice example for Spain, Europe and the world, of a city developing its urban morphology and mobility hand in hand. It succeeded where others failed. It is important that mobility plans are part of an integrated urban planning solution – mobility and urbanity should be part of the same project favoring densification as well as modal shift; both elements should reinforce, not contradict each other.

Another best practice is the Chinese city of Guangzhou which won the UN's Momentum for Change Initiative for its BRT together with the Janmarg BRT in Ahmedabad - which saw 22% of commuters have shift from motorbikes to the bus. Both systems were also highlighted as Best Practices at COP18 in Doha because they increased the quality of life "by decreasing air pollution and saving time for commuters".(http://www.eltis.org/index.php?ID1=5&id=60&news_id=3941)

III.8   Worst Practices: Copenhagen, Berlin and Prague

It seems contradictory to list Copenhagen among the Worst Practices as the Danish capital is generally seen as having a well-thought city planning and mobility, especially regarding bike mobility. This framework and their ambition to become C02-neutral by 2020 was an important factor leading to the selection of Copenhagen as European Green Capital in 2015. But regarding urban highway projects, Copenhagen built new roads to Sweden from the new neighborhood Ørestad and from the Airport over the Øresund link which also included train traffic. These projects connect Denmark to Sweden and are useful for private vehicles and freight, as well as for public transport. This new transport infrastructure also forms part of the core TEN-T network. But now Copenhagen is building a harbor tunnel "havnetunnel" which is supposed to redirect the through traffic away from the city center. But this multi-billion investment will lead to higher congestion in other central neighborhoods and attract more traffic. Many Copenhageners see it as a setback, and not as a constructive solution to tackle the city's congestion problems, but rather as a measure boosting car traffic. This investment alone will hypothise the normally progressive urban politics and recent steps which are being made to increase the modal split in public transport, like the construction of a third metro line. It is unbelievable that the car lobby strikes back in such an aggressive way and that this wasn't taken into account for their candidacy.

Another project which deserves our attention is the planned extension of the A100 highway in Berlin towards the city center. This is a project by the regional government of Berlin which is now on-hold because financing mainly comes from the federal government. However, the fact that financing could not be found yet, doesn't mean that this project will not be realized. Some citizen groups are defending the extension, others are opposing it and sometimes demanding more investment in public transport instead of highways.

Our third European worst practice example is the Blanka Tunnel in Prague. This tunnel closes Prague's inner ring road with a bypass leading to the city center, and is an update of a 1960s project. The only difference is that they now chose to put the highway underground, reducing some externalities.

III.9   UMPs: Urban Mega Projects

There are many definitions of what an Urban Mega Project is:

> "The US Federal Highway Administration defines megaprojects as major infrastructure projects that cost more than US$1 billion, or projects of a significant cost that attract a high level of public attention or political interest because of substantial direct and indirect impacts on the community, environment, and budgets." B. Flyvbjerg

Well-known Urban Mega Projects like the Channel tunnel between France and the UK or Boston's Big Dig cost up to ten or fifteen times this minimal amount. Flyvbjerg emphasizes that a lot has to do with the fact that a 500 million project could be considered an UMP in medium-sized city, but that this would not be the case in bigger agglomeration. The word Mega has to be placed in context and does not rely on budget alone: " "Mega" also implies the size of the task involved in developing, planning, and managing projects of this magnitude. The risks are substantial. Cost overruns of 50% are common, overruns of 100% not uncommon."

In an article in De Telegraaf TU Delft, Bert van Wee talks about hundred billion euro's which have been wasted. As in other countries, many mega projects in the Netherlands got over budget. Van Wee blames politicians for what he calls a lock in phenomenon: "Politicians are already in a trap where they cannot get out of, before the official decision." Different scholars see this 'imprisonment' as a structural problem: "Politicians don't listen well to negative signals or marginalize them and overestimate positive alternatives. Despite setbacks they persevere along the chosen path. They legitimize their own actions and consciously or unconsciously tune the information flow to enforce the project to continue. The billions of overruns, which inevitably come are of future care." (Termaat, 2013) As a result, big projects are almost systematically over budget, citizens are tricked by politicians who systematically underestimate the costs and overestimate the gains: "If you do well with sweet talk and pictures only ventilating the benefits of a rail connection, stretch of highway or tunnel, you get political parties, interest groups and the business quickly behind you. And if there is criticism, you parry that by promising a compensation." (Termaat, 2013) These compensations are on their turn increasing the costs, as is illustrated by both Antwerp and Madrid. In Antwerp the projected costs for Oosterweel increased a lot when the proposed route to close the ring was kept but the elevated highway replaced by a tunnel, after critics of

the Antwerp city council following the referendum. In Madrid the tunneling projects at MadridRío also increased a lot when shifts were added in order to finish the work before the next municipal elections. According to Van Wee about half of the projects in the Netherlands are over budget but in other countries this average can increase to 90%.

In Madrid the mayor's party had the absolute majority and the critique by the political opposition and activist groups was not strong enough to stop or change the project. As a result the politicians and administrators did not have to justify their choices as much as in Antwerp. For the Scheldt city we can indeed talk about a lock in scenario, both on the local city as on the regional Flemish level. Till a few months before the 2009 referendum the former mayor of Antwerp Patrick Janssens defended the ring closure by an elevated highway. When confronted with growing opposition he did not answer with well-conceived arguments, but let everyone know that he did not want to question the decisions that had been taken since long. Janssens summarized this lock in in the polemic phrase: "Walk and don't look back."

Another important aspect is the so-called "megaprojects paradox": "More and bigger megaprojects are being planned and built despite their poor performance record in terms of costs and benefits."

Urban Mega Projects and Urban Highways: Moscow, Rio de Janeiro and Nice

As already mentioned before, Moscow is one of the cities which saw a tremendous increase in car traffic over the recent years. This situation was solved by building new roads including a second intermediary ring road called Gardiner Ring between the first and previous second (but now third) ring road. Parallel the second rail ring corridor which was closed a few years earlier was reopened. After focusing only on its road network, Moscow is now investing in both its motorways and public transport without forgetting soft mobility, like pedestrians and bikers, who suffered a lot in recent years. It looks like Moscow, as Antwerp and Madrid, invests in everything in every possible mode but at the same time giving priority to the car, or at least keeping its hegemony over the other modes untouched. This process has been enhanced by Moscow's 2012 extension which doubled the official size of the city and widened the existing highways from eight to ten lanes. A policy which is not explicitly against the car, is an implicit car policy.

Another Mega Project linked to urban highways is the metamorphosis Rio undergoes in order to host the 2016 Olympics. Here, like in many post-World war II American cities, the urban highway is used as a tool for slum clearance: favelas are torn down in order to make place for Olympic infrastructure, new neighborhoods and urban highways leading to them.

Coming back to Western Europe, the city of Nice together with the bigger entity Nice Métropole, plans to build new shopping and housing facilities over an area of 10.000 hectares along the valley of the Var which has it estuary in Nice. This project called Eco-Vallée or "Eco-Valley" (read ecological or economic), already saw the big football stadium built but also presages four lane highways on both sides of the Var valley. Eco-Vallée is an Operation of National Interest O.I.N., and environmental legislation (cf. concerning flood prevention) should not be applied.

With the Metropolis, we introduce the aspect of scale in the urban planning debate. Many big and middle sized French cities are known for their successful urban and mobility planning. The cities and urban communities of Lyon and Nantes reduced highway capacity, Nantes updated a bus system, and created an extension of the city center to the Ile de Nantes, while Lyon recently closed a car tunnel and transformed the artery into a boulevard with less lanes. This is opposed to many cities that tunnel highways in order to maintain or even increase capacity. As the interviewees from UITP stress, planning strategy takes many years, and those cities who have developed and implemented sustainable urban planning over the last two, three or four decades only begin see tangible results today. In France the more sensitive and comprehensive bottom-up planning of the "communautés urbaines" seems to contrast with the new megalomaniac and top-down planning of their first "métropole".

Urban Highways in Urban Mega Projects vs. Urban Highways as Urban Mega Projects

Urban Highways play an important role in Urban Mega Projects, but they can also be Urban Mega Projects on their own: as we saw in the Copenhagen, Berlin and Prague examples. In Chapter III we will analyze whether the Antwerp, Madrid, Genoa and Rome case studies are UMP's or how they integrate into other UMP's of their respective cities and regions.

III.10   Possibilities for Further Research

This paper is a comparative study between four European case studies which are embedded in a broader debate. It invites for further research in the areas of urban highway infrastructure, best urban transport practices in general, as well as on the "transport" and "public space" or "role models" raised – through literature or interviews, by the different actors in the four analyzed cities. Another aspect that could be analyzed in a further research is the role of urban highways in social exclusion and gentrification patterns; at this stage this could be a relevant topic for Madrid.

Urban Highways foster comparative studies; research could be made comparing urban highways in their evolution in the USA opposed to Europe. Or debates on similar cases within Europe could be debated, the proposed 3rd Scheldt highway crossing in Antwerp could for instance be compared to the planned 3rd Bosporus highway crossing in Istanbul, including its effects on mobility and on the city as a whole. A European case, Madrid, could also be compared to a Latin-American case: Lima. In that city, Vía Parque Rímac plans a 25km long tolled highway, replacing part of the existing road network. Following Madrid the Limeños will put part of this highwaystretch under the riverbed in a central city part. The river will be cleaned and its riverbanks will be redesigned after slum clearance. The project is know for being Latin-Amarica's biggest 2012 PPP.

In recent months protests against UMPs, in Istanbul around the Taksim Square and Gezi Park, or in Brazilian cities against the rise of public transport fees in combination with the prestige projects for new stadiums preparing the Word cup and the Olympics, proved to be the sparkle leading to massive social resistance. Even though many of these movements grew bigger and went far beyond their initial claims because of the brutal police repression they faced, the urban element played a crucial role as an instigator. In Istanbul the 2nd Bosporus crossing was blocked as a protest against building the 3rd Yavuz Sultan Selim Bridge.

Other sub debates like Public-Private Partnerships in Urban Highway Mega Projects could also be studied in more detail. For the Antwerp case there is already some literature specifically on the Oosterweel link and PPPs in Flanders.

IV   The Cases

This chapter presents the four case studies. Their similarities and differences will be reflected upon. The objectives and achievements of the projects will be analyzed.

IV.1   Relevance and Comparability of Antwerp, Madrid, Genoa and Rome

The selection of the four cases is first of all relevant because the broader mobility, public space as well as city debates in which they take place are comparable. Furthermore each of the four case studies sometimes refers to one of the others as being a "best practice" or source of inspiration. The literature and interviews can also refer to different case studies as a third "best practice" two or more selected case studies have in common.

The urban highways themselves are comparable. Even if their typology can be very different, all four cases are ring roads, or form part of bypasses embedding central parts of their cities. None of them is a radial highway. Except from the infrastructures, the cities themselves are also similar: Madrid and Rome are two Mediterranean capitals with comparable size, Antwerp and Genoa are middle-sized European cities and important regional centers hosting the biggest port of their respective countries.

Concerning our main focus, the road infrastructures, the R1 in Antwerp and the M-30 Madrid are the busiest ring roads in their countries with between 200 and 300.000 vehicles passing on average weekdays, and the Sopraelevata's in Genoa and Rome are – together with the elevated highway in Naples, very similar reinforced concrete structures. Furthermore the debates have a similar set of actors with e.g. citizen- and environmental activist groups favoring or opposing the suggested or built project, or putting forward their own alternative. Of course, in all four cases the institutional context is different, and will only briefly be touched upon when presenting the cases. But international institutions such as the European Union or the UN (UNESCO), pop up as important players or at least concerns for the local or regional actors in all four cases.

IV.2 Introducing the Cases

a) Antwerp

Antwerp is home to about half a million people. It is Belgian's second biggest city, after Brussels, and hosts the most important economic zone: the harbor of Antwerp.

The first idea to create a ring road around Antwerp is over a century old. In 1907 J. Stübben already proposed to prologue de Leien (the first boulevard around the city center) on the left bank of the Scheldt; this ring boulevard would also have included a metro line. In 1910 F. Loquet wanted to put Antwerp on the map as a "world city". He proposed to expand the city on the left bank and create a ring road, on its actual location. Rail, car and pedestrian traffic were clearly separated. A second and third ring would be built on respectively five and ten kilometers from the first one.

In 1933 the first road and pedestrian tunnel under the Scheldt was inaugurated; this was the outcome of the 1933 Imalso-competition. During this competition Le Corbusier got inspired by Loquet's plans, although he only used them in his first drawings, concentrating on the left bank afterwards. In these first plan the northern part of the ring road would cross or dive under the Scheldt next to the Noordkasteel: following a similar tracing as the one proposed today by the Flemish Government. In 1935 two other famous modernists, Hoste and Bream, proposed a "plan for remediation" of Antwerp: "a highway with tunnel next to the green ring or belt shaped by the derelict Brialmont vests instead of on top of these fortifications." The vests themselves would have been kept as a green belt. Other plans were made from the 1940s onward. During the German occupation a Ringstraße was proposed in order to move troops and goods faster.[2] The decision to build the ring was taken in 1958; this ring however was not closed and did not have Scheldt crossings, at the beginning.

Ten years after the realization of the first R1 Ring, in 1968, a Royal Decree decided to build a second ring further away from the city center for trough traffic. It was never realized, although the possibility of building a second ring road or bypass continues to pop up in discussions. The R1 ring was built on the Brialmontvesten, a stretch of fortifications.[3] It

mainly encases 19th century Antwerp, which means that most 20th century neighborhoods are situated on the outside of the ring and some municipalities (or city districts to be more precise) are separated from each other or cut into two (like Deurne and Borgerhout) by the highway. Later other highways and national roads were connected to the R1, and tunnels and Scheldt crossings were built. Today there are three Scheldt crossings for motorized traffic, two of them being highway crossings.

With over 250.000 vehicles per day the R1 stretch between Berchem and Borgerhout has a capacity problem as one of the busiest highways in Europe. Another part of the R1, the Kennedy tunnel or first highway crossing under the Scheldt, carries over 120.000 vehicles per day, although it has been designed for 65.000. Moreover other parts of the ring are also overcrowded where busy international highways come together. There has been a proposal to create an extra eight km long tunnel under the existing highway and build a new tunnel under the Scheldt next to the existing one. The main solution put forward is to solve bottlenecks by enlarging them. Another solution would be to enlarge the ring capacity and to close the ring at the same time, creating a more coherent network by separating through and local traffic and distributing the traffic better over the expanded network. Closing the ring would (theoretically) allow all traffic to go in the most appropriate direction, avoiding unnecessary detours. This forms the core stone of the Antwerp Mobility Master plan. In a study reviewing the possibilities for closing the R1, attention is paid to the limited capacity of drilled tunnels through TBMs, but nowadays bigger tunnel-boring machines have been built and tunnels with bigger diameters have been or are being drilled in Madrid or Seattle.

> "The two great urban development projects of Madrid have been the opening of the Gran Via and MadridRío. The idea for the former, which was carried out in a period of 22 years (1910-32), arose in 1862. The double operation of MadridRío began in 2004 after the cession of the M-30 motorway by the ministry of public works to Madrid's City Council." (Turner, 2011)

b) **Madrid**

The city of Madrid is home to four million people and in the Madrid autonomous region two more million live. This makes a total of around six million people for the broader Madrid region. Although hit by the economic crisis Madrid maintains its position as a dynamic economical city, major transportation hub and attractive city for tourists.

Historically the M-30 was not considered as the third ring road around Madrid, the M-10 being the boulevards created by the 19th Century extension – el ensanche, around the Salamanca neighborhood. The M-10 is a combination of boulevards which border the historic city center. The M-20 is situated further and also bypasses the city center through boulevards and elevated viaducts, e.g. at Nuevos Ministerios. The M-30 is a proper highway which makes it today's Madrid's first Ring Road – the M-10 being a classical boulevard and the M-20 having aspects of a boulevard and a highway. The M-30 was built between 1970 and 1974 and connected the radial highways to each other by a 32km long ellipse-shaped highway which enclosed and still encloses the core of the Madrid agglomeration: the central almond or almendra central. Around one million people live inside this central almond, and many dense neighborhoods are also bordering it from the outside. Because of the big population increase, mainly caused by migration from the countryside to the big cities, and the urban sprawl which took place over the last few decades, new bypasses were built afterwards. Today the second M-40 ring road is bypassing the biggest part of Madrid and connects all radial highways, fulfilling the role of the M-30 before its recent remodeling. The third and fourth ring roads, the M-45 and M-50, are not bypassing the whole Madrid but connect newly built areas like the extended Barajas Airport; we could say they are suburban bypasses.

The M-30 was built next to and over two cricks: the Manzanares and the Arroyo del Abroñigal. The first one saw its riverbanks disappear under the new highway and the second one was completely put underground with the highway on top of it; both lost their beach. During summers in the 1950s people still swam in them. This rapidly changed: "When the city began to expand at the end of the 1960s, this area became what in urban planning is

known as an 'area of opportunity' for an infrastructure that Madrid had been considering since the Plan de Zuazo y Jansen of 1929, but which was officially put forward in the Plan General de Ordenación Urbana by Pedro Bidagor, approved in 1946, which planned the construction of two ring roads in the city, the first of which would be the M-30. Thus in 1970, the construction of this huge infrastructure began, which, on its western stretch, would make the most of the space freed by the canalization of the river in order to pass along both banks, between the Puente del Rey and the Nudo Sur junction." (Turner, 2011)

This same sense of opportunity drove the city of Madrid to reconquer the banks of the Manzanares three to four decades later: "With the traffic moving underground, Madrid witnessed an event that could be branded as 'miraculous': the appearance, 'as if by magic', of an empty space, a land of opportunity with an area of approximately 100 ha, located about two km from the nerve center of the city, and which was moreover public land." (Turner, 2011)

The M-30 is composed by an eastern and a western part. The eastern part (between A & B) is an American style highway counting up to 19 lanes. The western part, including the tunneled Manzanares section, is a more conventional European highway.

Image 14: the Madrid highway network

Source: http://www.wegenforum.nl/viewtopic.php?f=15&t=11733
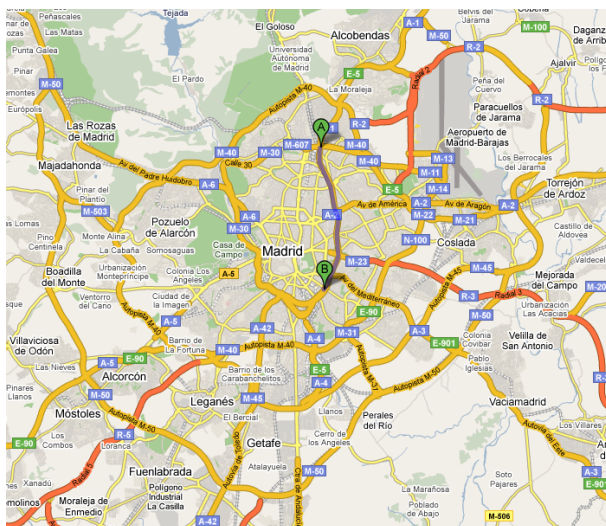
Landscaping the city

The Manzanares, originally a natural river, was already channeled when the highway got built on its banks: "The canalization process, which began in the first decades of the century and was completed in the 1950s, altered the course of the river on its path through the city, and turned it into yet another artificial piece of urban fabric." The MadridRío park is not a restoration of a natural ecosystem, the park corridor only evokes the surrounding natural environment: "The Manzanares case study is a perfect example of a landscape controlled by humans through attempting to imitate, or rather to give the illusion of a 'natural' (or less manipulated) ecosystem." (Lefebvre 2012). Different plant associations recreate the natural landscape around the river, and the almost seven km long stretch is linked to the other northern and southern landscapes the Manzanares passes through, as we can clearly see in the following images (15 & 16):
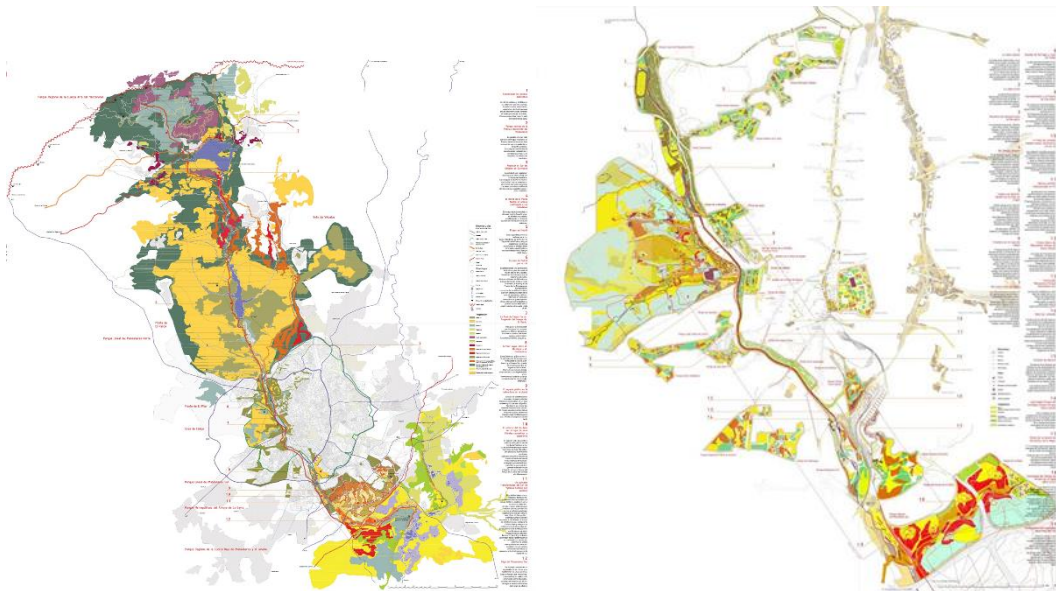
The car is not banned but hidden in this central historical zone to restore the landscape: "At the beginning of the twenty-first century, the modern age no longer accepts the incorporation of the private vehicle into the last bastion of urban space. Quite the opposite, the idea of a sustainable and habitable city involves reuniting people with public space and the vestiges of land that have resisted the implacable geometry of the artificial geography of the city." The river was seen as space sequestered by the highway which needed to be liberated again.

Madrid's former mayor Gallardón also presented his plan to reform the M-30 (image 17) to make traffic more fluid. On the following map we see that the capacity of certain tracks is doubled, new tunnels also provide shortcuts and local and through traffic are separated.

Image 17: the new M-30

La nueva M-30

Ruiz-Gallardón ha presentado su plan para reformar la M-30 para agilizar el tráfico y reparar 'la herida' que supuso construir esta vía junto al río Manzanares.

Conexión B. del Pilar M-30 y M-40
A partir de la Avda. de Betanzos, paso subterráneo por debajo de la Avda. del Cardenal Herrera Oria.

Variante Norte
Desde Puerta de Hierro se construirá un enlace directo en forma de «y». Una de las ramas conectará con la M-30 este a la altura de Chamartín y con la N-I.

Vía Servicio Norte
La M-30 prolongará su trayecto desde la glorieta de Tabarca a Puerta de Hierro.

Conexión Tetuán M-30
Paso subterráneo por debajo de Bravo Murillo para conectar directamente con Sor Ángela de la Cruz.

Variante Oeste
Variante subterránea que conectará la M-30 a la altura del Puente del Rey. Comunicación peatonal entre Casa de Campo, Cuesta de S. Vicente y la Pza. de España. Recuperación del eje histórico desde el Palacio Real al Lago de la Casa de Campo.

Puente del Rey / N-V
Recuperación de zonas verdes.

Pasarelas peatonales
Soterramiento de la M-30, bajo el río, con dos calzadas de tres carriles. Remodelación del enlace Pirámides/Marqués de Vadillo con un nuevo puente sobre el Manzanares. Creación del primer parque urbano del siglo XXI.

P. de Legazpi, Toledo y Segovia
Se soterrarán las dos direcciones actuales de la M-30 dejando en superficie un gran espacio liberado para zonas verdes y de otros usos públicos.

M-607
Túnel desde la Avda. de la Ilustración hasta la M-607 con salida directa a la carretera de Colmenar.

Plataforma Bus
Mejoras en la M-30 con apertura de salidas y entradas para el transporte público (parte subterráneas).

Túnel Pío XII
Punto reforzado. Verá duplicada su capacidad.

Puente de la Paloma
Se independizarán los carriles para dar fluidez.

C. Rica-Pza. / J. Mª Soler
Crear un paso inferior en la Pza. José Mª Soler, eliminando de la superficie el tráfico.

Avda. América / N-II
El cruce es un nudo completo; se sustituirán uno o varios enlaces por otros de incorporación alejada.

Prolongación O'Donnell
Prolongación del actual túnel de O'Donnell con su entrada en el Retiro.

Eje N-100 / O'Donnell
Para facilitar los accesos por la N-100, se intervendrá en las conexiones.

Pza. Conde Casal / N-III
Creación de nuevos ramales directos que reducirán tráfico por Conde de Casal y la C/ Hermanos Fernández Shaw.

Variante Sur
Túnel bajo el parque Tierno Galván.

Puente de Embajadores
Con la variante sur enlace subterráneo con ejes Este y Oeste de la M-30, con conexiones con la N-III y la carretera de Toledo.

0   125
Metros

FUENTE: Partido Popular.   EL MUNDO

Source: http://www.skyscrapercity.com/showthread.php?t=68010

The M-30 can be divided into two parts: the redesigned M-30 (2003-7), and MadridRío (2005-11). The linear MadridRío park links residents of 7 districts in the southwest of Madrid to other urban parks and historic monuments. As before about 200,000 cars/day are passing by, but they are made invisible. The M-30 also remodeled a radial highway connection with the ring: "The Avenida de Portugal, with the underground tunneling of its six lanes of traffic, it has now become an allegory of the journey to Portugal." (Turner, 2011)

Image 18: Av. de Portugal: 2004-2011

Source: http://www.espinillo.org/foros/foroppp.php?foro=6&tem=1338&pagina=58

Urban highways are often tunneled and changed into urban boulevards. The Av. de Portugal underwent this change in 2006–2010. On the next picture it is compared to the 2005–2007 Landschaftspark Bindermichl – Spallerhof above the Mühlkreisautobahn in Linz (image 19).

Image 19

Source:

c) Genoa

Genoa has 630,000 inhabitants and is the capital of Liguria. It has one of the largest historical centers in Europe which is a UNESCO World Heritage Site since 2006. Its long and narrow coastline creates a "difficult street layout". The private car mobility needs to be challenged by "access restriction and new forms of mobility for passengers and freight". Genoa has experience with "flexible on-demand transport systems" through the CIVITAS initiative.

The Sopraelevata di Genova or Strada Aldo Moro is an elevated 6 km long bypass between the harbor and the city center. It is a structure of reinforced concrete like the Sopraelevata di San Lorenzo in Rome and the Sopraelevata di Corso Novara in Naples. The Sopraelevata isn't part of a ring road, as the three other case studies, but it is a bypass: together with other roads

it encloses the whole city. The topography of Genoa, bordered by mountains and coast, makes a classical ring impossible.

Building the Sopraelevata in 1964-5 meant a big cultural heritage loss for the city of Genoa. A lot of ancient buildings were demolished to make place for the elevated highway lying just next to the city center. Such an operation would be unimaginable in Western Europe today. Throughout the years the Sopraelevata has been intensively used. Although the speed has been reduced to 70km/h, it still causes many problems. The noise pollution is very high and exceeds the legal limits by day and by night. Therefore a lot of people had the idea to tear down (part of) the highway or to reuse it as an urban promenade for pedestrians and cyclists, as put forward in Giorgia Bincolletto's thesis: "La Sopraelevata di Genova, nueva passagate al mare". The idea to transform the elevated highway to a pedestrian promenade is backed by the Mayor and by the organization Amici de la Sopraelevata, who are organizing a Sopraelevata redesign conquest for architects. At the same the bypass is still used a lot and a team from the university has been commissioned to make the highway less noisy.

Because of this intensive use, caused by the lack of alternatives in the dense street grid, reusing the viaduct would only be possible by creating a bypass – a tunnel under the harbor. By doing this, negative externalities will be displaced to the harbor area opening up the waterfront for new uses and linking the city center back to the historic port. The elevated highway also has high maintenance costs and creating a Genovese High Line will boost tourism. A tunnel under the port would also make driving through Genoa quicker as the harbor tunnel will be shorter than the viaduct. Of course, drilling a tunnel under the harbor is a huge investment.

d) Rome (situation, maps, time-line)

Like Genoa, Rome's historic city center is a UNESCO World Heritage Site, but the metropolitan area is way bigger and counts around four million inhabitants. Like Madrid, Rome grew a lot in the decades following WWII. The main difference between both capitals is that Madrid has a better public transportation system. Over the last 35 years "the length and the number of vehicles on the road have risen enormously." Like Genoa, Rome participated in the CIVITAS project which encouraged "a modal shift towards sustainable forms of

transport." According to CIVITAS: "One of the greatest improvements was the creation of a pedestrian network in the city center with car-free areas, which reduced pollution levels."

The Sopraelevata di San Lorenzo or Sopraelevata Est di Roma is a 1.2 km long elevated highway which forms part of Rome's first ring road. This more or less circular ring road is integrated into the urban fabric not only through the Sopraelevata and the boulevards beneath, but also through a tunnel (the 3.2 km new east tangent: Nuova Tangenziale Est) and urban boulevards. The network, which is linked to radial highways and national roads, circles around central Rome. This patchwork of roads totals 25 km. So this chaotic internal ring road (circumvalazone interna di Roma), built in 1963-1975 together with the Sopraelevata di Genoa, is no part of the core European transport network, contrary to the R1 in Antwerp and the un-tunneled part of the M-30 in Madrid. Rome also possesses a second ring road which is almost a perfect circle. This highway is situated in the periphery and is part of the TEN-T network. From time to time plans are proposed to build a second external ring road linking suburban locations such as the Leonardo Da Vinci Airport.

Typical for this Sopraelevata is its important height: up to 20 m above ground level, or on the seventh floor of the adjacent apartment blocks. Another important element is that the track has become derelict after the new eastern part of the inner ring road opened with a tunnel in 2012.

The approach between both Sopraelevata's is different: the reutilization of the Sopraelevata di San Lorenzo should be less problematic to realize than the one in Genoa because the alternative infrastructure is already in place. As in Genoa there is a citizens group supporting the municipal plans − Gli amici del Mostro (The Friends of the Monster, the highways nickname); this strongly resembles Friends of the High Line.

IV.3   The Interviews

For this research I conducted 13 interviews between the 14th of March and the 30th of August 2013. There are three general interviews, six interviews about Antwerp and four interviews about Madrid. Most of the interviews have been conducted life, others are Skype interviews or written interviews by mail. There are individual as well as double interviews. The original interviews have been conducted in Dutch, English or Spanish but the transcripts were translated in English. At the end of the list I included a summary of and a link to the double radio interview with Manu Claeys (president of stRaten-generaal) and political scientist Dave Sinardet, about the Antwerp ring debate. These 14 interviews represent a whole range of actors – from citizens groups, over architects to public-private management enterprises, international organizations or political parties. One actor is clearly missing for both case studies – being the municipality. The department of urban planning in Madrid never answered my e-mails, and the city of Antwerp did not wish to be interviewed on the subject.

Presentation interviewees

a) General interviews

1. FIA: International Automobile Federation - Luca Pascotto

FIA stands for Federation Internationale de l'Automobile and brings together automobilist associations from 132 countries worldwide; representing 38 million road users. Luca Pascotto is the director of mobility for FIA Region 1, operating from Brussels and grouping over 100 motoring associations across Europe, the Middle-East and Africa. FIA focuses on intelligent transportation systems, inter-modality, cleaner technologies and road safety.

2. UIT: International Association of Public Transport - Caroline Cerfontaine and Laurent Dauby

Laurent Dauby and Caroline Cerfontaine are Director Knowledge and Membership Services and Manager Urban Issues, Combined Mobility & Academic Network, respectively. They work at the International Association of Public Transport. This organization dates from 1885 and regroups public transport operators from over the whole world. UITP stands for a more balanced mobility in cities and their aim is to double the 2011 market share of public transport by 2025. This would better both mobility and quality of life in cities, substantially reducing CO_2 emissions. Their best practice example of a big city which achieved balanced mobility is Vienna. In 2011 the Austrian capital had the following modal split: 37% public transport, 29% car, 6% bicycle and 28% on foot. (www.wienerlinien.at)

3. CIVITAS: Sustainable mobility in Europe - Csaba Mezei

Csaba Mezei works at the CIVITAS Secretariat for the Regional Environmental Center. He handles CIVITAS' one-stop-shop inquiry service, supporting CIVITAS Forum member cities and stakeholders on sustainable urban mobility. CIVITAS clearly works on best practices and knowledge exchange: "CIVITAS supports cities to achieve sustainable urban mobility. It co-finances innovative solutions, and helps cities to evaluate, exchange and disseminate their results. With the annual CIVITAS Forum Conference, workshops, events, and the CIVITAS Awards the Secretariat supports cities to showcase their achievements."

b) Antwerp

4. stRaten-generaal - Manu Claeys

stRaten-generaal is an action group on urban planning and mobility which already existed before the whole debate around the Oosterweel started. Manu Claeys is presiding stRaten-generaal and has volunteered fulltime against the Oosterweel link and in favour of an alternative. He also published a book on the issue: *STILSTAND Het Oosterweeldossier*. Manu Claeys gives the M-30 remodeling and MadridRío as a best practice example.

5. BAM: Beheersmaatschappij Antwerpen Mobiel - Gerlinde Dhondt and Christophe Goffi

The BAM was established in 2003 to implement the Antwerp Mobility Master Plan. In September 2010 their mission changed: the Flemish Government decided that the BAM should not coordinate all these various infrastructure projects, which have been redistributed between the different administrations while Oosterweel remained in BAM. Since July 2012 BAM operates in a new structure with nv Tunnel Liefkenshoek – the company which manages the infrastructure and toll at this tunnel. Gerlinde Dhondt works in the communication department and her colleague Christophe Goffi is an architect-engineer working around urban planning and participation. Surprisingly, although they have a different vision on mobility and urbanism in Antwerp, BAM, StRaten-Generaal and Ademloos often quote the same best practices, such as the A2 in Maastricht.

6. Ademloos - Wim Van Hees

Wim Van Hees presides Ademloos, an NGO which strives to sanitize the Antwerp ring road. The organization was established in 2008 and regroups engaged citizens. Ademloos works in

strong collaboration with stRaten-Generaal and together they initiated the campaign leading to the 2009 referendum. Wim Van Hees does not want to put forward one or two best practices, his main criterion is that the remodeling of the road network in and around Antwerp should have a major positive health effect. He tells that the struggle of the action groups in Antwerp can serve as an inspiring example and that it certainly was inspiring on the city level.

7. **PVDA Antwerpen - Wiebe Eekman**

Wiebe Eekman is member of the PVDA and member of their workgroup on environment and climate affairs. The "Partij van de Arbeid" is a leftwing party which is represented in the Antwerp city council since the last municipal elections. Eekman is also involved in other organizations like the administrative board of the Climate Coalition. According to him "it is technically possible to plan the society and the economy in a way which doesn't sacrifice nature - and the abilities of the earth to regenerate itself - but the political will lacks." Eekman talks about the "Duurzame Weg" concept which was presented on a tunnel congress by stRaten-generaal and Ademloos. This sustainable road would put a glass deck on highway infrastructure meaning: filtered air, less noise pollution and electricity generation through heath pumps and solar cells.

8. **Stramien - Peter Vermeulen**

Peter Vermeulen is an Antwerp based architect and urban planner having his own office: Stramien. He developed a concept for a tunneled ring road which would not need a third Scheldt highway crossing and would be cheaper than the plans for closing the ring. He published a brochure on these plans. He got interested by the best practices put forward by stRaten-generaal and Ademloos as well as local initiatives for burying the ring. He also got inspired by the "Duurzame Weg" concept for the intersections.

9. **Antwerpen Hogerop - Ivan Boons and Bert Meuwis**

Ivan Boons and Bert Meuwis are part of Antwerpen Hogerop: "an association that aims to bring architecture and urbanism closer to people and lift their knowledge on this thematic on a higher level." Until 2010 they defended the BAM and their plans for closing the R1 with a bridge, but since the costs of the project exploded they defend their own alternative: the Green River. They want to close the ring further north with a tunnel – like stRaten-generaal, dismantle the existing R1 to create a park and drill new tunneled bypasses further away from the city.

c) Madrid

10. Burgos & Garrido Arquitectos Asociados - Javier Malo De Molina

Javier Malo De Molina works for Burgos & Garrido Arquitectos Asociados who created the Madrid Río park. He was the coordinator of the works interacting with other administrations to bring the work to a good end. He is very satisfied with the final result of the project but emphasizes that the M-30 remodeling and MadridRío are unique achievements which could only be realized under specific conditions: a stable political and financial context.

11. Ecologistas en Acción - Francisco Segura

Francisco Segura is one of the three coordinators of Ecologistas en Acción, a confederation of almost 300 ecological groups from the whole Spanish State. He was the transport coordinator during the M-30 works, which his organization opposed. Vitoria-Gasteiz is their best practice example.

12. Calle 30 - Juan Carlos Díaz Morán

Juan Carlos Díaz Morán is head of Technology, Systems and Installations at Madrid Calle 30 (MC30), a joint venture, which is 80% public and 20% private. MC30 realized the demodulation of the M-30 and MadridRío and now manages the highway infrastructure. Díaz Morán did not know about any project that got inspired by the works in Madrid.

13. Ecomovilidad.net - Isidro Barqueros

Isidro Barqueros is co-founder of Ecomovilidad.net, a citizens website and organization committed to a more sustainable and secure urban mobility. They were founded in 2009 and are present in Madrid, Barcelona and Granada. Isidro gave many good practices examples: Freiburg in Germany, the Swiss rail system for its management, Barcelona for its fare integration, and the Dutch cities for their cycling policy.

d) Radio interviews

14. Double interview Radio Klara (VRT), 25-05-2013, Trio - Manu Claeys (stRaten-generaal) & Dave Sinardet (VUB)

Concerning Manu Claeys: see interview 4.

Dave Sinardet is a political scientist interested in direct democracy and public participation.

IV.4 Analysis of the Cases

a) Debates

Antwerp

The proposal to close the ring in Antwerp is embedded in the broader mobility debate which was set in 1997 and is being dealt with by the Master plan Antwerpen 2020. In this Master plan, closing the R1 is only one element for solving the mobility problems in and around Antwerp. The ring debate is a double debate: one of closing and one of tunneling the ring. Both debates are combined in various forms. Sometimes the closing and tunneling of the ring form part of the same project, in other cases the closed ring would only partially be tunneled and in yet another case tunneling the ring would make a new Scheldt crossing unnecessary. The mobility and particularly the ring debate has been highly polemic, especially since 2008.

Madrid

In 2004 the mayor of Madrid, Alberto Ruiz-Gallardón Jiménez came up with the idea to remodel the M-30 and tunnel its Southwestern stretch. This plan was opposed by citizen groups as Ecologistas en Ación and neighbors suffering from the works at Manzanares. The political opposition also rejected the plans, but this had no major influence as Gallardón's party had the absolute majority in the Madrid city council.

Genoa

The discussion to transform the Sopraelevata into an Italian high line is not new, but in 2012 Marco Doria who is Genoa's actual mayor integrated this proposal in his electoral campaign. The idea is to create a bypass, "Galleria Sotoportuale", under the harbor in order to release the city center and the harbor promenade from through traffic and at the same time reuse the Sopraelevata as a panoramic walkway.

Rome

It is not clear if the Genoa and Rome debates are inspiring one another, because they do not refer to each other in the found literature. But the structure of both viaducts as well as the way they function in the city is similar, so it is logical that they explore similar solutions and refer to the same foreign examples like New York's high line and Paris' Promenade Plantée to support their views.

b) Institutional Framework

Antwerp

The Master plan Mobiliteit Antwerpen or Master plan 2020 is an initiative by the Flemish Government. It was them who took the decision to close the R1 back in 1997. The city and the Province of Antwerp played and are still playing a role on how to close the ring and how to solve the broader mobility problem, but their role is secondary to the Flemish Government. This less important role of the province, but especially the city (in a project mainly affecting that city), created problems in the past and could still do so in the future. Different tensions are present in Antwerp, not only between these actors, but also between these three levels of power and the inhabitants. Belgian politicians traditionally rule through coalitions, that can be unstable and are often different at municipal, regional or federal level. This situation explains why almost all major parties in Flanders are nested in this very politicized ring debate.

Madrid

Madrid's institutional situation is very different from Antwerp's. The plan to remodel the M-30 is an initiative of the municipality of Madrid only. The work was made possible by the transfer of the highway from the state to the municipal level in 2004, making the M-30 the only municipal highway in Spain. The works were done by MC30 (Madrid Calle 30): a joint-venture owned for 80% by the Municipality of Madrid and for 20% by private partners (two banks played a role in the financing). MC30 realized the M-30 remodeling and the MadridRío Park. Now the highway infrastructure is still managed by the mixed enterprise MC30 and MadridRío falls directly under the Municipality and its Department of Proyectos Singulares (Particular Projects). Even though the Madrid Río park has a length less than 7 km, because some adjacent roads and highways providing access to the M-30 were also tunneled, in total there are about 43 km of tunnels.

Genoa

As mentioned above the Sopraelevata has been problematic since its inception. In recent years more and more people asked for its destruction, including international organizations as UNESCO which menaced to withdraw the title of world heritage. This is a strange approach as the city received its UNESCO title in 2006 when the viaduct was already standing there since decades. This only added fuel to the debate. Today the inhabitants of Genoa, as in the second municipality in Rome, are divided about what to do with their Sopraelevata.

According to newspaper surveys a majority of the inhabitants in central Genoa would be favorable towards the project of their municipality, but a bigger majority of other Genovese using the highway in order to commute to or pass by the center would be against the project. According to the latest 2012 figures, the majority of the Genovese would still be against the project, preferring to demolish or restore the Sopraelevata instead of reusing it. Others like officials of the Liguria region are also skeptical, claiming that there will never be enough money to build the harbor tunnel, or that this tunnel should not be a priority.

Image 20: the Sopraelevata separating the city center from the ancient harbor

Source: http://www.liberamentemagazine.org/Sopraelevata%20di%20Genova.htm

Rome

The Roman debate is different from the Genovese one. The alternative bypass enabling the reutilization of the Sopraelevata for non-car uses is already in place. In Rome they have the Tangenziale Est Tunnel at Tiburtina. Their question is what to do with the obsolete elevated highway. Should they reuse or demolish it? Like with the Stada Aldo Moro, students play a role in the debate by writing their thesis on the subject like Giorgio Bernabei, who drew design plans for the reuse. Next to this in both Genoa and Rome, teams of architecture students have been invited to propose projects for these viaducts. Another important similarity is that the plans by the mayor are backed-up by citizen groups. The second municipality mayor is reminded of his electoral promise by "Gli Amici del Mostro".

c) PPP – Stakeholder management

In the next paragraphs we will talk about PPPs, mixed enterprises, joint-ventures and the role they are playing in our projects. The main focus is put on Antwerp and Madrid because here the organizational and financial structures through which the projects were or are being realized still exist or have existed.

In Antwerp the closure of the R1 is realized by an enterprise created by the Flemish Government, which is called BAM: Beheersmaatschappij Antwerpen Mobiel (Management Company Antwerp Mobile). They are acting on behalf of the Flemish Government. Because BAM was fist commissioned to implement the whole mobility plan for Antwerp, they already realized two tram projects through PPPs. Since 2010 their only major project is the closure of the ring for which they do the study work, write the public offers and create the financial structures, often in collaboration with internal or external consultants. Right now the project of the Oosterweel link is on-hold because of the ongoing Environmental Impact Study which should be published by September 2013. For the moment BAM does not work with PPPs anymore.

In Madrid, Calle 30 or MC3O is a joint-venture which receives a loan by the city of Madrid on a yearly basis. MadridRío (composed by two architecture firms and one engineering firm) used to be part of MC30 during the works till 2007 when the responsibility of the park was transferred to the municipality again.

In Genoa PPPs are discussed in different forms, as well for the viaduct restoration and its affectation for pedestrians and cyclists as for the harbor tunnel which should replace the existing road infrastructure. In Rome the new 2012 eastern tunneled bypass forming part of the internal ring road was realized through a PPP. For reusing the Sopraelevata a PPP is also proposed by the municipality and architects.

d) UMPs: Are the four case studies urban mega projects?

We can say that Antwerp and Madrid are without doubt mega projects. Both BAM and MC30 are agencies created by municipal or regional governments to lead complex projects. Both highway operations also involved international architecture competitions and are embedded in the mobility debate of their cities and wider regions as well as on the European level. Both ring road projects are multibillion investments over many years, linked to specially designed financial constructions. The projects are as much or even more about urban planning than mobility and are linked to or embedded in other mega projects. In her thesis "Waterways and Humanity" E.L.Dickman writes that RíoMadrid supports the city's Olympic bet – which according to the interviews was true till last year (interview 13). In Antwerp, both debates for tunneling the ring and changing the way of closing the existing ring are linked to huge urban development projects including new neighborhoods or extensions of existing neighborhoods: Klein Eiland, Nieuw Zuid and Nieuw Zurenborg. Even though these neighborhoods will be built whatever the decision on the ring looks like, the effects of the new infrastructure will have an impact on the quality of life in these neighborhoods.

For Genoa it is less clear if we are talking about a UMP. Reusing the Sopraelevata implies building costly new infrastructure: the harbor tunnel. Recycling or reconverting the old sopraelevata to new pedestrian and bike uses might on the long run be more cost-efficient than upkeeping and maintaining the elevated highway for road traffic. On the other hand the cost of drilling the harbor tunnel is estimated at about one billion. It would not be the first time that a waterfront highway is cleared up and replaced by a boulevard or promenade and a tunnel under the harbor; a comparable infrastructure is being built in Oslo. Although the investment is not negligible and might place an important debt burden on the Genoa municipality, we are talking about smaller budgets than the ones in Antwerp or Madrid. Moreover, it is not clear if there will be international architectural or engineering competitions in order to design the harbor tunnel and the reutilization of the Sopraelevata. Probably that will be the case, but for the harbor tunnel so far there is only a commission appointed to see how they would do it technically, and for the Sopraelevata the Amici della Sopraelevata recently launched an idea competition. The jury will analyze the entries according to their: 1. Originality; 2. Technical feasibility; 3. Ability to reuse the structure; 4. Capacity enhancement

of the relationship between the new flyover and the city; and 5. Usability and tourist attraction.

For Rome it is even less clear whether the transformation of the elevated highway would be a UMP. Some companies do not see the recuperation of the viaduct with a good eye and consider destroying the Sopraelevata as more valuable. Massive investments are not needed anymore, the new bypass already exists. As a result big enterprises could gain more with a contract for tearing-down the existing infrastructure or maintaining it at high costs for vehicular traffic. Maybe they do not realize that the property values of the adjacent buildings could increase a lot if a park is put on top of it. On the other hand San Lorenzo can be linked to other projects, like the new railway station in Tiburtina which will become Rome's first high-speed hub over the next years. This last case is not a UMP but might be integrated in another existing or upcoming UMP instead.

e) Information & Participation (Agenda 21)

How was information and participation dealt with in the four cases?

A good participation and information process is important in order to have a successful project gaining citizens support. In the next paragraphs the information and participation methods will be analyzed for the four case studies. We will make a difference between internal and external participation as well as between wanted and unwanted participation. Internal participation means consultation between different actors or administrations leading the project, and external participation means consultation with everyone else. By wanted participation is meant: participation falling within the official framework set by the project. Unwanted participation are protest actions by individual citizens or groups which are not included in the official participation framework but can nevertheless have an important direct or indirect impact on the projects – through fc. legal actions against the projects, public pressure on politicians or physical blockades of the works.

The United Nations encourages participation through their "non-binding, voluntarily implemented action plan of the United Nations with regard to sustainable development" the Agenda 21. Different countries, cities and regions are implementing this sustainability agenda, different Local Agenda 21 initiatives were created. Often local authorities are now

referring to the Agenda 21 when developing public participation initiatives; this is also the case for urban highway production.

Antwerp

The decision to close the ring road was based on studies demonstrating that a third Scheldt crossing is needed, even when alternatives such as public transport were being developed. These studies have been done by different groups such as Wegen en Verkeer. The Belgian authorities are legally bound to inform citizens about big infrastructure works. In general these plans are available for inspection by the citizens during one month. Concerned citizens are allowed to formulate remarks, but these remarks will not necessarily been taken into account. The most important is that the legal procedures, including different technical documents and an environmental impact study, are followed correctly. Participation did not focus on informing the broader public; there were a few information workshops called Staten-Generaal (States General/General Assembly) which informed actors of the civil society such as the city of Antwerp, other administrations and some citizens. In reaction to these Staten-General held for other projects before, angry citizens created their own platform stRaten-generaal (interview 4). This organization played an important role in informing the inhabitants of Antwerp on the highway plans and in mobilizing them for an alternative together with the NGO Ademloos (Breathless) which was created in 2008 (interview 6). stRaten-generaal and Ademloos raised the signatures of over 10% of the city's inhabitants in order to oblige the city council to organize the first local referendum in the city's history. This referendum on the Oosterweel Link was held in 2009 and opposed the action groups to BAM. The city council could not ignore this non-binding referendum which rejected the plans for the ring closure as proposed by BAM. As a result the city of Antwerp, the Flemish Government and the BAM had to revise their agreement and find a solution fitting the government and the city.

Madrid

> "The participation of the neighborhood in the urbanization process generated a feeling among the residents of appropriating public space. They now feel like joint owners of this space and guarantors of its maintenance and proper use." (Turner, 2011)

Wanted participation on highway was not more important in Madrid than in Antwerp; the numerous protest and legal actions against the works could not change or stop them. In Madrid the unwanted participation could not break through. On the other hand the inhabitants, mostly neighbors of the MadridRío Park, were able to give their ideas on what they wanted for the park. This included children playgrounds, and a beach next to the Oblicuo bridge which was saved from demolition (interview 13).

The Puente Oblicuo (above in the middle) was originally a road bridge, built in the 1970s to carry the M-30 motorway across the river, and has since 2008-11 been turned into a large bridge for pedestrians and cyclists using the MadridRío park.

Neighbors also collaborated on art projects such as the two foot bridges around Matadero where inhabitants were painted on the fresco covering the ceiling of the bridge, making them identify with the project. Public participation was limited to park design, but this was done well and can be considered a best practice. This intensive participation might explain why the park is used a lot and seems to function well socially.

For Genoa and Rome it is too early to judge participation, but the fact that there is participation between the municipality and the inhabitants in an early stage of the process is encouraging. In Rome participation is presented as fundamental by the municipality, that wants to implement the Local Agenda 21 through it. Like the MC30 in Madrid, the municipality held a children's drawing competition.

f) EU (European Commission, European Court of Justice, Environmental Procedures and the European Investment Bank)

In infrastructure and urban projects the European Union and its institutions such as the European Commission, the European Court of Justice and the European Investment Bank play an ever bigger role. This is also the case with our four examples.

The role of the EU in these matters is 3-sided: 1. European laws provide the legal regulation for many projects, give advice or enforce changes by fines or jurisdiction, 2. they support the project financially, 3. they facilitate the mobility and urban planning debate by fostering "best practices" exchanges, publishing a Green paper for mobility or pushing for more citizens participation in collaboration with other international organizations such as the UN for the Agenda 21. Europe plays a bigger role in Antwerp and Madrid than in Genoa and Rome, because the first two ring roads are part of the TEN-T network.

Antwerp

The Flemish Government follows the European regulations, they are obliged to do this because the public opinion is strongly mobilized through the two action groups: Ademloos and stRaten-generaal, which focus their legal actions on the European level after not having been successful with their complaints in front of the Belgian tribunals. They look if the procedures are followed adequately. In Antwerp the initial proposal also changed: the viaduct over the city and harbor has been replaced by a tunnel, so there should be a new public offer for contractors. But for the moment Europe does not take position obliging the Flemish Government to break the existing deal with Noriant and publish a new public offer.

In Antwerp Europe intervenes in two debates: one about closing the ring road and one about the possible tunneling of the ring. Tunneling the R1 would be technically very complicated in order not to infringe the European tunnel directive. The R1 ring is of strategic importance for Europe. The EU was supposed to finance part of the BAM studies for closing the ring. This did not happen as the EU considered that the Flemish Government did not do its job well concerning the procurement procedure for entrepreneurs.

Madrid

The M-30 extension did not follow the European regulations, an environment impact's study was never made. Today, building the project would also be impossible because in the meantime the European tunnel regulation changed, which makes it more difficult for others like Antwerp, to follow the Madrid example of tunneling their ring road. Also the M-30 remodeling means extra lane capacity – while changes in lane capacity (reduction or extension) are not possible either for TEN-T highways. Because MC30 lacked an Environment Impact Study, different opposition groups like Ecologistas en Acción went to Spanish and European courts. They won all processes and as a matter of fact the works were declared illegal. But at that time the remodeling of the M-30 already took place and the tunnels were covered by the MadridRío park, so the Spanish national or European authorities did not take any further action.

Genoa

The European Union does not appear in the debate around the elevated motorway, but the United Nations does through UNESCO which publically asked the city to destroy the Sopraelevata menacing to withdraw their status as world cultural. This treat by UNESCO dates from a few years ago, when the idea to reuse the Sopraelevata as a promenade was not taken seriously yet. As UNESCO did not published any new demand since, they probably changed their view. Reusing the viaduct as panoramic promenade would evoke the elevated terraces which overlooked the harbor before the highway was built, as Georgia Bincoletto argues in her thesis. In Rome the municipal plan for reusing the Sopaelevata is said to implement the Local Agenda 21.

g) Outcomes: realized, discussed and unrealized projects

Antwerp

So far not a lot of the Antwerp Mobility Master plan has been realized, only a few tram projects and bike lanes. Concerning the core stone of the mobility problematic, the ring road: it has only been maintained but not extended. Now different options to close the ring are analyzed for the environmental impacts study. Other options like prolonging bypasses further away from Antwerp (the R2, R1bis or A102) are also studied. Some studies which were not

developed on time to be analyzed for the current environmental impact study (e.g. the Green River by Antwerpen Hogerop or the tunneled ring without Scheldt crossing by Peter Vermeulen) could be analyzed at a later stage. Probably a few measures to better the traffic will be taken, such as canceling the toll at the LFHK tunnel – but this will not take place before the May 2014 elections.

Madrid

The remodeled M-30 created the longest tunnel network in an urban area, and a big new park in the hearth of Madrid. A tunneled ring or park in Antwerp would also create over hundred hectares of parkland, whereas the proposed greening of the Sopraelevatas would create between 7 and 35 hectares of green space. The works drastically reduced noise and air pollution around Manzanares, but this same trend did not happen in un-tunneled parts where the highway was also enlarged.

The projects in Genoa and Rome are in a too early stage, so that analyzing the outcomes is not possible yet. The latest proposal for Genoa is that the peripheral part of the Sopraelevata in the southeast will be upgraded and serve as access road to the new tunnel. The central part will be reused and lifts will be installed on strategic points, offering easy elevator access for pedestrians and bikers. To conclude part of the viaduct around the Expo Area will be dismantled allowing an extension of the expo area. The proposal to build the harbor tunnel and reuse the Sopaelevata is clearly linked to other projects like the aquarium, the waterfront redevelopment initiated by Genoa European cultural capital, and the idea for a waterfront promenade.

h) The Linear Park

Linear parks are proposed in all four case studies, on the reconverted infrastructure or they are proposed along the planned infrastructure, as with the Oosterweel Link in Antwerp. Those linear parks became popular in recent years. They provide ecological corridors which link other green spaces together and form parts of environmental strategies restoring or creating blue and green networks in many cities like Brussels and Berlin, as we can read in Gosse 2012.

More and more wasteland or fallow urban land is being converted to park land. This can be the case on abandoned rail lines or roads, or on top of transport infrastructure which is being tunneled. Other linear parks were created on industrial brownfields, or grew naturally around city ramparts and military fortifications in cities where these installations were not taken down and replaced by boulevards or highways. A notable example of this is the city of Leiden which is now creating a 6 km long Singelpark (image 23), all around its medieval core.[1] As we saw for Antwerp, plans existed to maintain the 19th century fortresses and the green belt around it and to build the highway on its outside. Ring roads – whether they are highways or boulevards, can encircle the mediaeval city, the 19th or 20th century city or new urban or suburban locations built in the 21st century. Many middle-sized and big cities like Madrid, Rome or Brussels have different more or less concentric ring roads.

Image 23: Singelpark, Leiden

Source: http://www.archined.nl/kort-nieuws/2012/juliaugustus/lola-en-studio-karst-maken-beste-plannen-singelpark-leiden

The development of linear parks is paralleled by the regained attention for waterways. A lot of cities are investing in their waterfront to provide leisure and living space. Linear park are built along rivers or canals like in Madrid and Seoul, or the original stream which caused flooding is redirected to a new canal in order to create a park in the depressed riverbed like the Gardin del Turia in Valencia. Traffic flows are replaced by water flows again the

transport infrastructure becomes tributary to the city landscape and not the other way around. The highway bed changes to a green river.

The High Line Effect

Derelict ground-floor or depressed railway lines were commonly changed into promenades over the last years, both in urban and rural settings. The reuse of elevated railways, however, came later with the Promenade Plantée in Paris and the High Line in New York. Both are often quoted as inspiring examples of urban reconversion, but the High Line is quoted and praised so often that it almost becomes a myth.

Encouraged by the New York success story, different cities in the US and throughout the world want to change their derelict (elevated) urban rail lines into high lines. Others use the word "high line" as a synonym for linear park. Still others are building new elevated promenades. The Luchtsingel in Rotterdam, e.g., could be compared to the M-30 tunneling under MadridRío in the sense that 21st century infrastructure is realized in order to overcome 20th century infrastructure.

Inside New York, the borough of Queens plans a high line following Manhattan's example. And other cities like Philadelphia or Chicago are transforming their elevated rail tracks into promenades. In Rotterdam, the Hofpleinlijn viaduct has been bought by a housing cooperation to transform it in an elevated public park. In the three of the four cases reviewed in this thesis (Antwerp, Madrid and Genoa) waterfront development plays a crucial role; in three of the four cases (Antwerp, Genoa and Rome) the High Line and the Promenade Plantée serve as inspiring best practices for at least part of the proposals.

Other Inspirational Practices

There are many examples of transport infrastructure reconfigured to other uses. Here again we have one example from New York: after the High Line there is also a project for a Low Line, an underground park in an ancient tram depot. The natural light would be projected inside through optic fibers without consuming energy.

Another discussion which takes place in Ghent could be inspiring for Antwerp, Genoa and Rome. The new city council wants to destroy the obsolete Flyover at the end of the E17 (the B401) and absorb the traffic with a park & ride or leading it around the ring road, in order to

extend the park at Zuid and create a Central Park at the Scheldt. This proposal made professors of the architecture school Sint-Lukas Gent wonder what to do else with the viaduct than just dismantle it. A high line on top of the flyover would be an option but surely is not the only one. So they decided to organize the yearly student workshop on redesigning the flyover. Six hundred students worked in teams of five and presented a hundred meter long scale model of the flyover with 107 projects including promenades, a multimodal container terminal, an agricultural area, a parking tower, a new neighborhood, an elevated swimming pool or student housing. This student competition could give valuable ideas to Ghent or other cities.

Recycling: the possible new uses of derelict or still in use urban highways
Elevated viaducts – whether they are train or road viaducts or whether they are derelict or still in use - can be used as attractive leisure space for doing sports; the elevated structure can serve as a shelter for a skate or mountain bike park and playgrounds can be installed. Flyovers are limited access roads, and this limited accessibility inspired students in Ghent who proposed to build a new prison on the highway. Elevated viaducts could also be used for public transport – be it rail or BRT corridors, and this is also the case on ground level: under the infrastructure many public transport corridors could be realized. Today many busses and trams, like under the Sopraelevata in Rome, already circulate under them. Other cities like Antwerp are creating long-distance bike paths along their highways. As the idea for a New York Low Line and the Amsterdam example of TunFun demonstrate, derelict underground transport infrastructure can also be used as parks or playgrounds.

Different proposals in Genoa, Roma or Ghent add extra levels to the highway by adding parasite buildings to it, by installing lifts or by partially deconstructing the viaduct, to make it an arty ruin which can nevertheless be used as a promenade. These proposals can be found in Vancouver and Ghent, where the structure is artificially changed into a ruin and nature retakes its rights.

Smaller or larger parks are also often situated under elevated highways: in Milan, Shanghai or Beijing. This transport infrastructure passes close to houses in some areas: the sopraelevatas in Genoa and Rome or the M-30 close to Manzanares before the tunneling, but there are often free spaces or wastelands around them too. Fallow spaces around transport infrastructure often form the only remaining open-space areas in many cities, so their utilization is just a

matter of time. As elevated highways often serve as main entry points to the city, the space underneath is often used as parking; they also form shelters and are used as official or informal market places (image 24).

Image 24: elevated expressway cutting through Bangalore's central market

Source: http://www.cluster.eu/the-nomadic-city-appropriates-the-street/#sthash.90ZuJmHJ.dpu

Integrating highways in cities: tunneling, destroying and designing

Boston and Seoul demonstrate that similar starting situations can lead to very different outcomes: "In Boston, the maintenance of highway capacity was a prerequisite. In Seoul, the treatment of public space and environmental protection prevailed."   Other cities take intermediary approaches: "Between these two "extreme" solutions, cities have decided to create (Barcelona) or maintain (Birmingham) freeways in urban areas without completely hiding them."

Certain places are priorities for interventions. Here we come back to the question of centrality and integrated planning: "Insert or change a highway in the city goes far beyond a simple work on the infrastructure." A good example of this comprehensive planning is Barcelona: "In the 1990s Barcelona wanted to increase its road network capacity, simultaneously linking the equipments across the city, structure neighborhoods and connect the periphery to the center." MadridRío also sew the urban tissue: neighborhoods torn by the highway were linked to each other again. Interventions on strategic locations can connect the urban fabric functioning as staples or clips. These clips can vary in length. Hamburg (image

25) plans to cap its major freeway over three kilometers, creating a new neighborhood with individual houses and a lot of gardens on top of the green cap. This together with other projects played a role in giving Hamburg the title of European green capital in 2011. Other cities gained this tittle : Vitoria-Gasteiz (2012), Nantes (2013), Bristol (2014) and Copenhagen (2015) ; they are considered to be far ahead when urban planning and transport is concerned. They also pop up in our best practices list.

Image 25: A7 Decke Hamburg: today and tomorrow

Source: http://www.theatlanticcities.com/design/2011/11/how-hamburg-became-europes-greenest-city/538/

Other cities, like Singapore (image 26), are solving their East/West devide by tunneling part of their highway network.

Image 26: Marina Coastal Expressway's 5km long tunnel, Singapore
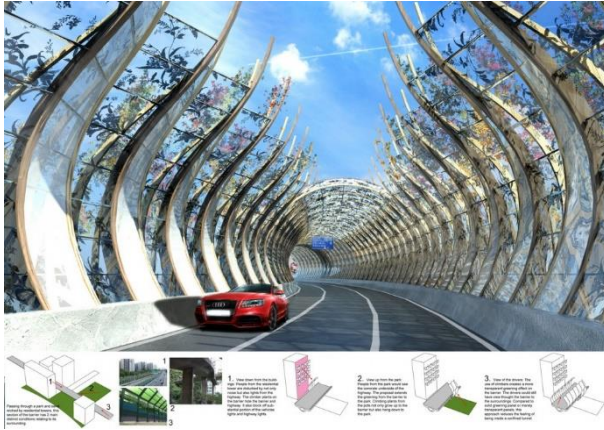
Realizations and proposals

Creating or enlarging expressways while mitigating their pollution

In their interview BAM talks about "reduced annoyance" during the works through yard roads separated from public roads, or through reduced lighting or noise. The possibilities for technical greening are also explored: "Where possible, noise barriers are replaced by noise absorbing growing vegetal walls which deliver better results and also filter the particulate matter." (C.G., interview 5). A new element which is specifically addressed here and which is not mentioned in the literature or interviews of the other projects is light pollution. BAM also talks about technical greening; while the road network is expended technical solutions are used for reducing negative externalities. Another example of this could be the proposal for a green roof over the enlarged Gascoigne Road flyover in Honk Kong (as seen in the next two images).

Images 21 & 22: Gascoigne Road flyover, proposal

Source: http://www.urbanphoto.net/blog/2009/06/07/greening-expressways

Source: http://www.archdaily.com/278342/forest-corridor-highway-noise-barrier-bread-studio/20120514-sections-3dm-3

The works at MadridRío were also technically very advanced, which permitted a better green cover than in other comparable project like Boston's Big Dig: "The construction of the Salón de Pinos required the design of an infrastructure built of 14 layers of different types, sizes and functions. As it was supported on the cover of the tunnel, it had to comply with strict requirements allowing for the proper growth of the plant species without overloading the structure." (Turner, 2011)

Both these innovations (the realization in Madrid, and the proposal for Antwerp) can be considered as best technical practices but do not make the projects as such good urban or mobility works.

V.   **Conclusion**

We live in an increasingly urbanized world. Over 50% of the world's population lives in cities. This figure is supposed to rise to a staggering 70% by 2050, according to UN figures. We also know that cities account for 75% of car pollution through CO2 emissions. These two figures combined, make redefining the position of the car in cities a necessity. Out of the literature and interviews we conclude that many actors are conscious of these problems and that the technological means for a smarter use of the private automobile exist. This smarter use means a smaller use and the creation of proper alternatives as well as a comprehensive and joint mobility and urban planning scheme. However, we also learned that the political

will to solve mobility problems often lacks – even if there are numerous good practices. This lack of political will can lead to projects tackling the negative externalities of car-use without putting into question the role of the car in our society nor the role of the urban highway in our cities. Even though theories around induced demand and disappearing traffic are well-researched and proven correct in many practical examples, they are neglected by many planners and administrators who build or extend roads to solve congestion.

Even if new infrastructure is built, like the Tangenziale Est tunnel in Rome, this does not mean that the obsolete infrastructure as the Sopraelevata di San Lorenzo will not be used anymore and will be reconverted into a promenade or dismantled. The most efficient planning way is when the design of new infrastructure and the reuse of old one overlap, like in Madrid where the MadridRío Park was already being designed while the tunnels were still under construction. Because the planning and realization phases occurred almost simultaneously we cannot dissociate the M-30 remodeling with its tunnels from the MadridRío Park. And even if the MadridRío could be considered as a best practice, this is not the case for the illegal M-30 remodeling.

Best practices are used by a wide type of actors for different means. They can be used: by activists in order to build popular support for resisting a project or putting forward their own alternatives or by authorities on any level to legitimize their projects. An argumentation around best urban highway practices can go in any possible direction and must be analyzed case by case into the specific context of each project. Comparing and exchanging best practices can be useful but they are only one of the instruments for realizing sustainable projects. A last remark would be that best practices – because they are rooted in the local context, cannot be copy-pasted. Best practices can be influential on side aspects but following a best practices approach does not automatically lead to the creation of best practices.

VI. Notes

[1] The State-Of-The-Art of Sustainable Urban Mobility Plans in Europe can be found here: www.mobilityplans.eu

[2] According to Veerle Janssens in her master thesis *De Antwerpse ring en de grootstadgedachte tijdens WOII*, the ring cannot be considered as "a German product", but German ideas contributed to its realization.

[3] Highways and Boulevards, especially ring roads, were often constructed on ancient fortifications. The R1 in Antwerp is only one example; we could also mention the small ring forming the pentagon in Brussels, the Boulevard Périphérique and the Boulevard des Maréchaux in Paris, or the Ringstraße in Vienna.

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Euromaster in Urban Studies 4Cities, 2011-2013

The Production of Urban Highways in the 21st Century

Appendix : Interviews

Antoine Struelens

September 1, 2013

Interviews 21st Century Urban Highways : summaries of transcripts with full quotes

Madrid

Radio interview

General interviews

1

FIA: FÉDÉRATION INTERNATIONALE DE L'AUTOMOBILE, International Automobile Federation, with Luca Pascotto

Brussels, 10-07-2013

http://www.fia.com/

1. Could you briefly present the FIA?

FIA stands for Federation Internationale de l'Automobile and brings together automobilist associations from 132 countries worldwide; through our different members we represent about 38 million road users. And from Brussels, this regional office, we are representing over 100 motoring associations across Europe, the Middle-East and Africa, most of which are in Europe. It is basically a consumer based organization. We represent the consumers' view, not only the motorist but the transport users view in general on how to get around in cities for instance. We also follow the debates on policy development. We have a few priorities in our approach. Mobility is the first one, we focus on intelligent transportation systems too. We are monitoring the debate on CO2-reduction.

2. Which is your role within FIA Region 1?

I am the director of mobility, monitoring traffic legislation working on regulation and legislation developing different projects on mobility.

3. Which are according to you the main mobility problems in big- and middle-sized European cities and how should they be solved?

The main underestimated problem is safety. We know an increasing number of fatalities among road users, the increase mainly happens in cities. Congestion and the related air pollution are two other main problems we tackle.

4. What is your definition of a sustainable urban mobility plan, what should it address?

Every plan that tries to consider, coordinate and plan better the mobility in the city. In terms of users, companies or public transport. It's not only about moving traffic away from a pedestrian city center to another area.

5. *What's the most important, the development of new infrastructure, or the proper use or re-use of existing infrastructure?*

We focus a lot on smart systems and ICT. It is crucial that travelers are informed on the problems of the network and that they are smoothly guided through it. So yes, we need to work with the existing infrastructure in the city centers and think before planning any new infrastructure.

6. *Yes, related to mega projects I'm quoting here from the declaration of Touring, one of your Belgian partners, where they say that Mega Projects such as the Oosterweel link or Fourth Scheldt Crossing, the optimization of the Brussels Ring Road and solutions to missing road links don't give answers to the daily problems of the car users. Do you second this remark?*

Yes, I think only politicians or policy makers think people like to get stuck in cars. They should provide alternatives. With a real qualitative alternative you can expect people to leave their car at home. But if the quality of public transport, the availability of information does not increase, this is impossible.

7. *So, there should first be alternatives in place before governments start measures to dissuade car use?*

You have to improve the conditions for mobility, the qualities of the services. We should also get the citizens more involved, through new applications: smart phones, social media, etc. I know that the Commission is now coming up with an urban mobility package, with advice and recommendations to cities. We don't know yet about this proposal, it's not about regulating the access restriction around Europe that you can improve transport; this is only the case if you create the conditions in the cities, for this mobility. We need to get citizens, consumers involved in this. There's a strong request from the users to get involved in

transport schemes. This could happen with a hash tag notification informing you on the status of the network. There are inspiring examples in many places, like the fix your street application in Brussels.

8. So, you are favorable towards more inter-modality?

This is about finding smart regulations bringing together different stakeholders, different service providers, to integrate services and to deliver an optimal service to the travelers, because in many cities you have different operating services.

9. But aren't the transport modes often competing? For instance in Madrid ecological groups are complaining that the public transport fee has increased a lot because of the debt created by the recent highway extensions.

Well, I don't know the situation in Madrid but in many countries you have fuel tax revenues which are reinvested in public transport (which is supposed to cover the inefficiency of public transport). You need to improve the situation and provide the best way but no taxations just to have budget equilibrium – filling gaps in budgets which have nothing to do with mobility.

10. The investment should be on every possible mode?

All this debate on integrating external costs, should go to funding of public transport. Very easy for a national government to increase fuel taxation in order to cover every kind of budget. You need a vision and a plan, now we are there and we have to do this in order to reach this plan. You will find commitment from stakeholders, support from the citizens etc.

11. Do you have examples – let's call them "Best Practices", of cities which are following this kind of policy?

Well from Brussels, we aren't following every specific situation. I think across Europe a lot of minor cities are doing pretty very well (you can experience the quality of public transport, or at least the availability, there's an issue of overcrowding). Also some of the biggest cities are developing new transport systems or developing their public transport network like London and Paris.

12. Are there also let's call it "Worst Practice", cities performing really/exceptionally bad on mobility?

Well, that, I wouldn't like to comment.

I think we could all be users of public transport, it's always that if you live within the cities you probably don't have many problems, but if for reasons – like you can't afford to pay the rent, if you live behind the 1st or 2nd ring of a city, you have to commute a lot. And in that respect Brussels is probably one of the worst cities in Europe looking at the congestion.

13. So what would you propose to cities as Antwerp and Brussels in order to reduce congestion?

I can't give any concrete recommendations. You need to understand well where the problems of the city start and then give the recommendations how to deal with them. From what I see there is a need of educating the users, because if you see one man in one car in a long queue, there's a lack of efficiency. Start to put people together making the same journey on the same hour – sharing the costs and reducing the number of people on the roads. Of course there are some cases from the literature studies that can be implemented, like to start sustainable mobility classes at school. You can create a new mentality. You also need to consider the legislation for cooperative cars, if it is easy to have a business car of course people are incentivized to use it. So there are quite a lot of things you can do but you need someone that knows the condition perfectly and develops a plan to use the services.

14. Do you have an opinion on freight transport?

Honestly, we are not monitoring this, of course a big share of the problems in the city comes from it, there is a lot of intelligence which can be brought into this to coordinate it better. This best situation would be to have a city logistic outside the city trying to deliver within the city whit an ecological vehicle and in a more efficient way. The industry need to make more efficient use of delivery systems.

15. Which are the main sustainable mobility projects FIA is involved in?

We are trying to look into different aspects, we are promoting eco-driving, because you can avoid a lot of CO_2 emissions by driving friendly, anticipating the problems working with

views. This skill trainings can improve mobility. We are also involved in electrical vehicle development looking at the environmental side – bringing ITC components in it that allow vehicle sharing, systems driving you to the recharging point according to the range that you can cover, we are also researching the METPEX project with other partners. This projects tries to identify the quality of the urban transport, environmental and also try to launch an application on pilot work. And then we are also organizing urban mobility challenges which are looking at promoting new technology for safety and environmental issues, trying to cover the gap between the research, what the industry is offering and what the consumers are demanding. We believe that there is a lack of knowledge of systems already available on the market. We inform consumers about the availability of new technology that can help them.

16. *So you are the link between the consumers and the industry*?

Yes, we are trying to redefine products in something which is more easy to understand for the consumers. The features, the benefits and the costs. We want to empower the consumer making them aware of what is available now and what they should demand for the future.

17. *You are fostering more citizens participation in the mobility debate?*

This is done by our members at national level which are very active and close to the local authorities. You need to have participation also to avoid that once a measure is put in place it is rejected by the consumers, like what happened in some cities where they withdrew road pricing schemes because the citizens didn't want them.

18. *What's your opinion on road pricing schemes, can they offer a solution in some respect or not?*

It's a complicated topic, because you could say that it is useful because you immediately reduce the number of vehicles, but these systems can cost a lot setting up all the technology and enforcement. As told, you also need alternatives, so it's difficult to duplicate to other cities what London has been doing. I would say that road pricing is one of the measures if you put in place a planning approach. This measure should than be compensated by other measures in order to have the same level of mobility. And of course it can be used to create

extra revenue for the cities which is not invested in better mobility as we have seen with rising parking fees.

19. Could it be a social exclusion mechanism too?

Well yes, if you don't put in place the right counter-measures. In future situations we will have intelligent cars without drivers, cars will be very useful for keeping people mobile and integrated into the city.

20. Are there other elements which we didn't treat and you want to share?

Well the future will really be about integrating what we have and getting feedback from the users. I'm sure there are a lot of students in garages in Europe planning and developing new applications. We have something new we didn't have seven or eight years ago, the smartphone, in this lies a great potential to get the information directly to the users.

2

UITP: Union Internationale des Transports Publics, International Association of Public Transport

with **Caroline Cerfontaine**, Manager Urban Issues, Combined Mobility & Academic Network

and **Laurent Dauby**, Director Knowledge and Membership Services

Brussels, 16-07-2013

http://www.uitp.org/

1. Could you present your organization?

L.D.: The International Association of Public Transport was founded almost one hundred thirty years ago, back in 1885, as a private organization of public transport operators: train- and tram companies at the time. The association promoted and defended this at the time private and very profitable sector. At the time international meant European with only a few exceptions in North America. Over time it came increasingly international and the structure of the public transport also became increasingly complex because it was no longer a sector strictly organized by market principle (demand and supply). It became increasingly linked with some policies in terms of: accessibility to different services, pollution, climate change and social inclusion. There was more and more public money involved, the sector shifted more and more from private to public, and now it's a mix: there are tensions between different ways of organizing like liberal or more traditional views insisting that the public sector has an important role to play. The structure is more and more complex, because you have the traditional UITP operating companies like STIB, De Lijn. Next to it you have organizing authorities (techno structures) who plan mobility and investments, monitor the performances of the different actors involved; and you have the supply industry. So UITP is covering it all, it's no longer strictly an association of transport companies.

2. What's your role within UITP?

L.D.: I'm the director of the so called knowledge department, my duty is to supervise all the activities we are performing with our members. We are not a research institute following its

own agenda, we receive our instructions from our members and they tell us in which areas we have to research and we do it with the team – Caroline is one of them, but we do it in close relation with our members, we are facilitators of knowledge exchange.

3. *So you work a lot on "best practices"?*

L.D.: Yes, exactly, looking on best practices on benchmarking of practices not only who is better or worse than the others, but also to identify success or failure factors of different policies, measures and systems. We exchange them. We do this internally for our members, but part of our work is of course also external communication to decision-makers, project promoters and investors. We explain the benefits of public transport and why supporting it in money or inductive legislative and regulatory environment terms is important. That's the lobby work we are doing in order to be recognized and understood as an import actor in the city, the urban fabric. We have strong arguments that both cities and citizens benefit from more and better public transport. Four years ago, we developed a worldwide strategy aiming to double the market share of public transport at the horizon 2025. In general, people are skeptical when we put forward this solution, if you look at mobility market in European cities today, you see that more or less 15% of the trips are done by PT, some 10-15% by walking and cycling and the rest – about 70%, by car. That's an average in Europe, and our aim by doubling that is to simply come to a more balanced mobility pattern in cities: 30% public transport, 30% walking and cycling and around 40% car. Many people think this is utopian or unachievable without damaging the economy of the city. This city is already existing as one of the most dynamic cities in Europe, Vienna has a very balanced modal split, and even if they were already doing well 15 years ago, you see that they take measures so that public transport doesn't only keep its popularity but continues to grow. These cities are generally not only attractive to live but also to invest in, and there are a number of such cities which do have a similar approach like Munich, Helsinki or Copenhagen; they are putting effort in order to avoid that mobility isn't flooded by cars everywhere. And at the same time these cities are ranked high by people and employers. The media love city rankings Eurostat is publishing a quality of life Mercer index, and we notice that in the top five or ten of these livable cities rankings you will also find our best practices, because mobility is increasingly important for the overall assessment of quality of life in a city. We

have an approach on the different polies and policy instruments you can put in pace to reach these goals.

4. *We didn't talk about it, but do you also represent associations of public transport users?*

L.D.: It's a discussion within the association if we should have them on board or not, we are obviously very frequently in dialogue with them – especially the Europe Passenger Federation (EPF): they are often invited to our events and conferences, we involve them in research projects; but they are not formally members.

5. *Which are the main mobility problems in large an middle sized European cities?*

C.C.: I think you should start with the vision you want to have for a city. Do you want a city which is nice for pedestrians, economically attractive? Do you want a city where the air is breathable? These are the goals of any city administration, in a European city. You also have the air quality regulation, so these principles are also encouraged by the European level. The easiest to encourage is that you have walkable cities: compact, dense cities where people can move around and reach their activities within a small distance. This is linked to the land use, defined by the urban pacification of the city, it's important to have mixed land use. Within a city you should give the possibility on citizens to access all the activities without using a private car, cars are parked 95% of the time and they take up precious space. It's about quick access to the activities, the most efficient way to do this – offering the maximum number of people the best access using less space - is PT. As long as you have vehicles which can move around quickly on reserved lanes. Obviously you cannot have a structuring transportation system in the whole city, so you need to focus on the main corridors and offer them a complement: this is where cooperation with other sustainable systems like bike sharing, car sharing, carpooling or taxi services come into place. Cars are needed, but then you have car-based services, which offer you the usage of a car without having to own it. Once they own it, they want to use it. It's a combination of land use and integrated urban- and transport pacification, like you would never think about building a new neighborhood without building a road, but you would not necessarily think about a tram. There are different examples of this, for instance in Copenhagen, where you first build the public

transport and then the houses around, so people can move around without having to rely on their private car

6. Which example do you take from Copenhagen?

C.C.: They have the Finger Plan, there are many others like the Vauban neighborhood in Freiburg. You need to have a coherent planning between the urban planning and the transport planning, than you need alternative sustainable mobility solutions – public transport complemented by other modes - , and then you have the car or parking management. The car bases city doesn't offer these fast solutions.

L.D.: We formalized this in the 3 pillar model where you first look at the structure (so a long term approach looking at land use); secondly you look at your demand, it's about banning the car on places and at times where it makes no sense (where they produce too much negative externalities to society): it's not only about congestion charging. There should be parking in the city but not for nine hours, the parking should be faster and useful for the retailers. And then, of course, developing the alternative which we are aware is not always in place yet or very convincing. It's not enough to ask other people to help you, our own sector should provide very high quality. We need to offer life style services people identify with, the younger generation can use their smartphones on a bus and not while driving a car.

L.D.: If we come back to the specific topic of you thesis there is a good example you'll find plenty of information on which is Seoul, this large highway a bit like a Herrmann-Debroux type of viaduct but way larger, and finally they decided to get rid of it and completely change that area into a park while reorganizing the public transport around it.

C.C.: *What's your exact thesis topic?*

A.S.: I'm comparing the closing of the ring debate in Antwerp with what they did in Madrid, so the tunneling and enlargement of the M30 with also two projects in Italy, where they basically want to make a high line on the Sopraelevata in Genoa and in Rome also, like reuse the old car infrastructure for pedestrian.

L.D.: *So your looking to alternative solutions how to transform these urban highways?*

A.S.: Well I'm analyzing the different ways (the legacy) of dealing with these infrastructures, like new infrastructure, reused infrastructure or a combination of both to see which best

practices are put forward. That's why I'm doing the interviews, for seeing how different actors use best practices to legitimize their point of view.

L.D: Ok. What's remarkable in Madrid, is that they have radial highways into the city, but they combine it with public transport. They take some space of these highways - the central space - to dedicate lanes for busses, and depending on the peak time : in the morning, this lane is for the incoming traffic, in the afternoon, it's for the outgoing traffic. They reverse it, and they end up in a large interchange: they are not distributing the car really into the city of Madrid, but direct the traffic to an interchange point where they have Cercanías, metro or urban busses. They recognize that they have an urban sprawl problem in Madrid. In the short and medium term, they can't do anything about it, so they are using the car where it makes more sense, where it's more comfortable, but they end up in a large interchange, like Avenida de América.

C.C.: It's very interesting they made a whole mobility analysis of the whole city with origin and destination to really chose the location of the interchanges and build it where people needed it.

So these are nodes to change from the regional to the urban transport system. I think this was the main motivation to build those tunnels and not necessarily to offer a solution to the cars. The real aim was to offer a solution for the regional busses to go to the urban system, and they built them where people needed them, so it was quite complicated because it was under the city.

L.D.: What I like about the system is that often we think in black and white, either the car or public transport. There they recognized that they still have this highway coming into the city and they took a little bit of space of this in order to combine it with the regional busses. The aim is to find the right balance.

C.C.: A good example where they built the infrastructure before the urbanization took place is Metro Sur : they actually linked the southern part of Madrid, the suburb to Madrid, with this metro and you can really see that these cities are growing around the stations.

L.D.: But, of course, the last five years with the real-estate crisis, what used to be a good example is now a bit frozen, but in the longer term I'm sure it will be successful.

L.D.: In your e-mail, you were asking what we considered positive factors for mobility in cities. That is really striking me. We have a number of surveys and studies where we collect mobility data. There was a study with 100 cities worldwide, the second one is five years

later. We look at the performance of the different mobility systems in 50 cities, we are making a cost benefit analysis for each individual and society as a whole, like the maintenance costs of the road and railway systems, costs of travel times, pollution, plenty of things. From these you have always the usual subject that comes out as the best in class, so to say. If you look back to those cities, there are a number of striking similarities: all these cities had a transport master plan that they agreed on 30-40 years ago and which are still valid our day. They built a consensus around big principles and developed it on the regional level. Things like the Finger print plan in Copenhagen where the regional extension outside Copenhagen was built around those corridors of the S-Tog and around the station. If you look at cities like Stuttgart or München you can also see a loyalty to decisions that were made long time ago, that's the very critical aspect about it. In less than 20 years you cannot exactly measure how effective your policy was, all the French cities, which have massively invested in PT in the last 20 years, only show the 1st signs of a better modal split now: in Grenoble and Nantes, car-traffic is losing share, 25 years later. The first ones, so we very slowly come closer to rebalance the situation, but we are way behind fc. Vienna. That's was generally lacking the long term version, now we tend to focus on short term on the next political election. You don't take a bold measure. You need to have a long term vision, you need very strong political characters who dare to make choices. You need this : combine long term vision whit short quick gains.

7. *About the transport mode – it might be a paradoxical question, isn't there a competition or at the same complementarity between transport modes? Like in the Madrid case, there's an ecological association complaining that the public transport fees are still rising because of the cuts caused by the highway extensions. So there you have the competition between both modes of transport. What's your vision on that?*

L.D. : For a very, very long time we were cautious of not clashing with the car industry, saying that we should invest in both public transport and the automobile, and there was no appetite for conflicting stands. But now, especially with the tight budget situation, it's time for choices, it's clear that budgets are in competition. Mobility budgets themselves are in competition with sectors as housing, education, health care and pension schemes. And inside the mobility or transport budget, you also have competition and increasing tensions whether the money should be invested on roads or on alternatives. The car industry does its

best to push the idea of the electric car, to make the argument of environment no longer an option and to be able to keep budgets for the car industry by saying that emissions will no longer be in issue in the coming years. But how long will it take till we have a dominant fleet of electrical cars? Today I read in the newspaper that electrical car sales in Belgium halved in one year. The migration phase will take more than one generation for me. But we say that a "green" traffic jam is still a traffic jam, so the gridlock, the parking space you need aren't solved. The combination of electric propulsion with small vehicles, like the Twizy from Renault, recognizes the problems of pollution and space. But they are often mono functional vehicles. So I have questions about their future. It will remain a niche market, it won't replace the conventional car.

C.C.: And electric vehicles aren't new, public transport uses a lot of them.

8. *What's your opinion on Urban Mega Projects? For instance, my previous interviewee from the International Motorist Federation told like we don't need megaprojects also not in road infrastructure - like the closing of the ring in Antwerp - They put more emphasis on smart technology. But in - or related to - public transport there are also UMP's that are contested like new high-speed lines or Stuttgart 21 for instance. So what's your opinion on that UMP's both on the road and in public transport or station redevelopment?*

C.C.: There are cities that are going to be megacities that are not existing today, … in Africa and Asia.

A.S.: I'm more talking about Europe.

L.D.: But let's even take Europe, you are not talking about strictly mobility if you are talking of UMP's. Take the Calatrava station in Liège. We can of course ask the question if Belgium or Wallonia could afford such a prestige project, and if a more conventional or classical station would not have been enough. You can always argue about this, but a city like Bilbao, his rebirth or revival, the city as a spot on the European map attracting visitors and investors, started off by changing the image of the grey industrial town. So I'm not saying you need prestige projects all the time, I just want to show that you can do much more than just strictly solving a mobility project in this way.

C.C : There are 3 projects in Germany linked to public transport being contested in Germany: the Concert hall in Hamburg, the New Airport in Berlin and Stuttgart 21, so why are they contested? Much because the budget calculations were done in a bad way and the project can't be finished on time, the planning causes higher budget costs and time. So that's what people are contesting, maybe not the fact of changing Stuttgart from a head to a go through station, maybe it's more against the planning which has been done in a bad way. And in Europe most of the big cities are also growing, so we have to face this and have to offer more services. We're coming back to the vision and within that vision you might need some megaprojects to realize it. If you build a landmark station it's not only about mobility.

L.D.: But also in transport infrastructure you also need to long term capacity to absorb what will be needed. I'll give you one example, you are probably familiar with the docklands in London, this derelict industrial part of London, back in the late 1970's, it was decided to reinvest in this area with Canary Warf etc. But it was cut of the rest of the city, so they built a light railway: the DLR in 1986, which was carrying 2000 passengers per day. A number of citizens politicians said, "well waste of money", that a conventional bus would have been more than enough, many complained it would be oversized. If you look at the situation today: the very same line transports 200.000 passengers per day. So in the short term a bus or tram might have been more reasonable, now it wouldn't have been able to cope with the demand and that would probably have hindered the big development. The network performed exceptionally well during the Olympics. So it's always balancing the short term money considerations and the longer bearing capacity. But we must also say that there are as many projects which have been over-oversized and will never prove efficient, that's the other side of the medal. So mega projects as such are not good or bad, they need good planning and execution.

9. *About restricting car use, we already talked about congestion charging (they are talking about it for Brussels too). Which are the other measures in order to tackle auto-mobility and favoring other modes?*

C.C.: Parking policy is a powerful tool and might be more easily accepted politically. There is also the implementation of a BRT-system which has large effect. Speed limits, street design.

Congestion charging is very complex, very debated but it does work: where it is put in place, the car traffics' average reduction is about 20%. When Boris Jonson came to power in London, he didn't abolish the congestion charge as promised, he didn't extend the zone but he kept it. The running of the system is highly cost-intensive; half of the money goes back to the own system, the rest goes to mobility improvement. The charging zone is very small. The pollution tax in Milan leaded to congestion with cleaner cars they renewed their fleet, and now they introduced a normal congestion charge. Other measures are: low emission zones, structuring Park & Rides, city design. All these cities implemented alternatives at the same time, it's not with the delayed RER works that we are going to achieve this in Brussels. You can't split the two.

10. *What should be the main option? About the infrastructure, what is the most important, building of new or reusing old infrastructure?*

L.D.: In the existing built environment, you should fill the gaps in the network, but it may not be enough. We need to accept some controlled sprawl around transport lines: TOD. The location choice of the enterprise should also be considered in a mobility framework, because there's a medium and long term impact on their decision. Location choice means a lot, there should be awareness in the real-estate developers or business community. Ikea often settles along a highway and has a huge parking place.

C.C.: If Land Use Plans pushes big enterprises away from the city center, they will obviously rely more on car transport.

11. *About the implicit car thinking or car thinking that doesn't call itself like that. Some pretend that building a metro line is a pro-car policy because you put public transport underground and leave the ground floor to the car.*

L.D.: It's not in a dichotomy: if you are defending public transport, you are automatically against the car. That time is over. Putting a metro underground, so that the cars can keep driving through the streets, is a very strict mobility only view. A big metro network doesn't exclude a strong tram network on the surface.

C.C.: It's about public space: urban space on the ground level, is not necessarily dedicated to cars. Investment in public transport can mean regeneration for a compete area, combined with reduction of lanes and cars.

12. *Can public transport models developed in other parts of the world like BRT serve as good practices inspiring Europe?*

L.D.: Yes, but the structure of for instance European and Latin American cities is different, so these concepts have to be applied flexibly. The interesting with BRT is that the bus is conceived as a system, not only as a vehicle. This system needs dedicated lanes and appropriate stops.

When I go to field visits, the small innovations surprise me most, Europe is no longer the only player in the field of course. Japan is for instance on the forefront for IT in car and public transport. To facilitate mobility by car or by public transport, it's really the mecca for all these developments.

C.C.: We don't necessarily need new concepts. I mean the solutions to make a city which is easy to move in are known. They need to be implemented. What would be more efficient than a metro system to move many people at the same time in one direction? I don't think anything new should be invented. Maybe that the innovation lays in how you can improve door-to-door mobility, and these are taking place in- or outside Europe. I think many cities have been doing feasibility studies and they know how to balance their traffic system and what to do. I've been to conferences in Serbia where all the cities from the Balkan were presenting their sustainable mobility plans. The solutions are there, they just need to be implemented and enforced.

L.D.: The concepts and solutions exist; large metro systems are by far the most effective solutions for mass transit, the door-to-door mobility is also important. The feasibility is implemented and enforced. Europe is an important instrument in this.

13. *Which are the main actions you are taking for implementing, encouraging and enforcing this? Actions or incentives you put forward to foster sustainable mobility and city planning?*

L.D.: Well if you look at Europe, here is a document that will be realized soon, it's part of the green paper on urban mobility, by the European Commission. It's the introduction of the concept of Sustainable Urban Mobility Plans. If we are realistic they will not be able to make it mandatory, it will remain on the level of soft policies and guidelines, but at least it will help cities to understand that you have to look at everything at the same time: at passenger movement, bus, cyclists, etc. and it provides some good recommendations, but it will always be on the local level to decide. They wanted it to be mandatory for cities above a certain threshold; they didn't conceive this and will only provide guidelines, recommendations to improve the mobility mix.

C.C.: I think the mobility package comes out in November.

14. *My last question was if you had some additional comments on things we didn't cover.*

L.D.: The main elements are the 3 pillars: long term approach, remaining consistent to it; and the objective for a more balanced mobility mix in cities. This is possible for a very successful city, it's not a dream-vision, we now recognize that cities need to be vibrant economic centers and that all the other functions cannot take place if this isn't the case. So persons and goods need to be moved and a certain level of congestion is also needed because cities are places of concentration (of people, fluxes, ideas). That's the nature of the city itself.   A city without congestion is a death or a museum city. Congestion is co-substantial with the very idea of a city. The aim is to keep the congestion within acceptable limits, subjectively for the people and also from a macroeconomic viewpoint not generating an unacceptable level of externalities.

15. *What's your opinion on freight transport? I know it's not your core business.*

L.D.: I was the project manager for the very first edition of Eltis back in 1998, and we had to prepare case studies also on urban logistics. It's very complicated. It is a field we can't enter

into, but it's a necessary evil because of what I just told you, it's a concentration of flux, of goods. The delivery from the macro to the micro level is necessary, but how should it work is complex. "We cannot offer a decent approach with public transport. I mean there are some cases of good delivery by tram; but we have to recognize it, it doesn't have the required flexibility. Maybe things can change with more IT.

C.C.: "Transport in cities and urban life", a mobility plan needs to include a freight plan, it needs to be coherent follow the same goals, to be coordinated in the same direction.

L.D.: Probably it's a hub-logic that you should have in your city, in order to limited number of areas where the heavy lorries are coming and work with micro distribution points with different smaller scale vehicles, etc. That's the basic concept.

3

Civitas: Sustainable mobility in Europe, with Csaba Mezei

26-08-2013, written interview sent by e-mail

http://www.civitas.eu

1.Could you introduce yourself and explain your role in the organization?

My name is Csaba Mezei and I am the (outgoing) face of the CIVITAS Secretariat. My organisation, the Regional Environmental Center, has been hosting the Secretariat between 2009 and 2013 (September). My job was to handle CIVITAS' one-stop-shop inquiry service, supporting CIVITAS Forum member cities and stakeholders of sustainable urban mobility.

2. Which are the main mobility problems in big and middle-sized European cities and how should they be solved?

Congestion, noise/air pollution, space/parking problems and many more – integrated mobility measures based on ambitious policies can solve these problems

3. Which different actions does Civitas take or support in order to build sustainable mobility in cities?

CIVITAS supports cities to achieve sustainable urban mobility. It co-finances innovative solutions, and helps cities to evaluate, exchange and disseminate their results. With the annual CIVITAS Forum Conference, workshops, events, and the CIVITAS Awards the Secretariat supports cities to exchange/showcase their achievements.

4. Could you summarize the structure of Civitas, explain the institutional context you work in as well as the different type of actors you collaborate with?

CIVITAS is not a legal body. It is an initiative of the European Commission. It includes projects (demonstration projects and support actions). Demonstration projects are actually piloting/demonstrating mobility solutions, support actions (EG. CIVITAS VANGUARD , our recent project) are helping them. See more on demo projects:

http://www.civitas.eu/index.php?id=6

5. What's your definition of a Sustainable Urban Mobility Plan, what should it address and how should it be implemented?

See more: http://www.mobilityplans.eu/

6. Could you give me some best practices of cities which are performing extremely well – or advanced a lot, in this regard? You could also give a good practice of a city usually having a not well-planned mobility but which nevertheless implements or plans a project which radically turns towards a more sustainable approach?

I recommend that you have a look at the CIVITAS Award winners of last years – they are actually the bests of sustainable mobility in Europe with a lot of good practices.

7. Could you give me some worst practices of cities which are performing extremely bad – or didn't advanced at all, in this regard? You could also give a bad practice of a city usually having a well-planned mobility but which nevertheless implements or plans a project that could hypothec these achievements: I'm thinking of the Harbour tunnel in Copenhagen for instance.

It is always hard to talk about failures. Some cities of CIVITAS are not too keen on talking about it. I think it is necessary to thoroughly research CIVITAS measures database. I have two in mind: failure of car sharing scheme in Aalborg, and moderate success in LPG conversion of public bus fleet (Ploiesti/Romanina)

8. What would be the most important, the building of new infrastructure or the better use or reuse of existing infrastructure?

From sustainability point of view it is better to reuse existing infrastructure. In case new infrastructure is needed environmental impact needs to be assessed.

9. Is it a debate on mobility, city planning, or a combination of both?
        *

10.Which recommendations would you give to cities as Antwerp, Madrid, Genoa and Rome suffering traffic congestion?
        *

11. Do you have a different sustainable mobility approach for growing and shrinking cities? In which way?

    *

12. Do you have an opinion on mega projects – are there also good and bad practices llustrated by them? Could you give an example?

    *

13. Do you have an opinion on public private partnerships – are there also good and bad practices illustrated by them? Could you give an example?

    *

14. About the different transport modes, do you consider them as complementary or as being in competition to each other? For instance in Madrid ecological groups are complaining that the public transport fee has increased a lot because of the debt created by the recent highway extensions. At the same time care based taxi- and other services could complement the public transport network – like Collecto in Brussels.

Obviously the first. Different transport modes should all serve mobility needs of citizens on effective manner with the least possible impact on environment. Transport as such needs to be considered in an integrated way by urban planners and transport practitioners.

15.Do you have anything to add on sustainability or the Civitas initiative, a theme we didn't spoke about in the previous questions, or an additional information you wanted to share?

No

*These questions are a bit beyond my expertise. I prefer not to answer them.

Antwerp

4

stRaten-generaal, with Manu Claeys

Antwerp, 14-03-2013

1. *Could you briefly present stRaten-generaal as well as your role in it and also how you became involved in the Ring discussion?*

stRaten-generaal is an action group on urban planning and mobility which already existed before the whole debate around the Oosterweel. I'm presiding stRaten-generaal and have volunteered fulltime against the Oosterweel link and in favour of an alternative.

2. *How did the debate around the Oosterweel evolve? How could you influence this debate?*

In autumn 2008 the project by the Flemish Government to close the R1 lost credibility in the public opinion. Different action committees and protest groups were created, because people realized which monstrous infrastructure was literally planned in their backyard. These citizen groups consulted their network, including smaller Flemish engineering firms; they also talked to professors, traffic experts or environmental advisers. Because we are talking about a long term project, we were also able to continue researching and come up with new insights like medical literature: bringing in the public health component a new crucial element in the debate. On December 19th 2005 we introduced an official complaint against the project and on September 6th 2005 we organized a press conference in the neighbourhood "Het Eilandje" to put forward a Plan B. Our strongest argument was that the Structural Plan for Antwerp (finally ratified in 2006) would be hypothecated by the new works, the urban development arguments were really strong. Mobility- and urban development plans contradicted each other. We stood up to: "confront governments with their own inconsistencies". This deviation from the Spatial Structure Plan needed an explanation. From 2006 to 2008 we developed a tunnel alternative to close the ring further North of the city, in the harbour. From the autumn of 2007

we gave several lectures to different organizations as municipality councils, resident groups and automobile- and truckers associations (VAB, SAV) to present and debate our alternative.

In March 2008 Ademloos – literally "Breathless", was created and supported our alternative. Together with the Flemish Architecture Institute (Vlaams Architectuurinstituut, VAi) we also organized a "How do we deal with the mobility throughout Antwerp?" debate in De Singel which was a big success. Important is the ever evolving insight, like in medical literature where new studies were published on busy roads, air quality and their effects on citizens' health in Los Angeles.

The actual proposition is very simple, even simplistic, and assumes that the best solution to deal with the mobility problems is to close the ring by taking the shortest path between A and B. The broader debate around environment, health and participation is neglected. In June 2008 our Plan B was analysed by independent studies which gave it more credibility than the Lange Wapper. In the autumn of 2008 engineers office ARUP SUM also published a study clearly favoring Meccano over Oosterweel. It's important that this office validates our work, this proves it is not only technically feasible but also superior to the link proposed, because it is the largest engineering firm in the world responsible for - among others - the Viaduct of Milo, the Channel Tunnel and the bridge between the airport and the city of Hong Kong. Six months later the referendum was held, this referendum was about the Oosterweel link, not about if people prefered a viaduct over a tunnel. Now, since 2010, the official proposal is to maintain the BAM link but by replacing the viaduct by a tunnel, which wouldn't solve the problem of bringing more through traffic to the ring.

3. *Which are the "Best Practices" in mobility planning and urban development you put forward?*

The project of the M30 tunneling combined with the construction of the Madrid Río park was realized by Burgos & Garrido architects in association with the engineers office West8, in two periods: 2003-2008 and 2009-2012.

Calle30 in Madrid is clearly an inspiring project for us. Thanks to the tunneling, old parks were extended, ancient bridges like the Puente de Segovia were restored, tunnels were drilled under fragile monuments like the Palacio de Cristal, proving the technology is very sophisticated. We invited one of the Spanish engineers Pedro Romo Alcañiz, to one of our conferences, so that he could explain us these techniques more in detail. We also brought the

TV team of Panorama to Madrid in September-October 2008 for a documentary on the Oosterweel link. Within Antwerp we also experienced successfully drilled tunnels under a historical building, namely the tunnel for international train traffic under the Central Station. So it's technically possible to drill very good tunnels that don't hurt the city. To monitor the works, hundreds of censors were placed in different places, to control eventual damage by the drillings.

There are many experts among citizens, who can bring suggestions and indicate problems. These people should take part of participation processes, every kind of expertise can be taken: every new element brought to the debate is relevant.

4. Where does the idea of tunneling the ring come from?

In the spring of 2004 a group of residents from the district of Borgerhout, called "Borgerhoudt van Mensen", complained because of a lack of open space and greenery. Borgerhout with 11,000 inhab./km2 is a densely populated city district comparable to Saint-Gilles. The Antwerp Ring is the busiest transport route from Flanders, but what's more: three districts - Berchem, Borgerhout and Antwerp Kiel - are divided into two by the ring. Putting a roof on the road would reconnect the intra- and extramural parts of these districts. A

project in that sense was proposed in 2006. But there are some complicated procedures in order to dig the ring. The R1 is part of the TEN: Trans European Network, in this framework there is a European Tunnel Directive which decides where you can tunnel or not. This is for instance not allowed on on- and off- ropes, the number of lanes must also stay the same.

In 2007-2008 there has been a project called "Ring Park de Knoop" (Ring Park the Node). It's important to look at foreign examples because they give legitimation for the choices you take, they also create acceptance and support for the project as people notice that certain projects or techniques work abroad. In 2010-2011 students from the Oslo School of Architecture and Design (AHO), work on projects exploring possibilities for parks covering the ring.

The ambition to closing the ring and the idea to tunnel are two storylines brought together.

From south to north: the Station of Antwerp Berchem and the Groenendaallaan the ring is between 6.1 to 6.2 km long and borders four districts: Berchem , Borgerhout, Deurne and Merksem. If this cicatrize disappears it would mean a tremendous change for the city. Ken Dupont from DAM architects writes his PhD at Ghent University about a roof on the Ring, in

Berchem. In October 2009: Port of Antwerp created the Frorum2020: www.forum20.be , writing on: "From bottlenecks to nodes mobility and urban development in Antwerp." In July 2012 another book came out called: "Green Singel: history of the Antwerp ring space: plans, stories, dreams: 1906-2009." But the debate about putting a park on the ring started way earlier, in 1990, with the international urban ideas competition and book "Stad aan de stroom" City on the River, in which several architects like Toyo Ito proposed different projects in Antwerps' neighborhoods like Klein Eiland or Zuid. During this competition there was an entry of an architecture group from Genoa proposing to cover the whole ring and put a park on it. So these debates on mobility as well as on urban planning linked to the ring road are about 25 years old.

5. *Where are we now?*

Now the Flemish Government is working on an independent environmental impact report which compares six different routes: the Oosterweel by BAM, the Meccanno by stRaten-generaal, the old stRaten-generaal proposal now called Oosterweel North, a large tunnel under Antwerp, a 2nd Kennedy-tunnel, and finally the so-called 0 scenario where nothing is done – no new infrastructure is being built. The problem with this analyses as that the different scenarios are analyzed under the operating conditions fitting the BAM trajectory, so we could question its relevance.

6. *What happened to the Liefkenshoektunnel (LFKH)?*

The Flemish government bought out its unprofitable franchise, of this tunnel built in the 1980's. Until 2037 the Government will pay NV Liefkenshoek tunnel 30 to 40 million euro's. The LFKH tunnel could be a way more significant link in the network if the told would disappear or become way cheaper. The problem is that they first create the financial structures and that afterwards they try to fix their budgets. The structure around LFKH is fixed till 2037. Research is constantly manipulated, these is legally culpable behavior. This Environmental Impact Study is non-binding, but it gives indications that the Government can't deny. My book is called *Stilstand*, we are witnessing a complete legal standstill, there are no decisions being taken.

7. *I there something else you want to share?*

There's a blatant disregard of discording opinions by policy makers.

5. BAM: Beheersmaatschappij Antwerpen Mobiel,

double interview with Gerlinde Dhondt and Christophe Goffi

Antwerp, 28-03-2013

1. *Could you briefly present the BAM and its objectives?*

G.D: BAM stands for "Beheersmaatschappij Antwerpen Mobiel". We were established in 2003 to implement the Antwerp Mobility Master Plan, and launched different procedures and projects in this respect. Afterwards our mission changed because the Flemish Government decided that the BAM shouldn't coordinate all these various infrastructure projects, which have been redistributed between the different administrations while Oosterweel remained in BAM together with some smaller bicycle- and other projects. Our mission is to start the procedures around the Oosterweel junction. You know that there has been a referendum in 2009 which showed that the inhabitants of Antwerp were not looking forward to an Oosterweel junction with Lange Wapper bridge and we have, after a feasibility study, been commissioned to carry out the route in tunnel form. So we went back to study the different routes and projects and their impact on accessibility, quality of life; together with our different partners like the Port- and City of Antwerp. We also finished the Brabo I tram project and are continuing with Brabo II, where we are preparing for contracting. We have worked on different modes like public transport, freight, long distance cycling; but our main project stays the closure of the ring on its north side

2. *Could you outline the institutional framework you are functioning in?*

G.D:We were founded by the Flemish Government to implement the Antwerp Mobility Master Plan, but in the meantime we are mainly there for realizing the Oosterweel and some smaller projects. We report to the Flemish Government, local authorities, private offices, other stakeholder within the Flemish Government. We also report twice a year to the Flemish Parliament. We are working with the City of Antwerp, the Roads and Traffic Agency, De Lijn (public transport company), the Province of Antwerp, and other actors.

3. *From where did the idea come, which has the initial decision to close the R1 ring?*

C.G: It has been a long history, in the middle of the 1990's, in 1997 to be more precise, one has studied several options. The two main ideas in that brainstorm were: 1) a large ring around Antwerp or 2) just a connection providing a closure of the existing R1 infrastructure. There were seven projects distilled: among them the one to close the Northern ring and the one to close the Singel. G.D: At the time we did not exist and these projects were in the hands of the agency for roads and traffic (Vlaams Agentschap voor Wegen en Verkeer). The decision was taken for the realization of the third Scheldt highway crossing, which was only one of different projects. To coordinate these mobility improvements a master plan for mobility in Antwerp was founded.

4. *Are you looked at another national or international ring closures or projects of urban ring roads for inspiration?*

C.G: We have inspired us from what could inspire us, we usually let us inspire on aspects, we start from the local context and don't copy-paste. Maastricht and Madrid are well-known examples, which were then still in development I think. Eindhoven also has a recent ring structure we are aware of. So yes, we are inspired by other examples, but only through side aspects, like how the complexity of the project is monitored, the contract form is arranged, it is about various aspects, we can get our inspiration from Japan or from Brussels. We also have been sharing experiences with project managers who have accompanied such infrastructure works. Exchange of knowledge, how others deal with projects like for the North-South Metro Line in Amsterdam, this work isn't related to road infrastructure but nevertheless to infrastructure in a similar context. Our project is never fully inspired by other examples because the question is different, the goals are different.

5. *What are the main problems of mobility in- and around Antwerp and how are they, or should they to be, resolved?*

G.D: There are major bottlenecks, which cause problems to road safety and the accessibility of Antwerp. These problems also deteriorate the quality of life and living through stationary traffic providing more noise and air pollution. It is important that the Ring remains accessible and that means that there is a junction to be constructed in the north of Antwerp fostering the accessibility of the southern port together with new roads, because the actual ones are now overloaded. C.G:Multimodality is important: there is a balance somewhere in more investment

in public transport with the right connections in the right place. It has to do with accessibility, it has to do with safety, it also has to do with quality of life. Because we make the Ring congestion free, we draw traffic away from the neighborhoods: we make a clear distinction between where we want traffic and where we do not want traffic and where must be invested in slow and fast traffic.

6. *Do you think the Oosterweel junction is a sustainable urban mobility plan? Does it fit into an integrated mobility and urban policy framework?*

G.D: The Oosterweel in itself does not solve the mobility problem in Antwerp, of course; that's why we speak about a broader mobility, and all these measures together ensure a balanced mobility. Sustainability has many aspects. We have a big impact on making the mobility more sustainable, but our impact on improving the living environment is less, however: the Merksem viaduct will be demolished, causing the entire neighborhood to looks different and reducing the barrier it forms between city and harbor. C.G: Districts like Deurne and Merksem developed from villages to larger living entities: thanks to transport infrastructure below ground level they will be better integrated to central Antwerp. We will not cover, tunnel or dig-in the Ring over its full length, but we are looking at these possibilities for the wider parts like around Sportpaleis. We also organize a lot of workshops with the city of Antwerp, so that it is clear to us what their urban development projects are. On the Loobroeckdok, Antwerp plans a lowland park in the area that will be depolluted thanks to these infrastructure works.

7. *Around this urban landscape environment, do you also gather inspiration from abroad in this respect?*

C.G: From my architecture and urban planner background I of course look at it, because it is important to connect as many aspects as possible to the urban policy. The choice to go from a crossover to a tunnel has for example a huge impact on het Eilandje, where the quays of the Albert Channel (Albertkanaal) could be preserved, the same goes for the North Castle (Noordkasteel).

8. *Is the Oosterweel an innovative project? In which way: environmentally, technically, architecturally?*

G.D: I think it is the largest project in Flanders in terms of kilometers, in terms of budget, in terms of techniques as well. C.G: About the techniques and the architecture: for example, construct tunnels under existing bridges, under the Albert Channel, and connect them to the Oosterweel is technically very complicated. Moreover, this node is situated 30 m below ground level, to keep it compact and reduce the impact on the Noordkasteel. We do all this while crossing railways which are still in use. Architecturally the bridge was of course a landmark, but a tunnel isn't therefore less architectural. It will be a non-striking, discrete – partly invisible, architecture.

9. Which are the proceedings to be followed and steps to be taken?
G.D: End of this year, the Plan MER will be completed. On this basis the Flemish Government will make a selection of the final route, and a new Regional Implementation Plan (Gewestelijk Uitvoeringsplan) should be drawn. We assume that this will be based on the Oosterweel, afterwards a public inquiry will follow, and then the construction will start. So far the Oosterweel junction is a concept, this concept is obviously not developed into a project yet. But obviously we won't develop a concept before being certain that we can continue with it.

10. According to you, did the influence and attitude of some stakeholders change during the debate?
G.D: Yes, one of the stakeholders in the project was the city of Antwerp, and their attitude changed: where there was at first an agreement on the project, they later came with a negative opinion, and they are now financially contributing to the revisited plans. C.G: We of course also adapted the previous proposal to their remarks.

11. Did your opinion also change?
G.D: It has evolved, we are dependent on political decisions. Of course, that political decision is partly based on what is proposed by our expertise, but not for 100%. We have a mission and we carry it out as well as possible, within a certain framework. Therefore you cannot speak about an opinion, we operate in a framework. If the framework changes, we must also change, if they decide - so to speak - to close the Ring via the coast...

12.   How was the PPP addressed, what are the main challenges for conducting such a PPP?

C.G: In Flanders, we are one of the first ones who started with a PPP. This happened by trial and error. Other countries, like the Netherlands, have more experience in the field. PPP is very intensive and expensive. It brings in expertise that you don't have in your own board, it listens to the meaning of contractors which often know better how to run something, than consultancies, optimization is often fostered. PPP is very interesting for well-defined projects. G.D: We smoothly realized two tram projects in PPP. The benefits we got there is because the contractor got into the project. He was required to realize it within a strict time schedule in order to avoid heavy fines. Contractors may know better how to run a project than engineers, they go directly to optimization. In that sense, PPP can be very interesting.

13. How does the BAM structure look nowadays?

G.D: We had a PPP structure fitting a design concept which included the Lange Wapper viaduct; in today's project the bridge is cut. So far, the road on the left bank of the Scheldt didn't change, but the new tunneled link on the right bank will be developed by an engineering office as soon as this new plan will be approved. Afterwards there will be a public offer which will decide who realizes the works.

15.   *For developing the partnerships and collaborative frameworks to bring the project to a good end, did you also got some of your inspiration through other projects for this thematic?*

C.G: Our CEO is also involved in other projects and because of that we regularly check how other deal with contract forms. To summarize, there are two main contracting types: the first contract form is the one where you specify everything from A to Z; the second one is one with minimal specifications, like to close a ring road within a certain budget and meeting some norms, but without other specification. Between these two extremes, there's a big variety of options fitting different situations. We already mentioned the example of the North-South metro in Amsterdam, but a closer example would be the Oresund Bridge between Denmark and Sweden. Today we still haven't decided which route will close the ring. One of the next

steps, once that will be decided, will be to find frameworks to finance the project. Therefore we'll also look at which practices are common elsewhere.

15. *Which are the next steps in realizing the Oosterweel junction?*

G.D: We expect the government to take a clear decision based on the Environmental Impact Report (MER) so that we can draw up a new Regional Implementation Plan in the course of 2014. Once the Government makes these decisions we will have to take over. The next steps are: bringing financing in place, finalizing the design and formatting the specifications for contractors. We hope to start the works by 2016.

16. *Can you briefly introduce you again?*

C.G: I am an architect and urban planner occupied with both of these aspect in the Oosterweel debate. I organize meetings with other stake holders and look at best practices too starting from the product of Oosterweel itself.

G.D: I mainly work on communication with internal and external stakeholders.

17. *Do you have other things to add about the subject, things we didn't mention in the previous questions?*

G.D. & C.G: No, I think we covered everything.

6

Ademloos, with Wim Van Hees

Antwerp, 26-06-2013

1. *Could you briefly present **Ademloos** as well as your role in it?*

My role in it is that I'm presiding it because there were no other candidates. Ademloos is an organization, an NGO, which strives to sanitize the Antwerp ring road. We are engaged citizens who didn't necessarily know each other, but who were concerned about the plans around the Oosterweel connection. For me personally the question has always been the same: the picture looks nice but about how many trucks are we talking? I asked this question between 2004 and 2007, but never got an answer. In the meanwhile I of course know the answer, but it's them who should give me the answer.

They always told me that I was too early with my questions, while the whole financial system around the Oosterweel is based on taxation on cars and trucks, so on the projection of vehicle numbers. In 2007, we finally gathered and decided it was useful to get organized against these plans.

Five people created Ademloos and none of these five comes from a campaigner's context. One is physician, two are entrepreneurs, one is communication manager and the last one is an ICT-specialist. I was the most activist of them, because I already did the communication strategy of "Hand in Hand", in the fight against the Vlaams Blok. And I had different skills in communication which appeared useful in such a context."

2. *So you are a different type of organization than stRaten-generaal?*

stRaten-generaal already existed five years before their first action around Oosterweel. stRaten-generaal originated in the neighborhood protest against the redevelopment of the square in front of the Fine Arts Museum, where almost overnight a lot of ancient trees were cut. Finally Ademloos is more an activist group and stRaten-generaal more a trace oriented think tank. stRaten-generaal puts more emphasis on urban development, but at the same time they integrated many of our health visions in their debate. So we are complementary.

3. Which are, according to you, the biggest mobility problems in Antwerp? How are they solved, how should they be solved, or how would you solve them?

Today's mobility problems date back from decisions of the previous century.

In June 1958 a Royal Decree is passed deciding on the building of a first ring road, the R1.

So this first ring was built. It wasn't a proper ring, but a slinger aimed to facilitate local traffic – having its final destination or origin in Antwerp and which wasn't just passing through it. Because of this emphasis on local traffic, there were many on- and off-ramps. Ten years later, on December 24th 1968, a second Royal Decree for the construction of a second ring road (away from the core city) was promulgated. This ring was meant for the through-traffic which didn't go to Antwerp. This was an intelligent and visionary project. Because of political and societal reasons, the construction of the R1 was started including, in 1969, the construction of the Kennedy-tunnel and, afterwards, the links with new highways; but the Ring 2 (R2) was never fully realized. The R2 had been projected, and big parts of the road could still be realized because they are situated in no built areas. Between the left bank (Linkeroever) and the right bank, there is a 2nd Scheldt crossing in the harbor: the LFKH tunnel. But the promised extension, prolongation towards the E17 was never realized.

This caused two problems which are equally important: because of the initiated but never completed second ring road, the first ring road is over-congested. Every day about 300.000 vehicles use the R1, although originally it was foreseen for only 75.000 cars. This produces a gridlock causing hours of traffic jams every day.

The first problem is the mix between local and through traffic; the second one is that there are also a lot of trucks – 75.000 - using the R1 every day. These trucks are very pollutant, they are "dustbins on wheels" environmentally speaking. This leads to an unacceptable situation which is translated into the following two numbers, based on medical research – which wasn't done by the action-groups; the average inhabitant of Antwerp dies 438 days earlier because of small particles (air pollution) and 399 days earlier because of traffic noise pollution. If you combine both figures the average life expectancy is reduced by 837 days. The extent to which these figures can be cumulated is not very clear, but the fact that they can be summed up to a wide extend seems logic because it has been proved that these pollutants have a different impact: lung and cardiovascular respectively.

On the Belgian level we have also a problem with the number of diesel vehicles. Belgium is the country where the kilometer share of diesel vehicles is the highest in the world and no

measures are taken to tackle this problem. Diesel vehicles emit way more small particles than gasoline vehicles.

4. *Concerning the Meccano tracing and the burial of the R1, would this burial be sufficient to solve these mobility problems and cancel the need for a third Scheldt crossing?*

Well, it depends. The big merit of stRaten-generaal is that since 2005 they are feeding the debate by proposing to close the ring more northwards – away from the city center. This alternative was never taken seriously until 2008-2009, when Ademloos collected signatures to organize the referendum.

We than followed stRaten-generaal in their alternative, but in the meanwhile there are some other alternatives and our focus lies on making the ring healthier and drastically reducing (at least dividing by two) the average death-rate caused by traffic. We will support the best alternative(s) in that sense. The problem with burying the ring is that it's part of the Trans European Network, the core highway network in Europe and there are specific technical and safety requirements which unable the ring to be tunneled over its full length because of the multiple interlinks to radial highways: Peter Vermeulen, from architecture office Stramien, proposes to put two extra pipes in a tunneled ring road. He will give a second lecture on his project in September, and in this way the R1 combines the functions of the original R1 combined with the never-built second ring road. If that works, we are also happy.

5. *Do you look at examples from other countries, how they solve the problems there and also the actions which are taken there by protest groups? Is Ademloos itself an inspiring example?*

Yes I think that, at least, at the level of Antwerp, we are inspiring others. There have never been as many groups active around urban planning as today. And we have proved to be relevant for the decision-makers, they can't just neglect us. We are regularly invited by other action groups to join their event. We went to a congress of the Dutch rail company in Utrecht, because they had an interesting concept: "the sustainable road". We also went to the A2 works in Maastricht. In Maastricht they also have an action group called "Klare Locht". Manu went to Hamburg and Oslo. I visited Barcelona, Zaragoza and Madrid. Manu and Peter took Terzake to Madrid. We read a lot about what they did in Stockholm and London. Manu

also visited Basel. We are following this debate really actively and this works inspiring. It all already happened, but it is remarkable that different things happen everywhere, on an experimental or other level, and that in Belgium – so far, nothing happened.

There's a total blockade, a lack of decisiveness in policy. Every measure which has already proven many times to be effective, like congestion charges and satellite guided monitoring for trucks, are systematically blocked-off. The BAM always pretended that the preconditions that they handle were the only one acceptable for Europe. This has proven to be an epic lie. And this process of lying never stopped and continues with the elaboration of the Environmental Impact Study (MER).

They systematically blocked the stRaten-generaal proposal: "Don't worry, we'll include your tracing in the MER and at the same time we'll build a prison right on top of it."

   6. *Is it a debate about city planning, mobility or both?*
It's a threefold debate about mobility, health and the future of Antwerp. When the debate began in the 1990's, and the decision to close the ring was taken in 2000, Antwerp was shrinking from about 500.000 to 440.000 people. Now this trend has reversed again and now Antwerp is growing and approaches 500.000 inhabitants again, receiving 6000 to 8000 new inhabitants per year. This fast growth demands investments in services like schools or houses which are necessarily built close to the Ring, being the only area where there is enough space left. If the city would shrink, the problem would solve itself. Now five new schools are planned around the Ring.

   7. *Which is the impact of the Oosterweel on the city planning? In an interview with the*
      BAM, they pretended that the Sint-Anna forest (Sint-Anna bos) which should be cut for
      drying the muds from the Oosterweel, wasn't very valuable ecologically. And that the
      new park which would replace it, would offer more biodiversity to Antwerp. Also part
      of the Noordkasteel area would be preserved.
The Sint-Anna forest is 100 hectares big, provides a buffer zone between the city and the harbor, and cleans the air in a heavily polluted city. On top of that green areas improve the quality of life. They asked befriended authorities to write a study denying the ecological value of Sint-Anna. Once this study was finished, they let Natuur and Bos (Nature and Forest)

make a new plan in which the development of the Oosterweel is integrated. My question to the city planning commission of the city council is simple: "Can you give me a warranty that a wet forest with trucks is better than a dry forest without?" For Noordkasteel they follow the same discourse. Noordkasteel survives, but is amputated with next to it a second gigantic interchange in paperclip-shape. They create green zones next to a highway where 75.000 trucks are supposed to rush-by.

8. *How do you see the evolution of the Environment Impact Report (MER: Milieu Effecten Rapport)?*

The two candidate mayors, Jansens and De Wever, repeatedly told they were waiting for the outcome of the report in total serenity. At the same time we see that serenity is not respected in the MER procedure, because the Flemish ministers don't respect integrity of their colleagues. Different players already demonstrated multiple times that they aren't trustworthy. If the 4th phase of the MER is elaborated as the 3rd phase, then I think that we are losing our time. The ones who are serene in this debate are or naïve, or they are involved in it, possess foreknowledge and can perfectly live with the results of it.

9. *Do the politicians want to avoid loss of sight?*

It's about ego's or worse, they are inaccessible to any discussion.

10. *How do the citizens of Antwerp react, would a second referendum be possible? Or is the majority of inhabitants or activists discouraged, disillusioned or tired? Is Antwerp ready for more mobilizations in this respect?*

There is a new town council. So juridical a new referendum could be organized. But for the moment we still hope that the conclusions of MER will be relevant enough to take good decisions. For us the solution with the biggest impact on the number of "death days" would be a sufficient criterion.

11. *Do you have other things to add about the subject, things we didn't mention in the previous questions?*

There's a general lack of regulations in order to protect our environment and health. There are way looser rules for transport than for industry and agriculture for instance. You can say that a highway cutting through a central part of the urban tissue is a gigantic mobile industrial complex. An ever moving industrial complex, a system, a transport system.

In the Netherlands, the Amsterdam Norm prevents that public utilities for vulnerable groups (like schools or hospitals) can be built within the 300m from a highway. In Belgium there is nothing like that.

12. How do you view the role of Europe?

Between too much and too little regulation, it's a slow-working but working machine – in contradiction to the decision making in Belgium which isn't working at all!

7

PVDA Antwerpen, with Wiebe Eekman

Brussels,   04-07-2013

1.Could you present yourself and your role in the PVDA and the Oosterweel debate?

I'm part of the PVDA workgroup on Environment and Climate Affairs. I'm also involved in the administrative board of the Climate Coalition. I'm very interested and busy with environment, climate and social justice, because if you do not bring social aspects into the environment debate, you will never win the majority of the population. It is technically possible to plan the society and the economy in a way which doesn't sacrifice nature - and the abilities of the earth to regenerate itself - but the political will lacks. Climate is an argument more against the anarchic market economy and for a new socialism which replaces the sales value by the use value, the greed by the need. With the Climate Coalition we rented a train to Copenhagen 2009. We will do the same for Warshaw in November.

2. Which are the most important mobility problems in Antwerp, how are they solved, should they be solved or would you solve them?

Not only the Ring road, but all access roads are filled with daily traffic jams, an absurd situation. This is caused by many factors; one of the most important ones is the lack of public transport to the workplace. A poignant example is the Port of Antwerp hosting 20,000 employees. Some big enterprises like BASF have their own busses, but only during peak hours and for permanent employees, not for contractors who are in the majority. A tram or light rail linking Antwerp with its harbor would be a solution. Carpooling is difficult to organize, because of the different origin or destination of most of the car trips. The combination of biking and public transport would be more adequate – but the public transport has to adapt to this trend. In the North East of the Netherlands, close to Groningen, about half of each train wagon is reserved for bicycles. Freight transport could also be organized in such a way, that trucks are put onto trains. For individual transport, there's the Chinese example of small electric vehicles like tricycles for inside the city. Cars should be avoided for short distances, but there should be cheap car rental options for excursions. Concerning the LFKH

tunnel the toll should immediately be cancelled which would already make the traffic more fluid. Part of the ring road can be remodeled – some parts of the E19 are in viaduct, other parts in Deurne are entrenched. Tunneling could be a solution for some parts as there are new techniques like glass tunnels which recuperate heat and produce electricity. Freight transport by ship and rail should be required, technical inspection should be expanded and just in time delivery should be abolished. Stores should be obliged to put their stocks back in warehouses. Now trucks are functioning as warehouses on wheels, riding unnecessary kilometers. I don't know the exact number, but my estimation is that only this last measure would reduce the number of trucks by 10, 15 or 20%.

3. *Is it a debate around mobility, urbanization or both?*

It's about making choices, about ensuring that there are shops and post offices everywhere. Now a lot of workers go to department store quite far from home. There should be a reorganization with local distribution centers. This can also be the case for one large company with 20 small departments. Counters for social services such as the post should be accessible in every neighborhood. The train should become cheaper – including for long distances, where the train is more expensive than the plane. Private lines should be re-nationalized, the Benelux train should be put back in service. Urban planning is related with mobility, new settlements must be reachable by trams. Cycle tracts could be covered on certain places with a lot of wind, like the Scheldelaan. Long distance cycling should be promoted with new infrastructure. Simple measures can improve accessibility. In London, there are diagonal pedestrian crossings, providing green light for slow traffic in all directions. Antwerp is building new tram lines, but we are talking over a 20-years period: it should go much faster. LPG and natural gas can be effective for powering cars, as electric batteries will never be produced in a sufficient quantity in order to replace all combustion engines.

4. *Who are the actors in the debate and did they change their position? Which different parties - not political parties, but organizations, played a role?*

The city of Antwerp had the STOP policy: favoring walking, biking and public transport over individual motorized transport, the car. Even though this policy wasn't often realized in practice, now the new college under N-VA is stepping down on it. Someone who has money and can afford a private car parking is also able to park in the center of town. At the same

time, public transport becomes more expensive at the Flemish level because of budget cuts. **There should not be any cuts in public transport**, savings can only be made if they are rational, providing a better service to the users, and if they are improving the work environment as well. So I think that the climate coalition and the trade unions together have a great role to play in this debate and that they should enforce new legislation by the Governments.

5. *You already mentioned it by taking the example of the Liefkenshoek tunnel : is it a debate about re-using old or about creating new infrastructure?*

I think they mainly want to focus their public works on Private Public Partnerships. There has been a complaint of Europe that Belgium didn't do enough PPP's. The idea behind it is that everything should be profitable and that the government should be squeezed by the private sector. We have to get off this track. With all the BAM-affair, Flanders and Belgium were already fine with their PPP percentage. Private Public Partnerships cost a lot, the BAM for instance gave warranties to the private construction consortium Noriant. Well, it is better to pay these damage claims than to continue with this absurd project. It's an irresponsible transfer of public money to private investors. The cost of the new PPP tram station in Wijnegem for instance is supposed to have costed two or three times more than if the public authorities would have built it themselves. Public authorities should manage these investments themselves instead of working with PPP's which are only there for generating interests to for instance the banks and the construction companies which are building it.

Belgium and Flanders should be more ambitious with their alternative energy goals. We should put forward the target of at least 40 to 50% renewable energy and have a long-term vision. Problems with traffic jams, health and other problems should be integrated in a general policy.

About the Oosterweel, we would suggest smaller interventions, and if you apply these - instead of the proposed mega investments which won't work - the congestion problem will also be solved."

6. *What do you think about the participation or lack of participation in the project Oosterweel?*

It's blatant, they decided something many years ago and their image - or the fear of losing their image -is more important than all the rest. There's a total lack of vision, they once exposed a scale-model of the Oosterweel with Lange Wapper Bridge. Unfortunately no information was available on the connection points: **you see a beautiful scale model of a bridge, but you do not see on what it is built** (the link with the city existing under it lacks). Many people thought the bridge was hanging over the Scheldt, not above the city. And during the moments they presented their project, they did not answer the questions (nor the architects, nor the job students). If you are critical they turn their   back.

Also, for other projects – like in the harbor of Antwerp - they publish something in the newspaper, an announcement for a meeting which nobody reads, and I'm often the only non-administrator, citizen in the room! After the meeting, they can tell that they officially consulted the population. Formally speaking, participation was organized. The culture of informing the population and work with them does not exist. The population is considered as an opponent or enemy which should be kept as far away as possible.

7. What's your opinion on intelligent congestion taxing?

I am totally against it.

8. So, as well for cars as for trucks?

That means that the ones who can afford it, can take the shortest ways and that the others are doing detours all the time. If we take all the other measures, we absolutely don't need a tolling system. Traffic reduction measures should be socially correct and justified. We promote campaigns, but information campaigns. We live in a very individualist society, the slogan could be: "I paid for it, so I must use it" or "I paid, so I can pollute".

On lower energy use: if, in Cuba, I explain to people that they must use energy efficient lamp bulbs, than they do it. Here in Europe they say: "Why should I replace them? I have paid for it anyway, and I'm paying for my electricity too." The individualistic rather than the collective solution is put forward; the collective solution is blocked by the individualistic one.

9. What's your opinion on the Environmental Impact Study? Is it taken seriously? How do you see the next phases of the debate?

There are different possibilities being explored, among them the 0 solution (leaving everything as it is, without new infrastructure), or a toll. The problem is that the debate is too narrow. Are the different trajectories examined without toll? I do not think so. Are they examined with a second rail access to the harbor? The main debate shouldn't be about choosing between two different motorways. Of course there are routes that are less harmful than others, but it is again putting people against each other. There are three user categories: the residents (living close to the highway), people who are from or go to Antwerp, and people who pass by Antwerp and use the highway because there is no alternative. The interests of these three groups should be combined instead of played against each other. To summarize, I'm not sure of the result. If they are doubtful, we'll mobilize again.

10. With a new referendum?
That's a possibility, but let us first wait for the MER results.

11. We already talked about city renewal, but around participation, do you have good examples from other cities here? Other action groups?
No, I can't provide you with inspiring examples, though on the local level for last municipal elections we based a big part of our program on the replies we gathered through questionnaires which we distributed outside our own network.

12. How is coordination between action groups, inside Antwerp between Ademloos, stRaten-general, PVDA?
There's a good connection. The PVDA is behind many mobilizations. Dirk van Duppe for instance is a doctor who's one of the initiators of Ademloos. We also took part of the protest rallies in Merksem and Deurne and held information evenings. The whole problematic around the small particles has been integrated into the debate, not just in the concerned neighborhoods, but for whole Antwerp.

13. Will you build bridges between the struggles in Antwerp and similar ones in Brussels, like Pic Nic the Streets?

Could be.

14. What's your opinion on Europe and the different laws promulgated by it?

It may turn out positively. Many problems are trans-boundary and positive regulation can be effective: like the fight against the gap in the ozone cover and the fight against acid rain has been. Imposed legislation and regulations can have immediate results. These two measures were correct. The climate and environment protecting measures are useful too and imposed by Europe, even if they could be way more ambitious. The problem is that Europe does not reinforce the services; on the contrary, it imposes privatizations. The social justice aspect is completely lacking in the environmental discourse. So, **yes to socially and environmentally motivated regulations. No to privatizations like the postal or rail services. Europe shouldn't be an excuse to impose privatizations and regulations must be socially motivated**.

15. I think we covered the most important aspects. Are there other things you want to mention?

My additional comments are that I would like to address the general deterioration of the city as well as advocate for more greening. People asked me if I support Brussels' candidacy as green capital of Europe. Well, I do not. Brussels doesn't deserve this title, not at all. There are some good practice examples, but the transport situation is problematic, inter-modality should be fostered, long distance bike trails must be installed and a greener and cleaner environment should be the priority.

8

Stramien, with Peter Vermeulen

Antwerp, 10-07-2013

1. *Could you describe yourself and how you got involved in the urban mobility and Ring debate?*

In 1977, I graduated as a civil engineer-architect in Antwerp. I worked a number of years for myself, then with a friend. From the beginning, I have been quite committed around everything concerning mobility and urban planning in Antwerp. I joined the Working Group traffic Antwerp, and in the 70's I have followed the discussion of the pre-metro works, for example. There was a plan to pull the metro to Zuid and this meant cutting all the trees. Through this working group, I also came in the workgroup City Interest composed by civil society organizations and we wrote a book in 1987-88: Antwerpen leefbaar en bereikbaar (Antwerp livable and accessible), in which there are some ideas developed including on public transport, longer lines, the using of pre-metro sleeves for regional lines outside of the city, without affecting the granularity of the public transport network above. Let's say the traffic problems in general, and that evolved into the creation of Stramien. Then I created the Global Structure Plan of Antwerp, in 1990, by order of the city and there are many ideas coming back to that global vision around livability and accessibility of the city and its surroundings. The Ring itself is a complex issue because of its many entrances and exits creating interweaving traffic flows which increase congestion and reduce capacity. That is an argument that I've always followed from then on. In 2006, I was part of the planning committee in Antwerp and there the discussion on the Antwerp Master Plan was first mentioned. I always thought it was a silly idea to close the Ring, but it was not to be questioned because it was decided at the Flemish level. The whole discussion evolved, I've closely followed it and I am eternally grateful to stRaten-General and Ademloos because of their commitment to block this project. Following the encouragement by friends, I wrote Oh, duurzaam Antwerpen (Oh, sustainable Antwerp, ed.Antwerpen Averechts) in order to show that the master plan is nonsense and that it should go more about urban development, mobility and integration or harmonization of different mobility elements. In it I have always said that the closing of the Ring, so the creation of a 4th crossing was unnecessary. You'd better start reorganizing existing structures including the ring. Because if that capacity is not used

optimally, then why building additional capacity? Then there were new elements added. *Borgerhout Likes People* (*Borgerhoudt van Mensen*; note of the translator : in Dutch, the title is a pun: *Borgerhout* is the municipality, and *houdt van* means *loves*) had already launched the idea in 2004 to tunnel the Ring at Rivierenhof and bring it closer to the historic 19th century belt of Antwerp. I found this idea very sympathetic but very naive. I thought we would never have money for it, but I continue listening to stRaten-General and Ademloos. During the tunnel conference and some other nights I learned two things: 1) the Madrid example - if it may happen there, why not here?- and 2) the need from medical considerations: noise pollution and bad air. Thereafter, the City of Antwerp made a study in which they recommend sheltering certain parts but also say that it is not easy because this would lead to more traffic in other parts. The second argument was that long stretches of caps do not work in a ring complex with as many entrances and exits. The conclusion was that it would be well for the city development of certain areas such as Nieuw Zurenborg, but the problem remained the complexity of the Ring to which a solution should come. So, I developed a new concept to offer more capacity than the current network because of a smoother traffic flow: a covered ring through separate tunnels. I've always said like 80% of the new space created by the tunneling should be dedicated to green spaces, and the other 20% can develop as a city.

2. There would be additional capacity created so it is a sort of combination of the idea of Ring 1 and the previously proposed Ring 2 in an under-tunneled Ring 1?

The idea of the Ring 2 is to put the maximum number of traffic out of the city. The idea is rather simplistic and I have never believed in the R1bis. I'm more positive towards the A102 - because studies demonstrate its usefulness through a substantial reduction in traffic on the ring in Deurne and Merksem. We should start at the beginning and when we realize this - the burying of the Ring, we solve three things at once:

1. more capacity and safety,

2. less noise and captured bad air,

3.urban development.

3. But we are of course still with European standards for tunnels.

This separate tunnel system is a model where interweaving is limited to the absolute minimum. If you have a tunnel with three lanes then the third lane becomes an exit and a little further there is another entrance, so the capacity remains the same everywhere.

4. There should be no lanes added or taken away?

No, the number of lanes should be unchanged. A long ring structure via Meccano is not necessary, the tunneling already allows for better traffic flow, less noise pollution and better urban development.

5. How does the city of Antwerp and the inhabitants respond to it?

I presented it twice: once on an evening of the city of Antwerp, and once on an evening of the VRP. I find it disappointing that there are more people who are skeptical than in favor. They say that there is no money for it, instead of responding as: "what a challenge." We know the mobility-handling capacity is poorly organized, so let's improve it and do a good thing for the environment as well.

6. So they do not take a look at it?

Politicians aren't acting, everyone is waiting for everyone. They use MER studies and traffic simulations to prove what needs to be proven. Even if all those things are somewhat beside the point, because they don't look at the spatial and functional approaches.

7. It is both a debate on mobility and city development?

Yes, but the whole Oosterweel is absolutely not a story about urban development. They dragged the city, which is contributing with 300 million euros, in the debate by saying they make a tunnel instead of a bridge, so Het Eilandje is safeguarded. And then they say they are going to make a square at the sports palace (Sportpaleis), but next to it, you have a paperclip of eighteen lanes; that is not serious.

8. And the project of the roof on the ring would cost less than the Oosterweel link?

I have no exact figures about it. What I did is taking the units that the city uses in her study and calculate it for the whole ring: if you do the R1 bis, half the ring is already covered.

9. Do you look at "Best Practices", foreign examples? You already quoted Madrid.

I get informed by stRaten-generaal, I heard about Boston and Maastricht and Hamburg.

10. And you are presenting your project in September again?

I proposed it in November, we are now a few people in Stramien working on it. People in the Antwerp suburbs: in Deurne, Merksem the traffic jams are very present because of its visibility. Noise on the other hand is seen as an individual invisible problem, but there are more people who suffer from it. These "invisible problems" are not being addressed as much as the congestion problem.

11. There is also the project of sustainable road, a glass roof.

Yes, Novaris. I've also heard it on one of the conferences and I quoted it in my proposal: the Singel is at the level of the city and the Ring is at -1, but there are two shore exchange complexes (the Ring with the E313, and the E19 with the Ring). I see a floating roundabout, a floating glass complex and that part is a useful idea there.

12. So in terms of urban development, it would be better to cover it all the way?

Yes, it's an incredible number of hectares of released land. And that space is needed, for example Spoor Noord is packed on Sundays. It has obviously been successful, but this also shows that there is a shortage of green spaces.

13. So you have a good relationship with the action groups Ademloos and stRaten-generaal?

Yes, absolutely.

14. They also encourage you to continue with you ring research?

Yes, but the strategies should be more tuned to each other.

15. What is your position on the MER, are they taking it seriously?

If it happens seriously, it will be destructive for Oosterweel. But when you hear that the interpretation of the figures might not be objective, you get a little suspicious.

16. Do they try to postpone any decision for after the elections again?

Even after the election, I do not believe that there is enough support to implement a project where so many doubt about.

17. So there could be more support for this project, or at least for a better use of existing infrastructure such as the abolition of the toll on LFKH tunnel? How will you build wider support?

I'm not working full time on it, but I think there are enough channels which can support the project from September and that it can become a major theme next year.

18. Are you working on other projects in and around Antwerp which would be undermined if the Oosterweel link is realized? I come back here on one of the arguments by stRaten-generaal, that the Oosterweel undermines de structural plan.

We happen to be doing a study on the Albert Channel and on public transport, but these are studies commissioned by the Province, they are complementary, and that's nice.

19. In 1990, there was an international price competition "Stad aan de Stroom" (City on the river), where an architecture office from Genoa proposed to create a park where the Ring is now.

I must say I followed the "Stad aan de stroom" debate, but I cannot remember that they already provided tunnels and that the questions we are raising now, were already being solved.

9

Antwerpen Hogerop, with Ivan Booms and Bert Meuwis

Antwerp, 10-07-2013

1. Could you present Antwerpen Hogerop as well as your role in it?
Antwerpen Hogerop is an association that aims to bring architecture and urbanism closer to people and lift their knowledge on this thematic on a higher level. We inform through our website and newsletter, we bring projects on architecture in a loose, relaxed way so that people can experience it. We do different activities or projects, our biggest one being the Green River: a mobility project for the Antwerp ring, where we consider Antwerp as a city regional area.

2. Could you tell me something more about this Green River?
The core idea goes back to the Antwerp Mobility Master Plan which seeks to resolve congestion through extending tram lines, constructing bike paths, transforming highways to boulevards, creating more capacity on the Albert Canal through higher bridges, or improving railways. Closing the Antwerp ring is part of the Master Plan; recently they added projects and the cost of the projects (including closing the Ring), is so high that we say: look, abolish the current ring, and make a new one further out of town. One along the outskirts, and transform todays ring in the core city in a 600-hectares public park.

3. So you are arguing to build the Ring 2 and replace the Ring 1 by a park?
While you have the small Ring and you had the proposal for a large ring, we propose a new one that lies in between. The large ring would be too far out of the city, the inner ring is too close, R1 bis is also too close. In fact it's not a ring because it is not circular, the majority of traffic is no longer in the city and ends at the edge. The result is that we can shut down the current ring for 90% which will give Antwerp the chance for the next fifty years to do what it wants. The next twenty or thirty years the city will grow with 100,000 people. Those new inhabitants need houses, schools and other services. This operation gives the city, which is now trapped in her own ring, breathing space. The existing ring, the A102 to the east, the Oosterweel, the big Ring planned in the years 60-70, and the part with the Liefkenshoek tunnel never resolved congestion. Now there are the alternatives coming up, especially the

underground Oosterweel link by the Flemish Government and the Eastern bypass, namely the A102. Then there is the alternative of Meccano-tracing. All these projects cost a lot. We suggest that if we are spending so much money, to rethink everything and abolish the existing ring. So what we propose is a third Scheldt connection at about the place stRaten-generaal is proposing. We choose a bridge in the port, there shouldn't necessarily be a tunnel - except if safety requires it, it is cost effective - and we also propose a bridge over the Scheldt. And east of the city we actually put three tunnels: one direct North-South connection, one direct South-East connection and one direct North-East connection. It's actually **a bypass not a ring,** there are direct links between North and South, East and South and North and East. We bow all tunnels and connect the bypass to the E19 at the height of Kontich, so you will pass along the city driving through the belt of Antwerp.

4. *What should happen with the traffic in Antwerp?*

That goes further through the existing road network, so we want to create a new ring with a park and rides network, and all incoming highways are perfect places to build new park & rides. So we give commuters and visitors to the city the ability to easily switch to public transport within the new ring. We want to upgrade the current Singel and Leien - because cars will always be there, but through traffic goes around the city. Then we have some traffic to the South, to the West - so from Mechelen to the coast. The Kennedy tunnel shouldn't be abolished for trucks because only about 10% of all traffic will make this movement.

5. *When did you present this idea?*

We proposed it in the beginning of January this year. Now it could be that we can submit it for the MER around the R1bis **because the R2 (R1bis) is part of our idea** but in a completely different context. We also propose doubled tunnels, they already exist in certain places, but not in these large orders. The fact that it is being studied in other cities proves that it can be done.

6. *Do they have it in Madrid?*

I think so, but only for cars, not trucks.

7. Did you present your project to Ademloos, stRaten-generaal or other organizations?
We made it public and it didn't take long before they picked it up: a week later we got responses from Ademloos and stRaten-generaal. We received positive critique because this plan radically thinks beyond all other plans that were previously on the table. It's a new ring, outside the city center on the outskirts and instead of current ring there will be the Green River. This open area is truly a unique historical bonus that no other plan can present. I haven't come across many people who weren't on speaking terms about it.

8. In 1990 there was an international competition, "Stad aan de Stroom"(City on the river), and there was an architecture office in Genoa proposing a park on the current ring. However, without having worked it out. Do you know more about it?
It cannot come to my mind, various plans have been made for parks on the Ring or on part of the ring. Here on the map: you see in green the existing parks, which would almost all be connected by the Green River. There are also plans for new neighborhoods being built – Nieuw Zuid and Nieuw Zurenborg, which are now at 100m from the Ring.

9. How long did you work on it? With how many?
Whole team of experts! No me, and second readers. The idea existed since long, the Plan MER for the Oosterweel has been studied since December 2011, when alternatives were to be submitted. In September - October I started it, and in January it was ready.

10. What are the next steps you want to take?
We would like to submit it for the MER of R1bis in autumn.

11. So with that R1bis would you stop right away?

Yes.

12. What's your opinion on Peter Vermeulen's plan?
The threshold is so low, you'll drive off the highway and you drive directly to the town hall, so to speak. And historically it doesn't seem really advisable because it is actually a

consolidation of the existing ring with just a green roof and some grass on top.

13. You are defending a 3rd Scheldt crossing?

Yes, all studies prove that this is needed, even when investing in public and freight transport simultaneously.

14. Unless alternatives are being developed to reduce the number of trucks - to pick up some trucks off the road?
Yes, but then we are not busy on the scale of Antwerp, you should see it on the European level and perhaps start working with zeppelins.

15. With the economic crises there are already fewer ships in the port of Antwerp than expected.
Yes, but we hope that it will revive, and the port of Antwerp is not the only thing that brings traffic. 70% of the traffic on the Antwerp ring has nothing to do with Antwerp.

16. According to other stakeholders in the debate only scrapping just in time delivery would take between 10 and 20% of the trucks off the road.
That's right, but how to regulate such a policy? Our whole economy has grown around it.

17. Do you think anything will come out of the MER?
I don't know if we will be further in the process in June next year, compared to three elections ago.

18. So it will be lifted over the elections?

After the elections, the government will work with the new results; the political parties will discuss their positions: the cost, the priorities, etc. There will probably be small improvements.

19. Like abolishing the toll at LFKH?
Yes, those discussions will come up again.

20. Are there any points that we have not mentioned? About participation for example ... What do you mean by participation?

A.S.   The usefulness and uselessness and the apparent participation for legitimation.

This is indeed a hot topic nowadays. Maybe we can conclude that citizens would already have solved the problem long time ago whereas the politicians are proving that they can't handle it: If the government gets twenty years to do nothing, maybe it's time to choose a different path now. At the same time, participation is complicated and a lot of people aren't interested in mobility and urban planning.

21. Because they are too technical?
Participation does not mean that you sit around a white sheet with 500.000 people, not everyone gets it.

22. How does the government deal with it?
They are far behind other countries or regions like Scandinavia or Switzerland.

23. But it is perhaps better that they are locked-in than that they just implement the proposed projects?
That's difficult to say.

24. It might have been worse.
There was once a proposal on a bridge over the Scheldt; in that case the Kennedy tunnel probably wouldn't have been built, maybe that bridge wouldn't have been standing till today, but maybe it would have resolved part of the traffic problems.

25. Before coming up with your own project, you defended the Lange Wapper?

That's right, yes.

26. What has changed that position?
There was a plan and a budget to close the Ring: 1.85 billion, and no single euro more. We

found that an enormous amount. For a road to be constructed in Flanders it is a serious sum, but the alternatives were much more expensive. At the time we believed our government. After the referendum - with the tunneled version being proposed - the costs had been rising till 4 billion. As this wasn't serious anymore, we started to think about our own alternative.

27. What was the turning point?

A10 slides PowerPoint Presentation by minister Crevits in September 2010, almost two years after the referendum.

28. When they decided to put the Lange Wapper underground?

Yes.

29. And then the official projected costs went up crescendo?

Exactly.

Madrid

10

Burgos & Garrido, Arquitectos Asociados, with Javier Malo De Molina

Madrid, 12- 06 -2013

1. *Could you present Burgos & Garrido Arquitectos Asociados and the Madrid Río*
   project?

We are the architects of the Madrid Río project. This project consists of a park on top of
tunnels – the buried M-30. The park lays in the central consolidated part of Madrid. We have
two river banks: the left bank bordering the city center and the right bank bordering more
peripheral zones. The M-30 is a 5x5 lanes highway with 200,000 vehicles per day. The river
bed of the Manzanares is artificial, the natural river was channeled around 1900, it's an
"arroyo" or mountain river. It has been important in Madrid's history because first an Arab
fortress overlooked it. The Arab fortress changed into a Christian fortress and a Middle age
wall was installed. Later the Philip II and Philip IV walls were built more to the east.

2. *Which was your role in the project?*

I was the project coordinator of Madrid Río and discussed with architects, engineers, botanists
and external consultants. I helped to draw a single project out of it, we discussed a lot on
which materials to use opting for granite, steel, wood and different plant material.

3. *Which were the actors in the debate?*

The political actors were the most important ones. We had direct contact with the alderman
of urbanism and the department of urbanism from the city. There was a clear support by the
city for the project, the coordination with the architect from the municipality also went well.
Other stakeholders were services like firefighters and police which demanded emergency
exits every 200m.

4. Could you explain the institutional contact in which the debate took place?

When Gallardón was elected mayor in 2003, one of his campaigns was the M-30 remodeling. In 2005, an international competition was launched to reimagine the surface on top of the tunnels and, in 2006, we won the project with a master plan including all neighborhoods around the river and a design and development plan creating public spaces on both sides of the riverbed, on the void left by the M-30. In April 2011, we inaugurated the project, so during the first four years the tunnels were designed and during the second four years the ground surface was changed into a park. In some parts, the apartment blocks were situated very close to the highway, a lot of buildings date from the 1950s and the motorway (M-30) was built afterwards. During the works which lasted 24 hours a day, traffic was maintained on the surface. The tunnels form a very complex system. Some of them are situated quite high, so close to the surface of the park. The infrastructure consists of two parts: the tunnels and a stretch of six km with landscapes composing a north-south link, uniting the city with its environment and the biological 90km corridor of the river.

5. How were the Calle30 and Madrid Río projects developed, by a PPP?

Calle30 is a mixed economy firm around environment safety and mobility in the City of Madrid which realized the redevelopment of the M30. During the works of Madrid Río, we were part of Calle30, now not anymore. The tunneling and park design projects are integrated and overlapping in the 2006-2007 time lap.

6. Did you realize the project you wanted?

Yes, it went very fast for an infrastructure project in the center of the consolidated city. The time and money-schedule, everything went according to plan: **we got where we wanted to go.**

7. What is the most important, the reuse of existing infrastructure or the creation of new one?

We need 21th century infrastructures to overcome this barrier-effect of the 20th century infrastructure. Before the reshaping, it was very difficult to go out walking. The city developed thanks to the river, so it should have its place. **The city is a river accident, and**

not the other way around. The new river park creates a corridor connecting existing parks together.

8. *Could you explain the realization of the park with its different areas?*

With our project we work on three levels: the bigger Madrid region and territory of the Manzanares basin; the city of Madrid; and the 6km long Madrid Río park. This imaginary landscape typology is an evocation of the panoply of North-South landscapes between the North Cape and Tarifa, from the mountain forests to the Mediterranean landscape: **the part functions as a gate linking the city and its river to the bigger territory.** Madrid is no longer a stopper, but a connector. We divided the Madrid Río strech in three landscapes: the monumental scene with Príncipe Pío and Casa de Campo – which became a city property in the 30's during the Second Republic; the second part, the Arganzuela Park, is evoking the landscape of a floodplain, and the third part is a narrow strip evoking a forest, the 30m wide Pine tree promenade or Salón de Pinos. The pine tree promenade of 6km is composed by 9000 pine trees. It creates an atmosphere; there is little ground - about 1.5 m -, but as pine trees grow on rocks, they also grow on concrete tunnels. Different typologies of trees were planted, inclined in different ways to evoke a natural forest. The natural elements of river and forest are combined with play. The topography is also important with the wettest vegetation like grass planted near the river. A local law stipulates that maximum 10% of a parks' surface can be covered by grass. Other typologies are the reinterpretation of the garden with the baroque labyrinth at Toledo Bridge and sediment deposits evoking traces of the river that passed through the valley. Close to the Slaughterhouse (Matadero), in the Arganzuela Park, there are many activities like a skate park, water fountains and playgrounds. "The Beach" was a demand of the contest for children. It is a reinterpretation of a beach, because according to us it had no sense to recreate a sand beach. We built un-deep water basins like the ones created in wide parts of the mountain rivers. The Monumental scene links to the Casa de Campo and has some other elements like fruit trees. There's also an urban boulevard, the Avenida de Portugal, which has a typical Portuguese pavement, on its promenade lined by cherry trees. We could say that there's also a 4th element, namely the cross connection or transverse connection. The project meant the restoration of the existing bridges and the building of new ones, like the one by Dominique Perrault. Also hydraulic locks have been changed into bridges. Some elements of the old highway, like a bridge over the river, have been reused in the new park.

9. *About the competition, there were international and Spanish architects. The international teams were told to have more utopian, less realistic and sustainable proposals like the total flooding of the area. Do you share this analysis?*

The competition was held in two phases and was open for both Spanish and international architects. Some proposals didn't fit to the Spanish and Madrid context of a very dry country. Many offices were good teams of architects but are less familiar with city planning : they are specialized in buildings, but they sometimes build artifacts without having a vision on the city.

10. *Could the integration of the Manzanares River Park to other projects have been planned better, like the connection between Príncipe Pío and the historic city center?*

Our main focus was limited to the banks, which now allow a better passage over the river. The Master plan offered more, but this plan was more theoretical and we didn't reach all the steps.

11. *Are there parts of the plan which should still be realized? For instance, the Interconnection between the South knot (Nudo Sur), the Manzanares Park and Madrid Rio is marked as a "temporary connection".*

This small part will be realized soon, because the municipality bought the private land just next to it.

12. *Which are the future plans for the area, like around the Atlético de Madrid Stadium?*

There is an agreement between the municipality and the football team, when they have money they will dismantle the stadium and tunnel this part of the M-30 too.

13. *Did you also look at best practice examples for getting inspiration realizing the project, like the Jardin del Turia in Valencia?*

The project in Valencia is inspiring, but the context is totally different. The M-30 tunneling should rather be compared to the Big Dig - Roose Kennedey Park in Boston, because it has a

similar size. But the works in Boston lasted for 20 years, and it is a more conventional park, with not one tree planted above the tunnel. The project in Seoul is of smaller scale, with a different river (in a pipe) and the park itself is bordered by a two lanes boulevard and more artificial. We mainly worked from the local context for inspiration.

14. How did you approach citizens' participation?

Many ideas and neighbors participated. There was also a children's competition held in schools in order There was a lot of citizen involvement in the Madrid Río project. Citizens came up with to also address their needs.   Especially this children competition is an innovative idea.

15. Do you consider the Calle30 or Madrid Río project as an "Urban Best Practice"?
The project is well-known internationally and even made it to the New York Times. Yes, I think so, but of course we shouldn't forget that such a projects can only be realized under special conditions like financial and political stability, and a lot of resources.

16. *Are there elements we didn't analyze and you wanted to share?*
No, I think we covered the most important aspects.

11

Ecologistas en Acción , with Francisco Segura

Skype interview, 02-07-2013

1. Could you present yourself as well as Ecologistas en Acción?

I am Francisco Segura and I'm the coordinator of Ecologistas en Acción. We are three to coordinate this organization, a confederation of almost 300 ecological groups from the whole Spanish State. We were the most active ecological group around the M-30. Me specifically, I was coordinator in the domain of transport.

2. And which are the main transport problems in Madrid?

The biggest problem is the important automobile traffic and the problems caused by it: occupation of space, security problems, noise, air pollution, loss of autonomy of the children; problems common to many cities. We are conscious about the fact that, in Madrid, car use is less important than in many (even European) cities. That's to say that the modal share of public transport is quite high. But nevertheless other modes like the bicycle are almost anecdotic and in this matter we are far behind Germany, the Netherlands or Denmark. So there's a lot of margin for improvement, we have a good public transport but still too many cars.

3. And what should the federal or regional governments as well as the municipality of
   Madrid do that they aren't doing?

Well, first of all, they should stop to stimulate car use as they are doing now. Madrid is one of the European cities with most car-infrastructures. Madrid has four rings: the M-30, the

M-40, the M-45 and the M-50 − even though the M-45 and the M-50 are not fully closed ring roads; and it has 13 radial highways. And some of these highways have up to six lanes per way. Some of them are paid by the user, but aren't paying themselves back, so the Government is discussing about what to do with them. There's a plan to take over the highway depths with public money. So, in Madrid, they invested a lot in public transport but

even more in private traffic – mainly big roads and highways. The problem is that even with the new investments in public transport, the car is used more and more compared to public transport. But since 2006, we have no data anymore on the exact numbers. What we saw in the last polls is that proportionally the use of the car augmented and the use of the public transport diminished. And in 2004-2005 we notice the shift of the dominant transport mode from public transport to the car. And now the number of car trips stays higher than the number of trips by public transport, which has never been the case before in the history of Madrid. The investments in public transport also haven't always been well planned. Till the crisis hit, the number of car trips raised a lot.

4. *Which are the actors in the M-30 debate? I just read that there is or was a forum for sustainable mobility in the Community of Madrid.*

Yes, when the decision was taken to amplify the M-30 in 2004, immediately a platform was created against the M-30. Ecologistas en Acción was one of the most active groups in it, but there were also political parties from the opposition like Izquierda Unida (IU) and PSOE, in total about 30 groups like neighborhood associations or other ecological groups. This platform canalized the opposition against the project, but its activity dropped when the works were finished in 2007, and most of these organizations ended up forming the Plataforma para la Movilidad Sostenible (Platform for sustainable mobility). And in favor there was the government of Madrid, who sold the project as the solution to all mobility problems, and to the open wound the M-30 meant for Madrid.

5. *Did your opinion change upon competition of the project? Did your predictions on traffic increase etc. come out? Did other groups (neighborhood groups) change their attitude?*

The M-30 project was presented to the public opinion as making the highway disappear – what only happened for the six and something kilometers of Madrid Río. But the rest of the ring, about 30km, was enlarged. Its capacity augmented with about 20%. So this goes against the trend of keeping cars out of core cities, by enabling more cars to enter central Madrid through extra lane capacity. There were neighbors who were first against the project, because it created unhuman conditions. The works went on day and night. This wouldn't be accepted in any other civilized countries. Some people with a mobility problem were locked

in their homes for months. Many people also couldn't sleep during the night with the windows closed to avoid kilos dust to come in. But at the end these same people were happy with the end of the works and the final result: a park on top of the highway. But what happened is that people living far from the work until now were mainly indifferent towards the project and are now rejecting it mainly due to the costs it means for the city of Madrid. It ruined the public finance at a time the consciousness of the crisis didn't exist yet. The groups which are more conscious about mobility issues like pedestrian, bikers groups or ecological groups like ours, stayed on the same position. And as you probably know, afterwards the works have been declared illegal by all Spanish and European courts we went to.

6. *And for the part of Madrid Río, did they also create extra capacity there?*

Yes, at the end there are more lanes than before. The idea of urban regeneration/renewal/ greening/recovery from the M-30 wound was sold very well, including abroad. This "wound" dividing neighborhoods was only cicatrized over 6 km, but the same wound grew bigger over the 30 remaining kilometers.

And above this ruining the city financially, infringing the laws and going against what we and other groups demanded – reducing the lane capacity and changing the highway into an urban boulevard. A boulevard, with slowed-down traffic, traffic lights, less lanes, a bus lane etc. And the result is that we are still over the European limit for different air polluting substances.

7. *And with the crisis it didn't go down?*

Yes, about 17-18% since 2007. So we noted a reduction, but this reduction isn't sufficient in order to respect the law.

8. *There are different figures circulating about the total cost of the project. The municipality talks about almost 4 billion euros, Ecologistas en Acción about 10 billion. Can you explain these disparities?*

Yes, well it depends what you are looking at. If you take the official figures by the municipality we are talking about more or less 5 billion, but they didn't have the money for the works and also have to pay the interests back during 35 years. There's a paper of the Tribunal de Cuentas which gives the figure of 12 billion. They recognize that the depth is

close to 13 billion euros. And this converted the city of Madrid in the most indebted Spanish municipality, both in absolute terms as per capita. They created the Calle30, which manages part of the debt burden, but in fact it's also part of the municipal dept. Every year the municipality has to pay back about 80 million to Calle30. So they used financial engineering to hide the debt, to put it in the shadow.

9. So, it cost more than initially projected?

Yes, because here the priority is to open before the elections, and there were elections in May 2007. So they had to open it before at whatever cost. So they started to work in two turns, during the morning and the afternoon and they ended up working the whole time: in the morning, the afternoon and at night. Especially after we brought the case to courts, they increased the pace, in order to finish before the verdict. This acceleration increased the costs, later on there also were things they didn't do well and had to redo.

10. Is it a debate on mobility, city planning or both?

It opened a new debate. We call Gallardón *the pharaoh* here, because of his megaprojects. One of his projects for the region of Madrid was the Metro Sur, in an area which wasn't so dense, so where a bus or tram would have been more appropriate. This was his work for the municipality of Madrid. With Metro Sur the network almost doubled, even if the density isn't big enough to justify the cost of it, the metro extension was viewed more positively than the M30 enlargement, although it also produced an exaggerated debt burden. And this dynamic is now continued with the candidature for the Olympics. As a result of these debts the price of the public transport has risen a lot, while the services have been diminished and they made many workers redundant.

11. And which are the examples of other cities in Spain, Europe or throughout the world that inspire the Ecologistas en Acción proposals?

Well, first of all, those cities which base their urban strategy on the people, the inhabitants living there rather than on the traffic (coming through).

In Spain, Vitoria would be an example for different measures. On the European level, a lot of mayor cities possess a bike-sharing system and an extended network of biking paths. In

Madrid there's neither of both. We have got a good plan for new bike links, but it isn't realized because of a lack of money. The result is an uncompleted and incomprehensive network of bicycle paths often leading nowhere. Here the most important measure which has been taken to reduce air pollution is to move the measuring stations to less polluted areas, like from a crossroads to a park. This has been done between 2009 and 2010. There are many best practice examples, but here they aren't realized or completed.

12. There are other mega projects pupping-up like Eurovegas. Are they comparable to the previous ones, notably the M-30 ?

Yes, they are also serving the capital and the big financial groups. They are there to favor big business at any price, be it damaging environment or health, like infringing the anti-tobacco laws. Creating a lot of money which goes to a few pockets, is the dynamic behind these projects. The same with the Olympics, they mean a tremendous cost for the majority of the population, but big gains for the building enterprises, the same goes for the transport infrastructure projects, like the extension of the Barajas Airport.

13. Do you have a message to groups (including ecologists) opposing (or proposing alternatives to) urban mega project in other countries, but taking the M30 and especially Madrid Río case as a best practice example?

That they should look at the whole picture, not only at the final result but also at how (the conditions at which) it has been realized. It was a case including infringing human rights – with as I told people who couldn't leave their home for months. And what did they want to realize, a park? Well there are more simple ways to do it, because here we destroyed a lot of greenery in order to put highways in the past. So actually, **the park has been there to justify an unjustifiable infrastructure work, which ruined the city finances and which we will need to pay for the next 30 years and more.** And above all this, there are tunnels which are at 50m beneath ground. The day we have a fire there, you have up to three levels of subterranean crossings. This is very expensive and difficult to manage, especially when there are problems. There has already been a fire where people have died, and they discovered that the security rules are far from being respected. So to create parks, the best way is to leave cars out of the city, extending greenery, and not to burry traffic. Because then you just move the traffic without making it disappear.

14. And are they still constructing motorways around Madrid now?

Well, since 2007 the construction of motorways has diminished a lot. Spain is the country with the biggest highway network in kilometers, more than France or Germany. We have more than 16.000 km of motorways, Germany has less than 13.000km, France less than 12.000, and thanks to the crisis they didn't build many more highways anymore, especially in the Madrid community.

15. How do you approach Europe with its air pollution norms?

The Spanish legislation is there thanks to the European legislation, and the European legislation is way stricter than the national legislation we had in Spain before. We had a period to adapt to the European legislation. So we are happy that the European legislation gives more protection, but at the same time the ambitions have been reduced. In the beginning, the norms were adjusted to the World Health Organization but, since 2004, they decided to be more flexible. So we deplore this lack of European ambition. For instance the air quality norms in the United States are way stricter.

16. And also the norms aren't respected?

Yes, on top of that, the loose norms are infringed.

17. And for the Madrid Río part there has been some participation, but only about design aspects, about the form and not the content?

This was a joke, there was just a conquest of ideas about which flowers do we put in the gardens, nothing more. The citizens' participation was reduced to this, critical groups weren't allowed to take part on the decision. Never anybody from the municipality or from the ones who constructed the project showed up at one of our debates. The so called "participation" was only there to legitimize the project. It was something insufficient in every aspect.

18. How is the debate on mobility in Madrid going on after these works? We already talked about the sustainable mobility platform.

As far as the motorways are concerned, as the traffic has been reduced, the circulation is quite fluid. There is more bitterness regarding the systematic increase of public transport fees. They augmented three times more than the average consumption prices. The process is twofold: the cost becomes higher and the services worse. So far there hasn't been a protest canalizing the tensions in the public transport, although there have been actions by the workers of the public transport companies like the trains, the MET (metro), but there hasn't been a generalized sectorial movement like in education (the marea verde) or health (the marea blanca). This didn't happen for public transport although now there is a platform in defense of public transport which is being created. What bettered a little is the organization on the pedestrians and more pedestrian friendly streets especially in the center, but for the bike nothing really changed.

19. I think you answered all my questions. Do you want to tell something more about a side-aspect we didn't mention?

No, I think we covered the most important aspects.

12

Madrid Calle 30 , with Juan Carlos Díaz Morán

Questionary filled in by e-mail, 22-07-2013

1. *Can you introduce yourself and explain your role in the organization?*

Soy Juan Carlos Díaz Morán,
Head of Technology, Systems and Installations

2. *When and how was Madrid Calle 30 (MC30) created, and what (type of organization) is it exactly? What is your legal status: are you a Public-Private Partnership, a joint venture, a management company or other organization?*
It was created on May 21st , 2004 as a public company. On September 12th , 2005 after the public tender selected a private partner, it became joint venture, with 80% of the Company owned by the City of Madrid and 20% of a private partner.

3. *Why was MC30 created? What was and is its executive mandate? How did this mandate evolve, like the building in partnership with Burgos & Garrido Arquitectos for sectionMadrid Río?*
Before 2004, the M-30 ring road was the highway where national roads converged (European transport routes) but since its construction, it was absorbed by urban growth, becoming a fast track of the city itself. After the construction of the new M-40 ring, exterior to the M-30, it was decided that the new infrastructure would function as collector of roads and European roads, and that the M-30 would become fully urban. This meant the redevelopment of the former M-30, with improved links with the old country roads, and building the new network of tunnels in the south and west of the city, with the commissioning of almost 40 km of tunnels, which includes the largest urban tunnel track, almost 12 kilometers. This traffic infrastructure released a large area of one million square meters.

The Madrid Río project was the urban development, which was shaped after this infrastructure on the ground level in order to give public use to the released land surface. The

construction as well as the current management exploitation is done by MC30, with the City Council of Madrid who made the work and currently maintains the infrastructure created.

4. Could you summarize the structure and institutional context of MC30?

MC30 is a joint venture which initially designed and directed the construction works with several contractors. Currently we are maintaining and operating the road infrastructure (not the parks and facilities for public use in surface). We do this for the city of Madrid by objective parameters of quality, evaluated by independent external audits.

5. What are the problems of mobility in Madrid?

Those of any modern city which from its core center to its suburbs reaches near 6 million inhabitants.

6. Has the refurbishment of the MC30 resolved (part of) these mobility problems. How?

The current use is different from the previous one. Heavy traffic flows only through the outer M-40 ring and not through the older M-30. The purpose of the project was not to attract more traffic, but to give a more urban use to the infrastructure and to liberate public spaces around the river. Furthermore, the improvements reducing accident rates by almost half, thanks to the construction of the Southern Bypass, 120,000 kilometers a day are saved, resulting in about 1,000 million € in a 20 years span. There's also a reduction in CO_2 emissions of 80 tons per day, thanks to fuel savings.

7. Which are the major players in the debate MC30 - Madrid Río?

There is no debate between the two: MC30 deals with the infrastructure and Madrid Río manages the parks, sport- and recreational areas (Madrid River exists only in a length of 20% of the total length of M-30 in the area South-West of the ring), with separate efforts undertaken by different agencies.

8. Do you know if some positions/opinions of different actors changed during the work (like groups of neighbors who were initially against the project but applauded the outcome)?

In general and in summary it can be said that:

• The restriction (removal) of heavy traffic has been assumed as an improvement that has not adversely affected the life of the city.

• The ring, in its current urban use, has greatly improved its function but obviously there can still be congestion at peak times.

• People living in the vicinity of the infrastructure, in the South and West, live next to a park instead of one of the busiest road infrastructure of the country before.

9. Is it a debate on mobility, public space or a combination of the two?

In this case both targets have been realized:

• The ring mobility has improved.

• The area dedicated to road was bigger before remodeling, because the infrastructure is now buried in the South and West Zones.

10. What is your definition of a sustainable mobility plan? Does MC30 fit this definition?

We don't have a specific definition of what is sustainability. MC30 is an urban infrastructure closely related to the configuration of the city. It preserves and protects the interior roads which would be more saturated without it.

11. Where does the idea for this remodeling come from? Do you consider it an innovative work at the technical, urban or environmental levels?

The idea was created to solve a previous situation since the old ring road had been within the city. The work except for their scale and their fast building schedule applied conventional techniques, except that the TBM had a world record diameter. Environmentally the works incorporated into the city an immense public park of nearly 1,000,000 square meters.

12. Many organizations consider the M-30 remodeling as a good urban practice - "urban best practice" - and inspiration for their own projects. Do you know any of these project which took their inspiration from the M-30?

No.

13. What are your local, Spanish, European or global (role) models on technical, environmental, urban, participatory and organizational level?

We didn't imitate other models. We designed a renovation that was considered appropriate to our problem.

14. What do you consider the best MC30 contributions to the city of Madrid and its citizens?

What has been stated above in points 6, 8 and 9.

15. If you had to start over from scratch, how would you change or improve the project?

I participated in the project from the very beginning and I agree with our goals and what has been achieved.

16. Many figures circulate, but how much did the remodeling of the M-30 cost?

The cost of the renovation and construction of tunnels in MC30 amounted to 3.666 million €, but I don't know the final cost of Madrid Río.

17. Perhaps you would like to add an interesting observation, information on a topic that we have not focused on (enough) in the previous questions?

In attachment you will find brochures, a location map and graphical information of MC30.

13

Ecomovilidad.net, with Isidro Barqueros

Questionary filled in by e-mail, 30-08-2013

1.Could you introduce yourself and explain what Ecomovilidad.net represents?

My name is Isidro Barqueros, co-founder of Ecomovilidad.net and I have a degree in Political Science and a MA in Government and Public Administration, specializing in public policy in mobility. Currently I am doing a doctoral thesis on the Trans-European High Speed Rail Networks.

Ecomovilidad.net is a group of citizens committed to a more sustainable and secure urban mobility. We were founded in 2009 and are present in Madrid, Barcelona and Granada. We do outreach and awareness efforts, we put our ideas forward and lobby towards key players of mobility in the three different cities.

2.What are the main transport problems in Madrid?

Madrid has several problems related to mobility. To start, a coordinated policy promotion and infrastructure development lacks. This results in duplication in some cases, while in other areas of the city, there is a lack of equipment. This policy has been encouraged by the electoral struggle between different political parties, mainly in relation to the subway.

Regarding the private vehicle, problems exist because of the high emissions being above maximum EU levels many days a year. This is caused by inefficient distribution of jobs across the agglomeration and by the inefficiency of public transport in the transverse displacements.

In the context of public transport both metro and Cercanías have excessive radial movements making non-center-periphery movements difficult. The bus network is bad dimensioned, with an excess of lines, many of which are matching and uncoordinated. Intercity buses suffer congestion at the entrances, they lack infrastructure reserved for them, except for the A-6 corridor.

3.What should federal or regional governments do, as well as the city of Madrid to solve these problems?

Promote a coordinated policy under the Madrid Transport Consortium, establishing this consortium as the sole authority for managing, planning and implementing new infrastructure and strategic policies defining mobility within the region.

It is also necessary to create a Regional Spatial Strategy Plan that brings consistency to the different urban plans of the municipalities, especially those of the metropolitan belt. This would guarantee common definition and planning of mobility needs.

4. *Which are the actors in the M -30 debate? Is or was there a forum for sustainable mobility in the Community of Madrid?*

Broadly speaking, from the perspective of public policy, we can define the following stakeholders in the project of the M-30 :

- neighborhood associations in the affected areas
- the Madrid City Council with its different associated administrative units
- the Spanish Government
- Citizens Collectives throughout the region grouped around different platforms.

The Forum for Sustainable Mobility of the Community of Madrid is an entity that was born just over 15 years ago and includes more than 40 political and social institutions in the region which, in one way or another, wish to influence to get a more sustainable mobility. Members of the administrations, are not represented in it, it is a civil society initiative. Here's their website: http://www.foromovilidadsostenible.org

Regarding the M-30 you are probably interested to find more information on the public platform ' M-30 No more cars ' that had special relevance at the time of the project's implementation.

5.*Did you change your mind during the realization of the M-30 ? Did you have predictions about the increased traffic, etc? Perhaps other groups - neighborhood groups, e.g - changed their attitude (being against the project at first, but in favor of it once it was done)?*

From the beginning of the project in 2003, it was observed that it would only help to increase traffic by increasing the number of lanes from 3 to 4/6 in the Manzanares tunnels. The transformation of the M-30 generated a great polarization in the Madrilenian society. If there were cases as you described I am unaware of their existence.

6.Traffic on the M-30 decreased by the crisis? In all sections ?

Traffic decreased intensely in the whole city of Madrid, M-30 included.

7.There are different figures circulating on the total cost of the project: the city speaks of 4000 million euros, Ecologists in Ación of more than 10 000 million. Can you explain these differences?

The numbers game is caused because the municipality takes into account the amortization of the infrastructure through toll (and thus the cost figure is 5,630 million) while the other political and social groups refer to the total cost paid for the road including bank interest (10,406,000 million).

8.Did the remodeling cost more than originally planned?

Yes, the work was budgeted in 2005 at 2.849 million. In 2007 it took another 1632.64 million to complete the work. To this must be added the cost of the mechanism of public-private partnership for the operation, maintenance and financing of the road (another 4.755 million). Also, the original project is pending (and without funding) the realization of the northern zone: the bypass of the Avenida de la Ilustración and the junction with the road to Burgos.

9.This article, http://ecomovilidad.net/madrid/autopistas-subterraneas-hasta-la-puerta-del-sol, mentioned a project that was never realized: 140 km of highways in tunnels under Madrid. What was the difference between this project and the M-30? Is the M-30 a mixed project less focused on the car than previous propositions (like the tunnels or scalectrix)?

The design of the M-30 is a small REVS because they did not make great tunnels under the city, except for the southern bypass. The focus on the car for both projects as the M-30 is a project to increase capacity of an urban ring although disguised as a regeneration plan for the Manzanares in the tunnel area.

10 . UITP - International Association of Public Transport - says the highway network in Madrid combines buses and cars. That in some roads buses have their own lane and that entering the city, the driver can easily change to public transport at interchanges. In the picture below you see that the remodeling of the N-1 also includes a bus platform. Do you agree with this analysis and can you tell me more about this?

The motorway network has access platforms reserved for buses and high occupancy vehicles in only one of the 8 main entrances: the A-6 (west zone). In the other entrances there is a special bus track proposed which is currently undergoing redefinition as the cost of it (over 1 billion) makes its execution impossible.

The intercambiadores at the entrances to Madrid are mainly for buses. Some have parking but these are rarely used because they are situated well within the city and unattractive as dissuasion parkings. Instead the commuter rail network, particularly in the west and south, has such parkings at several stations (Majadahonda, El Barrial, Getafe Sector 3, Móstoles El Soto...). The creation of a network of major deterrent parkings at the entrance of Madrid is one of the great on-hold mobility performances in our city.

11. Are the transport modes - car, public transport, bicycle, pedestrian - complementary or in competition? How are the investments over the different modes of transport shared?

Transport modes should be complementary, in fact that is the vision that seeks to impose the Transport Consortium. The problem is that many decisions are made in policy areas that exceed the administrative decision-making capacity of the Transport Consortium.

Modal 2009 in Madrid City : Displacement Madrid made entirely by residents of Madrid

   Automobile - Motorcycle: 23 %

  Public transport: 39 %

  Walk/Bike: 38 %

(Source: Economy and Employment Area, Madrid City Council)

In relation to the investment urban public transit must prevail. Today this isn't very clear for the Ministry of Public Works: in 2012, 99.3% of railway investment went to the high-speed train while the urban commuter in the whole of Spain, received only 0.7%.

12. Is this a debate about mobility, urban planning, or both together?

Mobility and urbanism are two issues that cannot be separated. When both start to plan independently, citizens will suffer transport problems in their daily lives.

13. What are the examples of other cities or actions in Spain, Europe and the rest of the world that inspire you (improvements/good practices/best practices)?

There is a variety of cities on which we rely to find best mobility practices. Freiburg in Germany is one of the examples on intermodal coordination, the Swiss rail system is a

benchmark in the articulation of a regional model of travel by rail, Barcelona is a great example of fare integration, the policy determined by the Dutch cities favoring urban cycling is the guide for that type of action ...

14. There other mega projects being discussed like Eurovegas or the bid for the Olympics. Are they comparable to the previous ones - particularly the M-30?
Both projects generate a great social controversy, especially Eurovegas. It is too early to compare because currently there is no firm policy decision to be opposed against, so far none of the projects has left the drawing board.

15. Regarding the Olympics, does remodeling of the M -30, and especially the creation of MadridRío, was a device to support the candidacy?
Till 2012 yes, in fact Olympic facilities were built in the area of the river as the Magic Box or the BMX circuit. At present, the effect is neutral or even negative since, for example, the BMX circuit is not included in the draft for Madrid 2020 and will be constructed in the Olympic belt.

16. Many foreign players, including environmental organizations, see the M-30 and MadridRío as a sustainable project. What is your opinion?
If we stick exclusively to the urban redevelopment project and the recovery of the river banks this is a very positive project for the city. If we enter into mobility (where a rigorous mobility study on the effects of the new road wasn't even done) the conclusion is diametrically the opposite.

17. How is new transport infrastructure built in Madrid? Are there local sustainable examples, on the technical level or on the level of participation?
At present , derived from the economic situation in Spain which very directly affects public administrations, there has been a slowdown in investment in transport infrastructure in the Community of Madrid. These financial constraints are leading to an increase in public-private partnership mechanisms through concession as a way to take forward the initial commitments for better transport.
One example is the Parla Tramway which involved the complete renovation of the main urban roads of this city in the south of Madrid.

18. According to the municipality there was a lot of participation in the project MadridRío. What is your opinion ?

They created several information points in the work area and, as is required, they opened a period for claims. The neighborhood participation included two contributions: the Lira (Moratalaz) y Oblicuo (Virgen del Puerto) bridges were saved from demolition and are currently preserved as footbridges.

19. Did the works of the M-30 change the debate on mobility in Madrid or not? We talked about sustainable mobility platform?

The mobility debate in Madrid during recent years has turned around the metro as electoral bet. In this sense, the impact of the M-30 in the debate has emerged six years later, more on a financial-economic level than related to mobility.

20 . How do you see the future of the M-30 and urban highways in general?

The M-30, particularly in its eastern part is a concrete belt that divides neighborhoods and the urban tissue. An example of this is Puente de Vallecas, with 8 elevated lanes and a high road speed of 90 km/h located at less than 20 meters of dwellings. Unfortunately financially few modifications can be made until 2040 because the reform of the road absorbs much of the annual budget.

Related to urban highways in general, in the coming years we will see a progressive urban integration of large current corridors in a similar manner as in the first half of the twentieth century the towns absorbed the first belts created with the extensions of the 19th century.

21. Do you think you've answered all useful questions or do you want to add something about aspects not mentioned or not mentioned enough?

Nothing to add, thank you for your interest in the project and the trust you place in us answering this questionnaire. We remain at your disposal for any further clarification.

14

Radio interview Double interview Radio Klara (VRT), 25-05-2013, Trio: Manu Claeys (stRaten-generaal) & Dave Sinardet (VUB).

Is Flanders doing better? With Manu Claeys (stRaten-generaal) and political scientist Dave Sinardet (VUB). The father of the new technological Flanders, Gaston Geens, told the Flemings: "We will have to prove that we do better if we do it ourselves". But Flanders cannot solve its mobility problems, as was proven this week in research from Washington. Antwerp and Brussels come 2nd and 1st as the world's cities that are most plagued by traffic jams. Why are the most congested roads on the planet located in the kingdom of Belgium? Perhaps we should call in fictional Belgian detective Hercule Poirot to solve the case. Werner Trio invites two Poirots in the studio. Publicist and spokesman for the civil democratic organization stRaten-generaal, Manu Claeys, explains in his book, *Stilstand*, how the Antwerp mobility debate is blocked by party political logic, instead of public interest. As a result, the government has turned against the citizens, he argues, and democracy ceased to exist. He pleads for a "representative technocracy" that is constantly in dialogue with the highly educated and politically engaged citizens. Political scientist Dave Sinardet (VUB) is one of the initiators of the G1000 citizens project, an exercise in participatory democracy independent of politics. He is also an observer of the Oosterweel debate.

[1] Own translation of the text on the website.

A link to this interview can be found on: www.manuclaeys.be