



# TRAM NUMBER 7 TO HEAVEN:

*A Cultural Analysis of Trams for our Lives*

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## Abstract

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Working Title

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This thesis addresses many issues surrounding the simple question: *why have trams?* With city populations exponentially growing alongside concerns over the environment and the economy, tramways have become a resurging form of sustainable transportation for municipalities. Once an endangered transportation mode, torn up and scrapped to make room for the age of cars, tramways are *phoenix artifacts* of city life and being chosen by municipalities across the world to once again inhabit and enliven city streets. Many studies have been done to document the cost effectiveness and environmental impact of trams; however, little has been written regarding the social impact trams have on people and cities. Why do people tend to ride trams more than buses covering the same route? How does a tramline affect the street-life and culture around the network? How do trams shape the way people move and interact? Simply put, what benefits do trams bring to cities and our lives? Using primary research undertaken in 2011 along with an analysis of existing tram material, this paper seeks to understand the relationship that people have with trams, and the relationship trams have with people and cities. The theoretical framework considered in this writing draws authors in the social science arena, as well as classic theorists in urban planning and architecture such as Clive Doucet, Patrick Condon, David Seamon, Orvar Löfren, Hans Glimell, Greg, Gormick, Donlyn Lyndon, and Jonas Frykman, among many others.

Keywords: Trams; Tramways; Streetcars; Trolleys; Public Transportation; Sociology; Ethnology; Urban Planning; Culture; Development; Infrastructure; Transport Sociology; User Experience.

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Lund, 2011-03-16  
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## Introduction

Hot and Beautiful Rio de Janeiro was the backdrop to the beginning of my love-affair with trams. Prior to my experience in Brazil, trams were an invisible part of the cities that I would visit. It was here in Rio that I found myself sitting beside a beautiful woman on an old bench on a hill, both of us shaded by a lush canopy of Rio trees. There was a breeze as a few of us waited silently for the trolley-car to come. I was waiting for something to come around the bend and take me away to another time – a Brazil before the car and the noise, a Brazil with class and samba where a public decadence brought a livability to the street. This era of streetlife is now replaced by rapid movement and shopping malls. Life had a different scale back then and this relic was going to pick me up and transport me – unknowingly – back to that nostalgic era.

The yellow trolley car came around the bend out of the forest – a rickety wooden and iron tram that had no sign of restoration and intimately resembled the trams that most people in Rio used to ride on a daily basis in the beginning of the 20<sup>th</sup> century. This line was the only remaining line that climbed up through the mountainside neighborhood of Santa Teresa. The underside was sooty and the benches were made of wooden slats, worn smooth and aged by one hundred and twenty years of Brazilian *bundas* (behinds) sliding in and out of the trams. The streetcar's open design made it breezy and allowed people to hop on and off at will – which they did often. Young boys would run up alongside and grab one of the exterior wooden handrails and hop on. At slower moments, even old ladies would take a few fast steps to pull themselves up into a seat. The shaky and rickety noise resembled more a drum rhythm than the growling hum and roar that is normal in bus and car-filled Rio streets

I was taken up winding narrow streets, passed previously decadent mansions and quaint street-side bars where men sat on yellow beer crates and drank from small glasses. As different scenes passed, the streets felt different than any other neighborhood I had seen in Brazil. Rails guided our route and trailed behind like a path of breadcrumbs – a sign we were there and that we would be back. People hopped on and off the tram and disappeared into shops and alleyways. The trolley was an established part of the

landscape and the tram communicated with the street. This yellow streetcar was a moving part of the neighborhood, and intimate to people's daily lives.

We finished the full tram route through Bairro Santa Teresa by crossing over the famous arches at Lapa – a towering white aqueduct that cuts through a low-lying square. The trolley car pulled around into the final station and we all unloaded into the business district of Rio de Janeiro. The trip was a human scale rollercoaster that took both tourists and locals through a Brazil that barely exists anymore. The intimate and vibrant parts of Rio stem from a period where pedestrian life flourished and tram networks fostered public streetlife. Like colonial architecture and traditional cuisine, this singular remaining tram in Rio is an echo of a past Brazil that is whirring away in an unsustainable direction.

These realizations brought on a new perspective to every city I would visit from then onwards. Did this city have a trolley network? How is that evident? What is happening now in the streetlife? What if there was a tramway connecting this place? My imagination was now focused on reclaiming the past by building the future. From an audit of news and information, it became evident that there was a common global movement towards bringing trams back to cities across the world. Cities wanted trams, cities needed trams, and they just needed convincing.

This movement, in my view, needed research and expertise to find out whether it is possible or necessary to dig up the corpse of this nearly deceased mode of transportation. With urbanization happening at an increasing rate, socially and environmentally sustainable cities are necessary to accommodate and encourage positive growth. Trams might just be the answer but the key questions remained: how did tramways form cities? How do people relate to trams in their daily lives? And how do trams form public culture?

This thesis will take an in-depth view of the culture surrounding trams. I will firstly look at some history of trams and our cities, and how we arrived at our present state of city life. I will move on to primary research I undertook in several different cities that still have tramways, as well as some cities that will soon rebuild their tram networks. And I

will then discuss themes, ideas, and insights stemming from this research. The theoretical framework for this project draws from the social sciences, ethnology, anthropology, as well as sustainable urban planning and architectural theory. To make such a thesis applicable to city planning, I will conclude with recommendations for some best-practices in planning a tram network.

### *Why This Study is Important*

Regional governments often make infrastructure decisions based upon quantitative data such as demographics, geography, speed, traffic patterns, cost, environmental impact, etc. These details are enormously important and should be closely calculated and accounted for. However, these facts cannot account for the experience of the user, the impact on culture, and the rich and nuanced implications of street-life in the process. By analyzing tram culture from the ground up we are able to tap into the intimate lives of people and discover what will truly make a transportation network successful: increased ridership, increased satisfaction, increased life-quality, and improved impact on city culture.

### *Thesis Title: Explained*

The title of this thesis deserves explaining. “Tram Number 7 To Heaven” is the name of a 2004 song from famous Swedish musician, and Gothenburg darling, Jens Lekman. The song opens with the crackling of a record being played. That noise continues throughout the song invoking nostalgic feelings of a time long past. The singing style and pace are even reminiscent of droning crooners from the 40s and 50s such as Sinatra and Nat King Cole. The lyrics, however, discuss heartbreak in a whimsical tram setting where Lekman playfully sings: “Tram number one is full of fun, tram number two is couchie coo, tram number three has misery, tram number four knocks at your door...”

For those who did not recognize this thesis title, “Tram #7 to Heaven” points to a utopic image of what cities can be. It is almost an absurd declaration that *if only there were trams, we would be living in heaven*. The title also provides an interesting conflict of imagery; the intrinsic sense of trams is that they are firmly and heavily rooted to the ground and the idea that trams would transport you to the sky above is paradoxical. But



the reality is that the title hints at the general hypothesis that building tram infrastructure has the potential of enriching personal lives by enlivening city life and culture.

### *Framing the issue*

With recent economic and environmental issues dominating world news, municipalities around the world are considering alternative solutions to public transportation expansion.

Without a doubt, trams (a.k.a streetcars and trolleys) are experiencing a resurgence in popularity amongst governments that are looking for a cost-effective, environmentally-friendly, and efficient solution to infrastructure development. Since the rise of the car industry in the 1940s, cities have torn up most street-level railways that used to carry people in almost every major city in Europe and North America. Since then, cars have experienced a golden-age of growth. With 'sustainability' being the buzzword for urban development, cities like Portland, Oregon are leading the rebirth of trams and joining cities like San Francisco, Toronto, Budapest, and Lisbon with modern day, street-level, trolley cars.

Many studies have accompanied this resurgence with articles covering the cost-effectiveness, the environmental footprint, the social legacy, and the traffic implications.

Few articles, however, have evaluated tram travel from the bottom up - that is to say the user's experience. A myriad of questions come to mind when conceptualizing tram experience: What is the nature of the user's experience in traveling by tram? How does it differ from the tram's sister-competitor: the bus? What features play into the experience: the materials, the visual design, the sounds, the season, user age, the area of town? How does the tram feel? How is a North-American tram experience different from a European tram experience? Why do people ride trams and why do they ride again? How does a sense of history play into the experience? Is there performance involved? How does the journey play into the experience? How does the destination play into the experience? How does the tram design affect the user-experience? What is significant about the existence of the tracks? Where do trams lie in the imagination?

With the rebirth of streetcars as an idea in the civic mind, municipalities are petitioning reports on the benefits and shortfalls of this seemingly antiquated technology.

Sometimes it is necessary to take a step backwards in order to take two steps forwards and city governments are needing convincing with more documented insight into this forgotten area of the public domain. This research proposal offers a new perspective on the argument for street-level rail transportation in our cities - the user's perspective.

*The Spark for This Thesis: a Reflexive Approach*

What drove me to write this thesis was a curiosity towards certain neighborhoods in different cities in Canada. Myself, coming from a car-dominated city, had few experiences living in Canadian neighborhoods where it was possible to walk to everything one needed. When I would visit Toronto, Vancouver, or even Victoria, British Columbia, certain neighborhoods had that magical pedestrian quality where one could walk down the street to pick up a jug of milk or cup of coffee, or run into a friend in a small shop and walk to the park. It was that density and proximity that made it feel like a true community within a city. This type of street environment was in stark contrast to the suburb developments with generic big box stores and endless fields of parking lots to support the chaotic pace and number of cars. This decay in urban form had become common in so many parts of Canada. I had come from a car city, and desired a human city.

It was Clive Doucet, a Canadian politician and urban activist who framed the issue for me in a radio lecture from 2008. He spoke of the effects of car travel on city development, and further on how that city pattern leads to individualization and a shift in political values away from community values. For me, his description of the old “streetcar wards” in Ottawa and their contrast to modern car-developed city gave me a clear vision of the divide in development: “Everything that has been built since the destruction of the streetcar system in 1960 has been mall sprawl” (Doucet, 2008). The goal of his lecture was to promote urban planning that produced density seen during the era of the street-car, when pedestrian life was city life and public transportation offered mobility amongst these social environments. I recognized his vision in neighborhoods in Vancouver along Fourth Avenue in Kitsilano, and also on Commercial Ave. in East Vancouver. In fact, all the most livable and vibrant neighborhoods in any city I had visited in Canada once had trams (streetcars) running up their main streets. Streetcars had inspired development

along corridors; it was a densification spurred on by the use of the streetcar that created such vibrant pedestrian street atmospheres.

Those streetcars in Vancouver have long been gone; however, since 1955 trolleybuses have replaced them and still using the overhead wires which were once used by the streetcars. The network of trolley buses has actually been extended to outlying neighborhoods and new areas; however, no new areas have the same qualities of these “streetcar wards” of days past. In those old streetcar wards lifestyle and property values have skyrocketed, whereas the neighborhoods serviced by trolleybuses have seen little to no improvement.

Vancouver’s modern elevated high-speed metro system, known as Skytrain, has not had the same effects of developing livable pedestrian neighborhoods in the same way the streetcar had before 1955. And the trolley bus system has not produced such vibrant growth or satisfaction in public transportation. It was something about the tram that merited investigation. What is it about the trams that inspired development, density, and a social pedestrian atmosphere? Why haven’t the trolley-buses that replaced the streetcars had the same effect? Can trams rejuvenate a city and create vibrant urban neighborhoods?

### *The Key Statistics*

while auditing reports regarding tram statistics, I kept coming across some shocking statistics that pre-empted this study. Many studies were reporting that when a tram line would replace a bus line, ridership tended to increase significantly. Brinkerhoff’s feasibility study reported that the percentage increase was between 15% in Toronto, and an amazing 500% increase in Tacoma, Washington (2004, p. 1). Furthermore, statistics from the case of Memphis’ streetcar indicate that 83% of streetcar riders would not otherwise ride public transit (p.1). In the same report, 50% of riders chose the streetcar “for the experience” and would otherwise drive their car. These numbers indicate a very strong trend towards user preference for trams (aka streetcars). Also, there is an apparent ability for streetcars to entice people out of their cars and onto public transit – a feat that buses have not been able to do (Brinkerhoff, 2004, p.1; Gormick, 2004, p. 14). Both

these realizations stir up important questions: *What is it about the streetcar that attracts so many riders? What is particular about the tram that can draw people out of their cars to use public transit?* The answer to these questions must lie in the perspective of the user. It is for this reason that I set out to research the particulars of user experience and perspective towards riding trams.

### *A Call for this Research*

Complimentary to the statistics, there was a call for qualitative tram research from informants, internet sources, and research articles. It was evident that there was a desire to search out answers to how people relate to trams. Much research has been done surrounding the technical side of tram infrastructure, but the human side of the research is lacking. Greg Gormick's article on the renaissance of trams in North America points to this fact: "The acceptance of the modern streetcars in cities that abandoned their systems decades ago is the result of many factors, some difficult to quantify. One of the most overlooked factors is passenger preference." (2004, p.16). One informant, Marcus from Norrkoping, Sweden, spoke of his confusion surrounding tram preference:

In Norrkoping we only have one tramline. It goes into town. There is actually a bus that goes the same route as the tram, and the bus is faster, but we always choose to take the tram. I don't know why? We just make the same choice every time and I don't know why!

Houston's Transit Authority CEO, Shirley A. Delibero points out a similar reality occurring in her own city, and expresses our own confusion around the phenomenon:

... the interesting thing that you see throughout the country – and I haven't figured the whole phenomenon of this – there are a lot of people who won't ride on a bus who will ride on rail. We saw it here during the Super Bowl. We knew that we were going to have so many people that I needed buses as well as rail, especially to take people to the game. So, we had buses lined up ... and people wouldn't get on the buses (as quoted in Gormack, 2004, p.18).

These quotes illuminate the fact that we are often not aware of our own behavior, let alone the reasons behind others. Numbers and statistics can do little to answer the true nature of our thought processes and perceptions, our behavior becomes seemingly erratic. Researchers often gloss over the socio-human side of planning schemes to ask only questions that they have the tools to answer. Qualitative research, therefore, becomes the most viable tool for uncovering mysteries behind human intentions and how the lives of people are played out and practices in reality.

## **Background**

### *Terms*

To start at the very beginning we should deal with the vocabulary associated with this topic. Trams are light-rail trains that run on tracks often imbedded in roadways. These tracks or rails often share roadways used by cars or veer off overhead or underground depending on what is most useful for the tramline itself. Overhead electrical lines feed power to the trams engine which drives the tram steadily along our streets and roads amongst cars, people, and bicycles. The result is some sort train-like vehicle that is riding on two metal rails imbedded in the ground. They began as horse-drawn trailers on rails, and now they can resemble streamlined rocket ships; bullet trains passing a coffee shop.

The term tram or tramway is a particularly British term that got exported to colonies such as Australia, New Zealand, and parts of Canada. The United States created the terms Trolley and Streetcar over a long period of time to describe their own tram networks. It can become difficult to talk about trams because of the various names associated with them, and the various thoughts and feelings associated with those names. For the purposes of this thesis I will use tram, streetcar, trolley, and trolleycar, however, tram will be the most commonly used word as it seems to convey the most flexible and purist vision of what the vehicle is to the most amount of people. The term tram also does not contain the word car. One of the significant points in this thesis is that tram-travel is not in the same categorical experience as car travel and the two modes should be divorced. For these reasons I will primarily use the term tram. Tram is also shorter to type.

### *A World of Cars*

The single greatest reason that trams, and public transportation in general largely failed in North America is the rise of car use from 1935 onwards. Stanford Anderson (1984) states that between “1935 to 1965 the nation’s (US) population increased by 52 percent, while private car registrations increased 233 percent and transit riding decreased 31 percent” (p. 191). City planning during that period was dictated by the belief that personal automobile use was the wave of the future, and city roads could be expanded to meet the demand. Thus by 1970, “96 percent of all daily passenger trips in urban areas in the US were made by automobiles” (Anderson, 1984, p.191).

This proliferation of the car caused cities to transform into patterns of growth that serviced cars. Cities spread into configurations that could not be served by mass transportation. People in their personal cars moved to sprawling suburbs and shopped at distant shopping malls surrounded by parking lots. Transit could not survive which led to a decline in transit within cities as well. City streets became simply conduits for traffic and a decline in public life began. Cities lost value in “retrieving a sense of place” or having “areas of interest, of use, or of delight to the individual” (Anderson, 1984, p.192). By the 1980s, urban planners recognized that the private car, despite its flexibility, was causing undesirable growth, massive parking lots and a decline of public spaces and well being. Only by the 1980s did urban planners recognize that the Car City was unsustainable and a return to collective transportation was needed.

### *Some Tram History*

Trams first started inhabiting our streets in Swansea, Wales in 1829 and then in New York in 1832. These first trams were pulled by horses and followed steel rails built into the roadway. The advantage of using metal wheels on steel rails was the low resistance it afforded. Low resistance meant that horses and mules could haul more weight with greater efficiency. Werner von Siemens helped to develop electrified tramways with the first electric public tramway opening in Berlin in 1881. This new form of public transportation was cheap and reliable and by 1925, almost every “city of consequence around the world operated a system...” (Taplin, 1998). This era became known as the “golden era of trams.”

From 1930 onward, trams began to decline increasingly through until the 1970s in North America. This decline can be attributed to many factors. Cars were viewed as the flexible and personal mode of the future. Cities also started favoring buses as they required smaller capital costs for new lines. Cities also believed that investing in roadways was progress and the way of the future. The largest reason, however, can be accredited to direct action by car and oil companies to dismantle urban railways throughout North America. By influencing governments and buying up fleets of trams to replace them with buses, urban rail systems had largely disappeared in North America, South America, and Asia by 1970 (see Figure 1). Since 1970, only a handful of cities in North America retained their tram networks, including San Francisco, Boston, Philadelphia, and Toronto.



**Figure 1** – Streetcars scraped in Los Angeles, 1956.

Presently, as of 2004 more than thirty North American cities are installing modern tram networks in their cities as a way of enticing people out of their cars and rejuvenating their urban cores. These cities include Montreal, Ottawa, Kitchener-Waterloo, Quebec City, Norfolk, Raleigh/Durham/Chapel Hill, Nashville, Louisville, Columbus, Milwaukee, Austin, Phoenix, Seattle, Honolulu, and Washington, D.C.

#### *Trams: Vehicles of City Development*

Historically, North American cities were largely originally formed by trams and that city pattern of tram-inspired development remains today – presently noticeable in the most livable communities of our cities. Condon refers to “streetcar cities” as exemplary models of social and environmental sustainability where walking was very common and schools, shops, and enmities were within short walking distances: “U.S. and Canadian cities built between 1880 and 1945. It was a time, very brief in retrospect, when people walked a lot but could get great distances by hopping on streetcars” (2010, p. 17). Gormick notes the form that cities took when streetcars were installed:

Until the rise of the automobile in the post-First World War era, it (trams) shaped the size and form of urban centres more than any other invention, allowing cities to spread out on contiguous corridors along which mixed-use development occurred. In Toronto, many of the stable and vibrant neighbourhoods of today were created by the expanding electric streetcar system built between 1892 and the late 1920s... (2004, p.4).

Gormick points to the realization I had encountered in my own Canadian experience in Vancouver. The vibrant urban cores of Canadian cities, and North American cities, were composed of mixed-use corridors where pedestrian life formed a social atmosphere, pace, and economic atmosphere that made cities sustainable and livable.

## **Research**

### *Location*

No city is alike in culture, nor infrastructure. The many ways that trams fit into city –life varies according to many factors such as city size, demographic, climate, geography, age, and so on. Also, the relevance of a tram network within a city depends on its relation to other modes of transportation such as buses, underground metros, elevated rail, cycling, cars, walking. To put the successes and failures of any tram network into context it was necessary to account for many city variables by analytically contrasting cities with different tram networks. These cities include Gothenburg, Norrköping, Stockholm, Lund and Malmö in Sweden, as well as Toronto, San Francisco, Portland, Oregon, Budapest, Rio de Janeiro, and Berlin.

Gothenburg was the site of the majority of my fieldwork. As a network, Gothenburg's tramway is extensive and is the central form of public transportation for the city. The trams form a big part of the city identity and most people have experience with trams and perspectives that proved valuable in evaluating how trams can benefit people and cities. Most people are quite satisfied with their trams and politicians are in no hurry to change or replace them. Over the course of my research, it became clear that there was much insight to be gained from a system that has done so much right.



Due to restraints on time and money it was not possible to perform first-hand field research in many of the cities that I had wanted to visit, such as Helsinki, Lisbon, Bergen, and Portland, among others. In many cases, the only option was to audit online data relevant to those networks or to discuss experiences with informants who had visited or lived in those places. A combination of field-research, written account, and verbal accounts provided sufficient data for a thorough critical analysis of different tram scenarios in different cities.

### *Methods and Methodology*

To understand the different angles that are approached in this thesis, it was necessary to adopt a multi-disciplinary approach. This approach included collecting source material from diverse disciplines, carrying out various types of field research to collect primary data, and finally analyzing the source material and the field research to develop hypothesis. The theoretical base to this writing, therefore, draws from the social sciences, architectural theory, and concepts from Sustainable Urban Design.

The field research performed was based on common practices in the Applied Cultural Analysis field. This area of study uses anthropological fieldwork methods along with ethnology, sociology, and demography – among others – to understand human practices, behavior, and perspectives as they are lived through everyday life. Data is drawn directly from the source; users act as informants and provide the cultural analyst with rich data that gives the researcher a deeper understanding of how culture is lived and grown.

The most commonly used research method was to host individual interviews with informants. Informants provided valuable insight into the user-perspective of trams. These informants were tram-users; people who had experience with trams in their everyday lives or who have experience as tourists and guests in “tram cities.” Since Gothenburg, Sweden, was my primary research site, most informants came from Gothenburg and were pleased to share their experiences and perspectives concerning trams. Other informants came from other cities that had their own tram networks Norrköping, Stockholm, Toronto, Dublin, Berlin. These informants were instrumental in

providing perspectives on living with trams where trams were not as central to daily life or instrumental in forming city identity.

Other methods such as shadowing, go-along, participant observations, and street observations provided opportunities to analyze the material culture surrounding trams, to experience the routines of riding the tram in natural scenarios, to observe the nuances of the broader tram network experience, and helped to understand how trams have previously, and currently shaped cities. Methods were also combined and adapted in some cases so as to better delve into scenarios and understand the tram culture as it happens in situated practice.

#### *Limitations and Shortcoming of Methods*

Ethnologist Margarethe Kussenbach states that Traditional ethnographic fieldwork methods, such as interviewing informants and participant observation, “have their advantages and disadvantages” (2003, p.15). Participant observation, she notes, is often considered the most reliable and authentic ethnographic fieldwork method because it give the researcher “access to ‘naturally’ unfolding events and delivers ‘volunteered’ member interpretations” (p.18). The disadvantage with this method is that it can lead the researcher to draw conclusions from social scenarios that may or may not have any bearing on how informants “perceive and interpret their local environments” (p.17). Interviews with informants, on the other hand, are extremely useful research tools for going beyond what is observable in the field, to access the personal biographies, perceptions, and “subjective interpretations” of their experiences of social scenarios (p.19). Kussenbach goes on to point out the shortcomings of interviews by stating that interviews fail to accurately reconstruct “lived experience of place” (p.19). The limitations of simply talking of experience means that the researcher misses out on “pre-reflexive knowledge and practices of the body,” or the minute details that make up day-to-day experience (p.19). The researcher becomes unable to observe the informant interact with his/her physical environment in unconscious or subconscious ways. Kussenbach points out that since a conversation usually takes place in a static environment, the conversation can take on a dialectical relationship where the informant and researcher oppose each other and the data becomes less natural. To be situated in an

environment together can foster a “shared perspective and a more egalitarian connection” (p.19). Through both methods, the power of routine experience and situated practice becomes difficult to capture.

To bridge the gap between ethnographic fieldwork methods, I employed Kusenbach’s *go-along* method as a way of situating myself in the perspective of the informants as they live experience in-place (2003). The *go-along* is essentially accompanying informants on a “natural outing” where it becomes possible to ask questions, listen, and observe the informant as they live out their natural routines. The researcher has the opportunity to live alongside the informant and internalize all the streams of experiences that he/she normally goes through. To make the research scenario more natural, I was able to *ride-along* with a group of informants as they went on their natural routines. This method helps me to blend in so as to allow affect the environment less and allow the scenario to play out more naturally.

### *Primary Research*

As part of my field research I was able to perform a number of long-form interviews and some shorter-form casual interviews. Most people I approached about talking about trams were quite receptive. Whenever my thesis topic got brought up in casual conversation, people were enthusiastic to offer their opinions and experiences with trams. Typically there would be a playful surprise that I chose such a topic and a curiosity towards how I was approaching it. It is such a tangible and simple topic that conjures up whimsical feelings from our childhood. As a researcher, I was simply a big child playing with bigger toy trains now. These receptions to my topic were an advantage in the research process because it was not difficult or too personal to engage people in the topic.

### *Interviews*

I was able to perform eight long-form interviews and ten short-form interviews with informants between 15 and 40 years old. I took note of when the topic would just pop up at parties and dinners and paid particular notice to common perceptions and misconceptions around the topic. Informants from Stockholm had little to say about their trams whilst informants from Norrköping were quick to bring up the fact that their little

town had indeed a tramline. Gothenburg informants were keen to expose me to the world of trams as it seemed to play an important role in their lives as “Gothenburgians” whilst informants from Toronto were either fervent fans or indifferent to the theme, sometimes not even knowing that their city has trams. All these details revealed insights into how people think about trams, how trams played a role in people’s lives, and what factors contributed to those perceptions.

Alex was one important informant from Gothenburg who had much to say about his experiences and perspectives on the topic. We sat in a comfortable café outside the trendy and busy square called Järntorget. He chose the location because of its convenience; the square is a hub of trams coming from all over the city. As we spoke, during pauses and moments of reflection, Alex would look over his shoulder and be hypnotized by the simple and repetitive gliding motion of the trams. I asked him about his routines and experiences with trams and he would describe why he would take them and how sometimes he would choose to walk because he needs the exercise. He told me about how it feels to be on the tram and moments of decisions about when to walk, take the bus, or take the tram. Conversation drifted towards how he measures distance on the trams and how other people view the mode of transportation. A particularly interesting aspect of our interview was the moment when he described how trams fit into the Gothenburg identity and how his personal identity is connected to the city.

Alex fit into a Gothenburg archetype of the proud working person who rarely left or desired to leave his city. His hair was unkempt and he constantly had Göteborgs Rapé chewing tobacco in his mouth. His demeanor was soft but bright and though he had a movie addiction and a rock and roll sensibility, a walk in the woods or over the rocky coastline was regular routine. Even the fanciest person had their vices – and nobody was above taking the trams. This type of person was a regular character in my search for a common thread to Gothenburg identity.

Other informants from Gothenburg described all the aspects of trams in detail and how trams related to their lives. One informant, Thomas, talked about how he had unknowingly chosen his apartment based solely on the proximity to the tramline that runs

into town. He would describe how he could hear the ‘public announcement’ bell from his window so he would know when they were announcing troubles on the rails and delays in service. These details would inspire feelings in him and his routines were naturally synchronized to these small sounds. Other informants would choose to speak more about the relationship to the driver or other passengers or their feelings about paying. All these details were useful in discovering how trams fit into people’s lives and how lifestyle, identity, and city-branding play a part of ridership and mode choices.

To complete my field research period I ventured out into the tram world with a professional film-maker friend to document the famous ride from station to station along Gothenburg’s number seven line: the preverbal *Tram #7 to Heaven*. We wanted to capture on film a complete journey from station to station and observe what happens over the 21-kilometer journey. Throughout the journey we were able to document, not only the social happenings of people boarding, paying, interacting, but also the esthetics of riding the tram from the materiality of the seats and interior, the size of the windows, brightness, to the sounds, movements, and bodily experience of riding trams.

### *Riding the Bus*

It was during my research riding the “Tram Number 7 to Heaven” in Gothenburg that I was able to contrast the movements of the tram with the movements of a bus over the same line. To feel and describe the infinite number of tiny movements when riding the bus, it was necessary to tune my senses and pay attention to even the tiniest motions. It is a type of meditation that allows the researcher to pay attention to the details that otherwise go unnoticed during regular bus routines. It started by staring at a soda can that a woman had placed on flat surface on the bus; the can would rattle to a frequency where it seemed constantly blurry to the eye. I went on to notice my own body and how it was being lifted and dropped in slight ways as the driver weaved the bus through traffic on the motorway. The bus would twist and torque, the back-end lifting and shifting to the right as the front would dip and correct itself in response. This bouncing movement would re-orientate the windows to the outside world and I would see the horizon dropping and rising, shifting to the left and to the right. My shoulders would follow this movement and people’s heads would sway and jar in unison to our ride. I would focus in

on other parts of my body and notice that my calves were vibrating intermittently, as if they were receiving the micro-vibrations from the bus floor. I could imagine the rubber wheels turning over the textures and imperfections of the asphalt highway and transferring that roughness and vibration via bumps, rattles, and micro-shakes through the structure of the bus, directly into my calves, stomach, neck and head. Standing or walking in the aisle was best proof of the rough and un-predictable ride; I would often be tossed into the sides of seats or jarred and forced to brace myself on seat-backs as I made my way to my own spot.

I turned to my friend and local Gothenburgian, Kalle, and mentioned, how after riding trams all day, the bus moved so dramatically. He agreed by commenting on how rough and loud it was. We both agreed that the musical band we saw earlier in the day standing in the tram and performing for the riders could not have stayed standing to play their instruments. The sound of the diesel engine would have drowned out the music and there did not seem to be the same amount of room on the bus for a group of musicians. Our conversation dimmed as the engine roared beneath us and we focused on balancing and correcting ourselves against the turbulent bounces and sways of the bus. I looked out the window and noticed our bus competing amongst the traffic with cars and motorcycles, racing to gain position to hit an off-ramp. The maneuvering and changes of speed and trajectory made one aware that we were no longer within a fixed transportation network. We were a lone entity in a herd, depending on the driver to out-drive the other competitors and improvise us towards our destination. To say the least, we were both looking forward to returning to a tram and feel once again connected to an un-competitive, secure network that felt pleasant and consistent to ride.

### *A Tram Journey by Ear*

The quality of a travel experience is not often described in terms of how it appeals to the ears. With air-travel becoming so common, and compressed digital music files charging out of our headphones, our sense of hearing has been conditioned to accept an overload of noises. To overcome the norms of soundscapes in our lives, I set out to ride the trams of Gothenburg paying special to the experience as it relates to the ear.

As the tram arrived at the stop there was a low level diminishing screech as the breaks slowed the tram to a stop. As the doors folded open with a flapping sound, and people stomped up the stairs into the tram, I notice that it was otherwise quiet. There was no idling engine, only a completely stationary and silent tram. This effect seemed to quiet the people entering the tram as they found their seats without haste. As the tram sat for a set amount of time, or waited for a signal to leave the stop, the doors remained open. With a flapping sound the doors closed, which signals everyone that the tram is departing. A low level humming noise started up as the tram accelerated and moved without hesitation up the tracks. There were slight clicks and metallic thumps as the tram wheels passed over converging connections in the rails. The tram continued relatively quietly and voices appeared coming from the sidewalk through the open windows. As the tram slowed to another stop there was a laser-like hum descending to a bass-like buzz then flapping as the doors folded open like an accordion. I sat opposite the open door and had another moment when I realized that the tram was completely silent whilst it waited with doors open for anyone to show up. During that moment of complete silence, I could see the shadows of trees spilling through the open doors, and I could feel a breeze from the adjacent park whoosh through the open doors and touch my face and chest and I realized that this moment is a unique tram experience. The tram sat for a few moments in that tranquil state, and then the doors fold close with a flap and a low hum began as the tram accelerates away.

### *Materials*

Significant to this study were consultancy reports, articles, historical research papers, and other documents regarding trams. These sources helped to show ridership figures, economic growth potential, political intentions, and historical significance of trams. Gormick's report on *The Streetcar Renaissance* and Brinkerhoff's *Seattle Streetcar Network and Feasibility Analysis* were instrumental in providing rich data and ideas in approaching my fieldwork. For further readings into the subject, these studies are thorough reports on the positives, negatives, capacities, uses, and best-practices of trams for cities.

## **Theoretical Framework**

This section will outline and discuss the theoretical framework with which I approached the research. As a cultural analyst, it is important to enter into the field with a toolbox of social theories to help interpret the complex relationships and nuanced phenomena that occur in a social environment. Since I am looking at two aspects of tram culture, the social perspective and the city planning aspect, it was necessary to search out a wide array of readings in the social sciences as well as urban planning and architecture. The social science literature aided in analysis of cultural trends and patterns, social behaviors, and issues of identity and consciousness. The urban planning and architectural literature gave insight into city formation, optimal densities, lifestyles, and planning development theories.

The theoretical basis for the primary research was primarily inspired from the field of phenomenology. Jonas Frykman and Nils Gilje were large inspirations in bringing academia out of the library and into the street and thus turning a “way of thinking” into a “method of analyzing everyday cultural patterns” (2003, p.9). Phenomenology calls on the researcher to “go to things as they are” and experience things in the world (p.9). The researcher, just as the informant, enters into real world experiences as they are lived and constructed at the same time. Phenomenology sends the scholar out of the realm of “objective observer” and into situations where it becomes necessary to implicate all of ones senses and imagination in order to understand that experience at a deeply personal, but universal level. It becomes possible to look at the deeply specific in an experience, and therefore discover the universal – “the deeply communal in the singular” (p.11).

Edmund Husserl’s and Alfred Schütz, pioneers of phenomenology, often looked at material artifacts and environmental factors as phenomena that “appear to the consciousness” in different ways (Frykman & Grlje, 2003, p. 14). How are people receiving “problems, things, and events,” and how are these experiences affecting the consciousness (p.14)? Tram experience, therefore, can be explored by way of observing informants, or experiencing alongside them the array of textures, sounds, movements, and feelings that constantly form unique and common experiences. It is the affect of



these experiences on the consciousness that determines future actions, or repeated behavior. Tram culture is therefore practiced repeatedly by individuals – whose actions are determined by the effect experience has on the consciousness.

The linguistically restraints of English concerning the word “experience” is made evident by Frykman and Grlje as they differentiate between ‘lived experience and the experience that is “the object of analytical or abstract knowledge” (p.15). Phenomenology, therefore makes the experience the base for the research. By looking at lived experience – or ‘situation praxis’ – it is possible to observe individual and collective processes. The researcher can even become part of the experience as lived and practiced fieldwork to gain a “perspective from below” (p.15).

Architects, designers, and urban planners have been unknowingly and knowingly incorporating aspects of phenomenology in their thinking over the past quarter century. How people experience spaces and places is a desired area of knowledge for such professions because it has such a capacity to inform the creative process. Conversely, how spaces are perceived by people and how that affects people’s behavior is an important consideration for designers of all kinds. Donlyn Lyndon and Charles Moore have written extensively on the powerful affects of architecture on the dispositions, moods, and thoughts of people since antiquity (1994). David Seamon’s description of phenomenology captures some of the advantages and potentials of phenomenology:

Phenomenology is a way of study which explores and describes the essential nature of things and experiences as they are in their own terms. Phenomenology has value to geographical education; first, because it introduces the student to a way of understanding that requires openness and quiet attentiveness; second, because it provides important insight into the nature of environmental experience and behaviour; and third, because it says much about how people dwell on the earth and how they might dwell better (1979, p.40).

This thesis, therefore, employs the “openness and quiet attentiveness” that Seamon proposes to analyze the nature of tram experience and the effects of trams on cities. By extension we are exploring how people might “dwell better” on the earth (p.40).

## **Analysis**

The aim of the analysis was to look at two aspects of tram culture: Firstly, how trams relate to people, and secondly how trams relate to cities. The first part, *Trams and People*, looks at the intimate lives of people; their routines, perspectives, habits, and experiences. I also put myself in the place of the informant and was able to experience tram life as it happens. By being a user myself it was easy to analyze the nuances of the experience and how that plays on the aspects of the consciousness such as memory, nostalgia, identity, security, and so on. It is through these analyses that one can draw insights into questions that have constantly re-occurred such as: *Why do riders prefer trams over buses? How are trams linked to city branding? How does tram experience effect routines and practices? How do trams affect city life and street atmosphere?*

### **Part 1: Trams and People**

#### *The Way We Think about Trams*

When I bring up my chosen thesis topic to people, almost inevitable they will react shocked, smiling, and laughing. The following question sounds generally like “That is interesting! What are you looking at about Trams?” What became evident is the questions behind those questions: *why would I choose to study trams, and what about trams deserves to be studied?* These reactions have lead me to question how trams are thought of in the subconscious, what kind of feelings are associated with those thoughts, and what if those same people are made to search into their memories and imaginations, how are trams are perceived?

Based upon the general reaction that was previously mentioned, it is safe to say that people often have a whimsical view of trams. In general, for many people the idea of trams lives in the part of our memory labeled *inconsequential*, or *harmless*. Their modern day use in our accelerated culture can seem almost contradictory: *with subways, skytrains, speedy buses, and high-speed rail, how are trams relevant anymore?* For some, trams can be remnants of a time past that does not excite the inner desire for the latest and most exciting technology. Löfgren and Wikdahl speak of this ambition for the next technology: “Each new technology makes us blind to the old. We become

intoxicated with speed. Stress is frequently laid on the unique capabilities of the new technologies” (1999, p. 40). At the same time, our lived memories make bring us instantly back to the feeling of riding trams - the little joys that it brought us. The true contradiction therefore puzzles us: *how can that slow and old technology conjure feeling memories of joy?*

To press on beyond the unconscious reaction to a point where informants are made to truly imagine trams, their form, sound, and feeling, - the mind creates images based on lived experiences.

One of the most common reactions to the idea of having a tram network in any particular city is: *but Town X isn't big enough for a tram*. Other statements include *trams wouldn't fit in our streets* or *there must be something faster or greener*. These recurring statement points towards the reality that, despite actual capacities and functions of trams, different people have different images of what a trams look like and how they function. To address these varying perspectives on trams, I have compartmentalized common visions into, what I like to call, “memory-groups.” Examples of memory groups would be “The antique tram,” The rickety trolley tram, The modern space rocket tram, The train tram, and so on.

Figure 2 portrays an “ultra modern space rocket” tram. An overly futuristic looking tram implies speed and destination. The journey is less about being carried through the streets of a city but being transported from one location to another. Commuter users tend to favour a streamlined design as it intimates speed towards a single destination: downtown. Chance commuters and tourists might be less attracted to “hop-on” because the outward appearance might indicate a formality. If the outward design has little reference to the historical heritage of trams and the way people used to experience the city, users might feel disconnected to that historical sense. The continuity



**Figure 2** – the “modern space rocket” tram in Barcelona.

of a city can be lost when design and architecture takes leaps ahead. People can feel left behind and unattached to an ultra modern city atmosphere.

San Diego's light rail passes, much like a tram, through city streets and past cafes and shops. Shown in figure 3, its detailing, size, and shape makes it look a lot like a normal industrial locomotive. With such a long form, it would be difficult for users to imagine this tram meandering through neighborhoods and allowing pedestrians to hop on and off to access shops along the way. The idea of a "long journey" is conveyed with this design where commuting into the city seems to be its purpose.



**Figure 3** - a "Train Tram" from San Diego.



**Figure 4** - "Communist Tin Can Tram" from Budapest.



**Figure 5** – The historic Trolley Tram from Gothenburg.

Informants from Eastern Europe often had a shared view of trams as "tin can" looking. They often held nostalgic feelings and associated trams with being un-modern, inefficient, but pleasant to ride and accessible when they are visiting the city centre. For them, their small design and slow movements meant that they supported an urban experience of walking, exploring, and meeting friends close by. Trams, in their imaginations, support city centre walking experiences.

Some informants pictured "historic trolley" cars when we spoke of trams. For some who pictured this model, they thought the idea of trams as modern efficient modes was silly and harmless.

Nostalgia made them appreciate the trams' character. Some informants thought that their use

should be left to tourists and niche occasions. Informants imagining these trams often believed that energies would be better spent on metro, or faster light rail separated from traffic.

Some informants, like many whose experience was characterized by fledging systems such as Toronto's or Philadelphia's tram networks, viewed trams as "Retro Realities" (see figure 6). Informants who imagine these trams often come from cities whose tram systems have survived since early days of trams. This continuity means that novelty and nostalgia were less common.



**Figure 6** – This San-Francisco tram is an example of a “retro reality” in many cities where systems have been maintained since early days.

The trams were part of regular routine and

often function alongside metros, buses, and other options. Users, therefore felt less connected to their trams because they play part of a larger system. Uniqueness has been downplayed so trams are not actively involved in building city identity. Some of these models of trams have been refurbished and re-embraced, such as in Figure 6.

### *The Way She Moves*

To watch an elephant sway through a stretch of grassland it is noticeable the way they take careful steps and their backsides slightly torque before their front halves. Horses bob their heads whilst their upper-backsides lift with each step. I am not comparing the movement of trams with any particular animal, but the point is that buses, cars, planes, and trams - like animals of different species – move in very specific and unique ways. Riding a horse is different than riding an elephant, or a camel; it is the nature of this movement that we experience and that experience contributes to our emotional attachment to these transportation modes.

The way that trams move is sometimes obvious; it characterizes the journey in a conscious way. In other ways, the tram movements are nuanced and subtle to the point that they seep into the mind through the backdoor and characterize the experience on a

subconscious level. It is a combination of these two types of stimuli that leads to sentiments of safety, security, trust, enjoyment, satisfaction, comfort, and nostalgia.

After my evaluation of tram movement on one of Gothenburg's trams, I was able to understand how users built their perspectives based upon movement experiences. Since the tram kept plane to the ground surface, and solidly so, riders felt a comfort much like being in a moving room or solid surface. One informant, Alex, referred to this sense by saying that "it feels like you are in a living room – a moving living room. It is like I'm sitting at home but it is moving along and through my city. That's why it is comfortable." One can sense the permanence of the rails riding over the steel rails as a rooted sensation upon which to build trust. There is no skidding and shifting of wheels positions laterally, and the turns are made without twisting the trams body. The consciousness and feel secure and comfortable in the exact repetition of trajectory and turns through the course. In this way, it becomes normal for riders to sense the permanence and rigidity of trams which inspires feelings of comfort and security.

### *Trams as Efficiency*

Trams first started using steel rails to transport people because it became evident how much more efficient they were than rubber (or wooden) wheels on the ground like traditional carriages. Since trams were traditionally pulled by horses, loads could be increased using rails with less strain on the horses. The physics of rail technology proved that, in-fact, the heavier the load, the less energy was needed to sustain the pulling force when using trains. Energy efficiency is certainly a convincing argument for using rail technology over rubber wheel on cement.

One can sense through the body this efficiency. For a diesel bus to power up a hill requires a blast with the gas pedal and a roar of the engine as tons of steel and rubber are pushed up a steep slope. Trams are given a push by the quiet electric engine and propelled along with quite low friction – up to one fifth of the required propulsion output. When the bus requires such energy to continue along, the stress of the engine can be felt through the body and angst builds up. Elation comes when buses move downhill and let gravity take over. Trams, on the other hand, keep a more sustained output of energy.

The energy required to power it remains low and the tram can sometimes feel like it is being pushed along effortlessly. This sensation is felt in the body and the rider sense a levity to the journey. This levity is in contradiction to the solidity and weight of traditional trams. It can become curious to understand how such weight is pushed along so easily – a sensation and curiosity common to rail experience (and only understood by physicists).

### *Comfort and Familiarity in our Minds*

Everyday our mind makes objects disappear right before our eyes. Objects in our presence tend to seep into our routine minds and become invisible to us. To truly view everything around us, One must shake off his/her goggles of routine and pay attention to every detail in our midst. This awakening made me aware of the broken blender placed above my kitchen cupboards, the box of incense sitting on my desk - the contents of which I have not burned in many years, and the multitude of condiment bottles in my refrigerator – around which I reach everyday to find things that have gone bad. As our movements within a space become routine, the things we notice, and therefore *see*, also fall within a robotic efficiency that leaves us blind to things in our midst. Our mind catalogues and files away things that we consistently see so that there is less to consciously process in environments that we frequent. This familiarization is key in forming routines, and in making us feel comfortable and secure in our environments.

Feelings of familiarity and comfort, and the invisible objects in our midst, are frequently in places that are the most intimate to us. Our bedrooms can turn into impossible messes of laundry and nick-knacks with room just enough to make it into bed. Our houses, the same to a lesser degree with more frequent re-evaluation when guests come over. The street we live on becomes so familiar that if an unknown car is parked there one day, or a cat crosses the street, alarms are sounded in your consciousness and our attention is alerted.

As cities become homes to us, and the environment becomes normalized to our senses, trams seem to sink into the routines and patterns of our consciousness. I look at my informant Thomas and how he spoke about the noises of the tram stop he could hear from

his kitchen window; the beeping alerts of the PA system reminding him subconsciously how close he is to the connection into town. He even chose where to live, unknowingly at the time, based upon the proximity to the tramline. For Thomas, it was a subconscious decision to move into that apartment; the feeling of being connected to town crept under the surface of his mind and influenced his living choice.

As I interviewed Alex in a Gothenburg café, he would stare out the window and watch the trams steadily pass by, as if they were clicks on a metronome forming a hypnotic rhythm for him to gather thoughts. It is the predictability of their movement and the repetition of the sounds through that movement that form routines and patterns in the consciousness. For Alex, trams became such a consistent and regular presence in his street life that they almost went unnoticed. In this way, trams became easily integrated into his routines and choice patterns. Whether to walk or take the tram, the choice was simple and always there – a flexible and complimentary set of alternatives to travelling through the city, both practically and consciously.

For both many informants such as Alex and Andrew, trams have become integrated into their life routines and choices very easily. They leaned to depend on them as tram characteristics project dependability on the consciousness. From the nature of their consistent and smooth movement along the rails, the repetition of that movement and sounds, their routine presence along the tramline, to the accessibility that the tram offers from home to town and through the city, trams became a subconscious reality for many informants. This reality formed an affinity, comfort and a dependency on trams that could not be matched by bus or trolley-bus travel.

### *The Class Effect*

Speaking to a number of informants I heard a recurring sentiment that travel by tram had a ‘higher-class’ appeal than riding by bus or trolley-bus. One Irish informant, named Andrew, told me the story of how Dublin’s first modern tramline was constructed and opened in 2004 running from the *swanky* south-Dublin area into the city centre. His view was that the *posher* residents of the area would have never taken the bus into town but now have no problem taking the tram.



These bankers and business men living in multi-million euro townhouses in south-Dublin would *never* have taken the bus into work. It's way beneath them. At the time, they would have taken their cars into town. Now, at 7:30 in the morning the tram is full of them reading the newspaper in their expensive suits and chatting with coworkers.

His own experience was very much congruent with his observations:

In my first year at Trinity University I would walk the half hour from home to Uni because the bus was cramped, noisy and undesirable to ride. When the LUAS (tram)<sup>1</sup> was opened the next year, I started taking it into university every day.

Andrew's decision to start taking the modern tram into town was not an explicitly conscious decision based upon a biased preference of one mode over the other; his decision was an almost unconscious matter of shifting his routine to a mode that naturally felt convenient, comfortable, secure, and streamlined. His privileged family background in Ireland also lends to the idea that there is a class preference for trams.

The preceding question is: what is high-classed preference for trams based upon? Is this preference based upon a thought that trams are richer artifacts themselves, or that the experience within them is a richer experience? Is it a matter of taste or perspective? The answer is both. Based upon interviews and go-alongs, users find the tram experience to be richer. A first-hand analysis of riding on a tram caused me to notice the materiality, movement, and sounds of tram travel and how that compares to bus and trolley-bus travel. Through both user-perspective and personal evaluation it was evident that the tram experience was smoother, cleaner, more efficient, roomier, brighter, and quieter than a bus experience. Much like the first-class section of an airplane, trams offer an experience that is both richer, as well as perceived to be richer through the eyes of the user.

### *Children and Trams*

It was a common trend that the further outward on a particular tram line I went, the more children were present. This fact is understandable considering family housing is often

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<sup>1</sup> LUAS is the name given to the tramline in Dublin. It is also Gaelic for "speed."

low-density and in less urban areas. The interesting phenomenon was that children who grew up along tramlines seemed to have a comfort and affinity for them that I did not observe on buses or subways. Parents seem to trust the secured trajectory and routes of trams, knowing that their children will not be carried off to unknown lands. The consistent route and predictable movements makes repetition, and children have the capacity to grow accustomed to that repetition. It becomes easier to learn tram routes because so many variables are minimized such as competition with cars and variation in noises.

The consistency and security of the trajectory allows for routine to be cemented into the mind of the child. Schütz spoke to this idea that lived-experience creates conscious routines: “Generally action is routine and carried out through recipes which are guided by the structure of relevance in individual or group projects. When routine experience is interrupted, explication is occasioned” (Mackay, 406). Since a child’s life-world is confined to a smaller circumference of reality, the ability to navigate the complex stimuli of travel within a city-region, or even within dense traffic, is limited. The complex route and interaction that buses engage in change the experiential circumstances for the child. These changes are “interruptions” to Schütz (Mackay, 406). This flow of knowledge from routine experience was evident over the course of my research when a child would predict and announce landmarks and stations to his father during the trip. When the family were coming close to the stop, the child, of around 5 years of age, confidently declared to the adults: “this is our stop. Time to get off.”<sup>2</sup> A tram-ride, after all, is a predicable course with predictable movements on a type of *roller-coaster*; an experience the child in all of us can understand and enjoy.

### *Trams and Adults*

Whilst riding the tramline in Gothenburg that swings through the historic Majorna neighborhood, it became noticeable that our tram took us on turns and dips that were reminiscent of a rollercoaster at a carnival. It put a smile on my face to come down a hill and make a right hand turn at the bottom – a maneuver that inspired a memory feeling

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<sup>2</sup> Paraphrased from German, as the tram was in Berlin.

from my childhood. Two questions struck me: why had I enjoyed that feeling as a child? And, am I allowed to enjoy it as an adult?

The rollercoaster experience plays on our sense of control and security. It is a feeling that one is in danger with the playful realization that the cart is being strictly controlled by the rails. The trolley can be whisked along corners smoothly without a counter movement to correct itself. This movement goes beyond our expectation that for every action there should be an equal and opposite reaction – Newton’s famous law of motion. With vehicles on rails, one is able to feel a control that goes beyond what one would expect. For children, sensing the loss of control can be thrilling, but the elation comes from realizing that control is present, despite better judgment.

Adults tend to seek control of their lives. It is only natural to leave the control of one’s parents, and take control of one’s life. Entering into the working world means control of finances where one can buy a television and have control over the channels. An adult buys a car and has control of his/her destination and has children to control their upbringing. Riding the tram offers a release from that control of our everyday adult lives. While we constantly cede control of aspects of our lives to external powers, the amount of control most often approximates what we expect. On a tram or on a rollercoaster, rails offer a level of control that exceeds our expectations. Sharpened turns and changes in elevation would normally inspire counter reactions through the suspension and body of a bus or car, but the tram remains solid and unaffected by the perceived norms of physics. Adults access their inner child by enjoying this loss of control and sensory deception.

#### *City Life with Underground Metros*

Metro systems such as New York’s subway system and London’s underground are often brought up as modern day alternatives to “outdated” trams. Informants would say things such as “Stockholm used to have trams, but now they have the underground.” The city of Toronto is often debating whether to extend their tram network or build new underground routes, with the underground argument often winning. Metros are believed to be faster, carry more people, and avoid the traffic at street-level. The pros of underground metros are all correct, however, the negatives are rarely mentioned because they mostly have to

do with the aesthetics of user experience and the abstract relationship that riders can develop with their cities above.

My Irish informant, Andrew, discussed his experience living in London and his daily life riding the underground to work and beyond:

Living in London was total crap because I literally spent most of my time in the dark underground. It is noticeable how everyone is hunched over and depressed, then when they walk up and out of the tube they brighten up and feel normal. I also don't feel like I got to know the city because I was constantly underneath it going from one point to another. My overall memory of London is being in the dark underground.

Another informant, Jen, who grew up in London spoke about how she knew London so intimately and could find her way anywhere. It was revealed later in conversation that she only knew London as it looked on the underground map and the true geographic locations at street level were a mystery. Her entire sense of the city, formed over eighteen years, was dictated by growing up riding the tubes, and her physical imagining of the city was derived from the multi-coloured lines shown on the London Underground Map.

Another Irish informant, Michael, spoke of his experience riding Glasgow's single underground metro line that serves the city in a loop.

"Glasgow's underground is the most bizarre metro I've ever been on. It was much like London's underground but smaller, darker, and more shaky. You could feel the sudden shifts in trajectory up and down and to the side – probably to avoid water pipes and mineral deposits. It felt like I was in a mining shaft, cruising out the tunnel ahead of us and the ground could collapse in on us at anytime. It literally felt like you were being sent like a message through one of those old pneumatic tube systems that used to carry post through the walls of office buildings."

Furthermore, Sara, a student from Sweden, said that when she visited Berlin for a long weekend in 2009, she remembered choosing to use the U-Bahn underground system to explore the city. She recalled spending most of her time on underground platforms waiting for metro trains to arrive. Her memory of that visit is of sitting on benches on platforms. It was not until later when she moved to Berlin and got a bicycle that she truly experienced the city and felt the size and energy of the place where life and culture took place. Being at street-level gave her, not only an orientation within the city – a sense of size and distance, but a tactile sense of the architecture, greenery, social energy, commercial activity, and all the things that characterize the cultural life that lives in city streets. Once she experienced the city at street-level, Berlin became a more comfortable and exciting place for her – a city that sparked her imagination.

Sara, Andrew, and Michael's perspectives captured a common experience in cities that used underground metros to transport people around. The lack of sunlight is insignificant if one rides the metro a few times only. However, to ride the metro consistently, or as part of a daily routine, can lead to a lived-experience where artificial light and confined space is the major characteristic in one's daily environment. These characteristics effect the mood and feeling within the city.

Metro experience can also define one's perspective of a city as a whole. The metro experience can disconnect people from the street-life where light, noise, and interaction is all combined to form a social environment. This street life is created by people and the environment together. The street level is where culture is created and practiced by people of varying intentions. To push movement and people underground is to segregate people's diverse intentions, which limits the cultural possibilities that arise from such social encounters.

Furthermore, One's knowledge of the city is formed by what surround metro stations and very little of what lies in-between. True distance become unknowable and the city turns into an abstract form where what is possible is shaped by the constellation of metro tunnels and stations. A city, therefore, can become unknown to a certain extent – even to people born there.

Tram networks offer an alternative where the daily routines of movement are brought into the public realm – the street life. Sunlight becomes part of the morning commute and the seasons that pass by contribute to different ways of enjoying a city. It becomes possible to see shops, pedestrians, friends in coffee shops, and church steeples – all which inspire feelings of connectedness with street life and city culture. Through our routines we connect with our sensory surroundings. It is through this connection that a dialogue begins between a person and his/her city. This dialogue is extremely important in building identity, city understanding, city pride, and comfort in life.

### *Celebration*

From pop culture to folk culture, trams are celebrated in a way that busses have never been. From blogs, to community organizations pushing for trams in their cities, to paintings and postcards, the more I looked into it, the more I found people celebrating trams in a personal or public way. Alex, from Gothenburg, spoke to me about how he had painted a picture of a Gothenburg tram and given it to his mother for her birthday. I asked Alex if he was a big tram *fan* and he replied by saying “not really.” When I asked him if there was a possibility that he would paint a picture of a bus for his mother, he said “no way.” Through the painting, he was sharing his and her common identity through a shared symbol. Trams spoke to their life routines and city identity – something they can both relate to.

Figure 7 shows a cake that was made to celebrate trams in Blackpool. These double-decker trams represent the only first-generation operational tramway in the UK (“Trams,” 2011). Blackpool has built an identity as the only city in Britain to keep trams in circulation – a source of pride and celebration.

The reason why trams are a source of celebration is most likely a combination of many factors. Firstly, their unique presence within a city helps to form identity. Secondly, how one develops an attachment to trams depends on the sum of their experiences. Their accessibility



**Figure 7** - A cake commemorating Blackpool's tram legacy.

makes them a very public entity. Also, there can be beauty found in something with such longevity. Much like an antique bureau or metal tin for chocolates, we build attachment to artifacts crafted with solidity, quality, and longevity. It becomes easy to for attachment to the face and form of trams as they peacefully roam our city streets in a non-competitive way.

On days that trams were torn from cities, droves of people showed up out of sadness to witness the last ride. In London, crowds ran or cycled beside the last tram and its route was extended an extra three hours as cheering Londoners surrounded it (“1952: London’s trams trundle into history,” 2008). Stories from almost any city depicted great images of sadness and commemoration – a public outcry that makes one wonder why they would be taken away from their people in the first place? Certainly the historical accounts indicate the deep connection and affection that urbanites felt for their trams.

The rebirth of trams around the world is being met with similar jubilation. Portland’s modern tram, built in 1991, is celebrating its tenth anniversary. Figure 8 shows a poster advertising the celebration where the mayor and all of Portland’s most important people will be in attendance. This event is another example of the relationship that can form between tram infrastructure and cities that benefit from them. The proof is in the public party.

#### *The Rail Effect: AKA the “Spark Effect”*

The most important and definitive detail in defining trams is the steel rails upon which they ride. The rails are the most underrated detail and most communicative symbol of tram travel. No other characteristic attracts more users and defines the experience more than the parallel steel rails we see meandering through our cities.

It has been long known in countries that heavily use rail technology that people are drawn to the rail experience in a significant way. Buses cannot compete with the attraction that rail vehicles have over to riders. In his book “Light Rail Transit Today,” M.R. Taplin, noted this trend:



**Figure 8** – A Poster advertising Portland’s ten-year celebration of their streetcars.

The visible presence and permanence of a light rail line have been found to be an important traffic generation factor in comparison with a bus route, where there seems to be a greater element of uncertainty until the vehicle appears. This psychological consideration has been measured in The Hague, Holland, where a self-contained bus route operated with modern vehicles was directly replaced by an LRT line. In the first year after conversion, traffic increased by 22% overall and 32% in the off-peak, indicating the in-built attraction of rail transit (as cited in Gormick, 2004, p.18).

Rails embedded in the road are constant subconscious reminder that a tram passes by that point, that a tram came from a starting point, and that a tram has a destination point at the



**Figure 9** – An historic tram riding the rails in Charlotte, North Carolina.

end of the rails. Just by allowing one's eyes to follow the rails along the surface of the road, the imagination is carried like a passenger and, in an instant, travels the length of that line on a subconscious journey. By taking that mental

the tram network gets familiarized in our imaginations. Donlyn Lyndon applies a similar logic to the Eiffel Tower by saying “(it) is an act that is central to the power of architecture has to remind us of things, events, and other places. We understand places by inhabiting them vicariously, imagining what it would be like to look out a certain window or to stand in a porch or to move freely through a large unencumbered space” (2004, p.242). Lyndon's idea is that certain image cues take us to a “Memory Palace” of our own creating. The rails that lead to and from trams inspire in us, what I like to call, “Memory Journeys.” Through subconscious reactions to seeing the tram tracks approaching and leaving the point we inhabit, our imaginations are transported on either a realistic journey cemented in our mind through experience, or an imaginative journey contained to realistic boundaries by the image of the rails. We become able to board the tram before it even arrives and become secure in the feeling that the tram will, indeed, arrive and take us to somewhere familiar.



Buses, on the other hand, have no visual cue that their journey is fixed, secure, predictable, and inevitable. Our imagination is left to the open road - a frontier that lies beyond any network or city. When a bus appears, it can feel like a chance occurrence - a solitary vehicle appearing like a ghost in the desert. This description is an exaggeration but points to the more nuanced feeling of waiting for and travelling on a bus. I am reminded of a Sponge Bob episode where Sponge Bob accidentally takes the wrong city bus which takes him past the edge of town and is forced to get off the bus in the middle of nowhere (Tibbitt, 2000). The rest of the episode portrays Sponge Bob as he feels alone, in the middle of a desert as night approaches and uncertain of when the bus will come. He waits well into the night and constantly misses busses buzzing by as he takes toilet breaks, or turns his back. The humor works because it plays on a common experiences surrounding the bus experience; taking the wrong bus, being suddenly brought out of town and into unfamiliar territory, the feeling solitary and unconnected waiting at a bus stop, unknowing if or when a bus will pass. Satire is often the best way of shedding light on the shortcomings of our endeavors, and buses have a way of leaving us feeling unconnected to any familiar network or comfortable routine.

One of the most reliable and comforting parts of rail networks is that rail traffic most often travels in parallel lines in two directions. One informant, Lisa, a young woman who works in Berlin, spoke to me about her experience riding the trams:

It is very comforting to ride trams because you know where the rails are going – or at least you know they are going someplace predictable. In the worst case scenario you can simply get off and take a tram going back in the other direction to return where you came from.

Buses, on the other hand, tend to run in loops and take unpredictable routes. Catherine, a twenty year-old worker in Canada, spoke to me about how she would take the city bus downtown everyday for work. She told me that on the way home, about once a week on random days; the bus would take a strange turn or skip part of the route. Despite her consistent daily routine and knowledge of the buses, she could not figure out when or

why the bus would change routes. On those days she would have to walk for an extra twenty minutes to get home.

The two-directional character to tramlines is perhaps why they may be called “tramways.” The term gives the user a feeling of a fixed, fluid corridor with the potential to carry a rider in either direction. One would never hear the term “busway” except in the case of a “rapid bus transit system” where the buses occupy separated lanes going in two directions.

One of the main differences between rails and roads is how we, the users, perceive the potential of the infrastructure in our lives. One informant named Laura, a professor in University, spoke to me about her sentiments towards rails. She said that she always thought that cities with railways passing through them had a different culture amongst the inhabitants of that town. She believed that towns without a railways passing through were cut off from the outside world. From this isolation, inhabitants over time would become less flexible or not as open to new ideas. For her, the rails leading away from town represented the possibility of leaving, and so the imagination was able to be carried away to far off lands and new ideas were somehow built upon that imagination.

What Laura is hinting at is not the actual potential of rails to carry people off, but the metaphorical potential – that is the potential that lies in the mind. Surely the roadways that lead to and from towns have the same potential for imaginative folks to walk off into the sunset towards exciting lands. The difference is that rails carry with them the meaning that they are active conduits – the train being inherently part of the network. In this way, railways are *active* infrastructure whereas roadways are *passive* infrastructure. A roadway, laying flat into the landscape inspires feelings of immense openness towards the horizon and beyond. The road could lead to nowhere and die out. Railways inspire feelings in the user that the rails are part of an “active” network where trains, as part of a natural system, will come to carry you off to somewhere significant. In this way, the rails instill a sense of security in a functioning system. Roadways send a passive message of overwhelming freedom of movement, whilst the railway communicates meaning of actual and active possibility through human systems designed to propel that movement.

*Modal Flexibility* – Trams and walking go hand in hand. One of the biggest advantages to having trains at street level is accessibility. With the rails being imbedded in the pavement, people can easily cross over roadways and access different sides of their city streets. Many objects in our lives form gateways and blockers to human flow of activity. Tram infrastructure minimizes almost all of those variables that might dissuade users from making chance decisions to use public transit.

Cyclist in Portland often find themselves riding directly onto their streetcars. Since trams function at street-level, it becomes a fast transition from walking on the sidewalk or cycling from a pathway to the door of the tram. Transition times are often taken for granted in our assumptions of travel times. Hiking down stairs and escalators to wait on a metro platform can eat up ten or fifteen minutes of time. That journey represents a long transition between modes – walking, cycling, rollerblading.

Tram stops and infrastructure also have less impact on the build street environment, than a skytrain/monorail for instance. Where separating light-rail from the common flows of street traffic and human activity makes for a faster journey, it creates longer transition times from the coffee shop or dentist office, to the train platform. For these reasons, trams have had a proven convenience by interacting with users at street-level – where culture, tasks, conversations, and movements take place.

*Nostalgia* – Trams have played a significant role in urban life and have been instrumental in forming our cities. In the first half of the 20th century, city street all over America and Europe were full of trams so their image symbolizes urban life of the past. If one turns on the television and sees black and white film footage of almost any city scene, trams appear in the background. Old postcards and photographs of cities such as Baltimore, Winnipeg, Liverpool, and even Los Angeles often contain trams, tracks, or overhead wires as symbols of urban life. We have grown up with tram imagery representing cities and our nostalgia for the past has become connected with that image. Trams, therefore, represent the past and carry with them that sense of longing and nostalgia people have for a simpler time.

One interesting insight I gained from interviews was the stark difference in North American and European perspectives on trams and nostalgia. Informants from European countries often put little importance on historic trolley cars or the connection that modern day trams have with their early 20<sup>th</sup> century predecessors. Informants I spoke to in Gothenburg had little interest in having the earliest wooden models in daily circulation. They preferred efficiency and convenience over the antique experience afforded by riding the historic model trams.

At the same time, European informants preferred tram car models that had character with reference to the past, not simply the most advanced or futuristic design possible. This is evident in the backlash against the most modern of the four tram models in circulation on Gothenburg streets. One informant from Barcelona, Rosa, spoke about seeing the ultra modern and “spaceship-looking” trams that have recently appeared in Barcelona streets. She said how they confused her as she was used to hearing of the trams her grandmother spoke of. The new ones had little in relation to those trams from her grandmothers era – there was a disconnect between the past model and the present model. The modern trams in Barcelona felt out of place in old Barcelona; Rosa had trouble making a comfortable connection to their presence and purpose.

One of the possible reasons behind European informants having less of a nostalgic perspective on trams is that trams have not universally been abandoned as in North America. Europeans have grown up exposed to trams throughout their evolution and have consequently developed a more utilitarian attachment to them. Their usefulness and inherent characteristics are what attract users to them, not their ability to intimate memories of a forgotten era. Also, European cities have not seen the same type of transformation – and in some cases decay – since the first half of the 20<sup>th</sup> century. While North American cities saw a heavy decline and decay since the car era brought people outside of cities and into sprawling suburbs, European cities have maintained their prosperity, character, and attractiveness. Europeans, therefore, have been living in a consistent level of urban life and do not equate tram travel with a better era for pedestrian and urban atmosphere.

North-American informants, on the other hand, often brought up to me the strong role that nostalgia plays in their tram experience. As life in our cities have become accelerated and motorized, tram travel offers them an experience from the past where they can not only sense the historical roots of cities, but be a part of the continuation in sustainable urban evolution. What I mean by that is that informants can travel through dense neighborhoods that had never succumbed to the type of sprawling growth and accelerated noise and speed experienced in other neighborhoods during the car era. Neighborhoods that maintained their tramlines somehow became preserved corridors where history is present and the social character and pace of life had been preserved, ever since the tram era.

To play on the North American nostalgia for trams, some cities are using visual cues associated with trams to project tram qualities onto tourist buses. These tourist vehicles are even referred to as “trolleys” as a way of furthering the guise of an antique experience. The interiors are often fitted with wooden benches and the outsides with rustic arched windows, rounded brass headlights, and even a simulated from rail guard – a measure historically used to prevent people and things from falling under the tram in an era of streets full of pedestrians.



**Figure 10** - A tourist bus known as a “trolley.”

These imitation trams do not necessarily fool tourists into believing they are experiencing an aspect of a city that has kept a quaint connection with its past, but they convey a message to tourists that their needs are being catered to as tourists. The significance is not the medium (medium being the transport itself) - but the message: *at a leisurely pace you will be taken to spots of interest to tourists*. By sitting on these imitation trolleys, people can remain safe as they perform temporary identities as tourists. The city can enter into the agreement by performing an identity as the “History City.” Nostalgia, in this situation, is not created, but inspired through an inauthentic performance by tourists and the city together.

Tram imitations are also being employed into regular transit patterns as a way of playing upon the positive characteristics people place on trams. Figure 11 shows a bus designed to look like a tram. The siding is streamlined to hide the wheel wells whilst the front is rounded to look like a modern tram. Missing are the rails underneath and the overhead wires. The onboard experience replicates tram experience



**Figure 11** - A bus imitating a tram in England.

with more room for buggies and a seating scheme similar to trams. To imitate tram experience speaks more to the strengths of trams than it does the power of buses to be flexible. Despite building tram features into a bus, this system ignores the rail effect, solid body build, and electrical propulsion of trams. These crucial details separate trams from buses in fundamental ways. Ridership on this bus line has not increased significantly while costs have and backlash from students to newspapers have forced a re-evaluation. As with a cake, making *half-measures* will not be swallowed lightly.

### *Noise*

Soundscapes are often forgotten characteristics when evaluating environments and experiences. Sounds can become routine layers of our environments, which we learn to tune out as stimuli is filed in the back of our minds. We learn to be deaf to the constant chirping of birds in our gardens, the hum of our kitchen refrigerator, or sound of waves lapping on shore during a nap at the beach. A new deeper layer of sounds slips by our attention and effects our disposition; one can barely notice the high pitch emanating from televisions. Some sounds remain noticeable – and sometimes overwhelming - but we learn to accept them because they have become normalized in our lives.

One example of the latter case in soundscapes is the noise difference between buses and trams. When I asked informants about how trams sound, they would often imagine that trams are louder than buses. When I ventured out to evaluate the sound difference between buses and trams, from a users perspective, it became clear that trams are, on a whole, a lot quieter. One of the reasons that trams might be thought of as louder is that

certain clanging and screeching sounds are more noticeable than the constant roar of a diesel engine bus. Tram sounds, especially sounds coming from older model trams, have an industrial quality that does not disappear into the subconscious. The fact that trams have long moments of complete silence (such as during stops) means that sounds that occur during operation awaken the senses. So much of the tram noise is connected to specific mechanical functions, such as the opening of the doors or the breaking mechanism before entering into turns. Buses, on the other hand, emit an ambient noise stemming from the engine that constantly rattles, shakes, and roars throughout the experience. With buses, therefore, it becomes easy to forget that the experience is overridden with noise. Trams, however, remain much quieter, especially in terms of ambient noise, but their specific noises attract our attention and lead some users to imagine they are noisy.

The major auditory differences between tram experience and bus experience was that there was no rumbling engine on the tram. I like to characterize the type of noise emanating from buses as passive noise whilst tram noise is active. The active noise attracts the users attention because it tends to break moments of silence or does not remain consistent throughout the trip. Passive noise can stay in the background and go, to a certain extent, unnoticed. The power for passive noise to overwhelm the experience at a subconscious level means that the user is unaware as to the how much the noise characterizes their experience in a negative way. Enjoyment, therefore, can be a subconscious reaction to the way the body receives noise experience. Sometimes, we are not even aware that we do not enjoy something.

### *Trams Beyond Transportation*

Since trams play a role in our daily lives and an integral part of street-life, it is only logical that other forms of social activity get taken “onboard.” In Gothenburg, trams are sometimes transformed into stages for theatre productions. People are able to ride around and watch a play as they ride through the city atmosphere. A local radio station has been known to transform a tram into a radio studio with lamps and couches, broadcasting to the city from all over the city – on the move. Knowing this attachment between people and their trams in Gothenburg, companies will hire out entire trams. Toronto has a

similar scheme to Gothenburg's. One informant told me about her wedding and how her and the wedding party hired a vintage and refurbished streetcar to carry them around Toronto to the ceremony and reception. They drank champagne in full wedding dress whilst holding onto leather straps in their tram *time machine*. It was a touch of class and decadence from the past – a quirky and nostalgic event on a quality vehicle. And, according to her, the tram ride was “frankly logical way to transport her wedding party around Toronto.” *Why can't her wedding perspective be translated to everyday journeys?*

Where Gothenburg culture really meets tram culture is on a website known as *The Tram Session* (Boman, n.d). Local bands and singers perform on the tram during regular circulation. These performances are filmed and posted to a webpage as a way of celebrating music, trams, and Gothenburg. Often sitting in the back seats or standing, people strum guitars, play flutes, and beat on xylophones performing well composed songs at acoustic levels for the tram and the camera. Sometimes other riders are sitting directly beside or between the musicians. The music volume is often at a provocative level inspiring other riders to smile and clap; it creates an event, a moment of celebration, or a moment of spontaneous theatre. At times, people seem nervous and indifferent, and other times the music just provides a gentle backdrop to an otherwise normal journey. Certainly the music is meant to involve the sounds of the tram, the people, and visuals of the scenery and rails passing beyond in the back window. By putting the music in a unique scenario it creates excitement and speaks to the playfulness that Gothenburgians feel towards their trams and their city. This ‘eclectic identity’ is performed by combining the tram with the music in a subversive public scenario. By using the tram as a setting, the public as reaction device, the music as their personal expression, and the video to tie all these together, the musicians and filmmakers are able to construct their identities through performance (Armstrong, 2005).

### *Paying and Riding the Tram*

There are many different kinds of payment systems for paying the fare on trams, and each of those systems provides different outcomes in-terms of ridership, user-experience, and relationship to pedestrian/city routines. For some reason, a unique aspect of riding the



tram in many cities is that payment is often on the *honour system*. This means that passengers board through any of the doors and either swipe an electronic card, stamp a pass, or used their mobile phone to pay.<sup>3</sup> Ticket agents board the tram and check that people are being honest, or check on at the station. Buses, on the other hand, generally require that the passenger enter through the front entrance, pay the driver where he/she validates your boarding. Both systems inspire different outcomes ridership numbers, but also in terms of how users perceive of the entire transit experience.

Trams in Gothenburg would approach a stop and all the doors from front to back would open. People would enter through any door they chose and sit down quickly. There was no queuing so users felt it was quick to board, and the tram was able to depart quickly. This system seemed to be preferred by users as there was less to consider when deciding to ride the tram or not.

Doors, ticket collectors, turnstiles, and other layers separate the user from the tram. They act as metaphoric gateways through which the user must pass to gain access to the tram environment. These layered gateways can be defined as borders; The more borders that exist, the private and inaccessible the tram starts to “seem” to users. Lyndon speaks of boundaries as they play upon our consciousness: “Ubiquitous and subtle; many of the borders that daily control our actions are almost subliminal absorbed into our routine responses” (Lyndon & Moore, 1994, p. 87). It is, therefore, a subconscious blocker that gives the impression that the tram, or bus, or building, is exclusive, private, or simply less public. These impressions create an uninviting scenario where users feel that a ride is a market exchange service, where it is in fact a public service that requires contribution. The difference in the two perceptions is accessibility; the former is less accessible whereas the latter is more accessible. Trams with fewer layers such as approach to the tram, physical access into the vehicle, and payment, cause the user to better integrate trams into their city transportation routines. Simpler is better, freedom is public.

The way people think of and interact with trams has certainly been proven as unique and significant. Since trams were once symbols of urban public life they still represent

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<sup>3</sup> This mobile phone text-message pay system was common in Gothenburg and in many parts of Sweden.

accessibility, quality, and openness to explore one's city. City branding is closely linked to personal identity and trams tend to be celebrated from their birth (Portland), through their consistent routines (Gothenburg), and at their death (London). As they follow fixed paths, users grow attached to their secure routes and learn to depend on them in more subconscious and significant ways than buses. Also, since they do not compete with traffic in the same way as buses, there is a greater flow to their movement, presence in the streets, and tranquility for the riders. From sound, texture, to placement in the streets and design presence, trams form an active role in the urbanite's life.

## **Part 2: Trams and Cities**

People are not stationary beings and cities are not stationary places. What I mean by this is that cities are not just places that hold a great number of individuals; they are inherently social entities where proximity for the purpose of social interaction is the purpose. This means that a city is a place where people are constantly moving around and interacting with each other. Movement is the key ingredient in cities, and the nature of this movement dictates how cities are formed.

### *City Density: the Key Ingredient in Quality of Urban Living*

City density is closely related to the quality of life. The most livable urban places have a particular density to them that fosters a culture and street-life that is desirable to people. A certain height of building (usually maximum six stories) allows for sunlight to spill into the streets but keeps people close for social interactions. Amenities such as shopping, banks, offices, restaurants, exercise halls, cafés, and schools, combined with public and green spaces are within walking distance. *Mixed-use* is the buzz word for these places where life happens locally and everything one needs is right around the corner. These places encourage chance social interactions, cooperation, proximity, and community. Categorized as having *high-density*, these pedestrian places often come with a high quality of life attracting people for a sustainable life-style (Kärholm, 2009, p.101). As has been historically proven, and with modern-day examples such as in Portland, trams have an inherent ability to inspire development to an optimal and sustainable density.

### *The Tram City*

The “Tram City” is a city whose growth pattern was formed primarily by trams. Spurred on by confidence in the tramline, housing and business development occurs along the street that the tram follows. People make connections from home to shopping, activities, work, and school by foot. If a service is farther away than is convenient on foot, people hop on a tram and can travel considerable distances with the ability to hop off and back on should they need to. The tram city, therefore, is a pedestrian city. Because of this fact, housing and business density naturally grows to a level that accommodate human-scale activity. People naturally come across each other on foot or in the tram so frequent social interaction on a local level becomes common. Businesses are mostly accessed by foot so small to medium sized businesses thrive. Communities become intimate; the church or mosque is down the street, and your local café is a five minute walk away. Electricity-powered trams combined with walking makes daily personal travel near emission-free. The Tram City is quiet, clean, socially vibrant, sustainable, and human-scale.

### *The Car City*

The most unsustainable and undesirable cities of the world were formed by, or have recently been invaded by cars. Their noise and speed in number swarm environments and make street life unsafe and undesirable for people on foot or bicycle. Furthermore, the infrastructure necessary to accommodate cars in cities eats up valuable public and private space, forcing the city to spread and grow in ever expansive ways. Parking lots become fields of cement where sunlight refracts and creates sweltering microclimates. Rows of parking in city streets for barriers and borders between neighboring houses or neighboring businesses. Parking in front of businesses forces the building’s footprint to increase, which changes the urban character of the street-life. People become separated by distances and face-to-face interaction diminish. People tend to become confined beings – isolated to an extent within their cars, garages, and houses.

### *The Bus City*

The bus city is a city that has responded to the need for public transportation but done the most short-term, and bare minimum to accommodate user’s quality of life and the city’s

character. I am reminded of cities I have visited like Puerto Vallarta, Mexico and Belo Horizonte, Brazil where the noise and pace of traffic creates a frantic environment for both anyone in the street, and anyone in vehicles amongst the traffic. Diesel smoke and smog fill the street as infinite cars and multiple buses compete for space and presence in the rough and cracking cement highways. While the “Car City” carries a hum of frantic activity, the “Bus City” adds a roar of sound as these massive, dirty, and smelly metal behemoths accelerate to keep up with traffic, change gears, and spew black diesel smoke which trails behind covering the motorway. The “Bus City” looks much like a car city as the bus has done little to sway people from their cars. Those who can afford to take their own more miniature and private versions of buses (cars) do so. Cities respond by building more roadways for both the cars and the buses. City growth patterns do not respond to bus-routes. Cities grow to accommodate more cars and more buses – sprawl is inevitable.

### *Speed is not an Argument*

The world is becoming an accelerated place. Everything is becoming faster: flying around the world is commonplace, fast-food restaurants are recording record profits, letters are now called ‘snail mail,’ the internet can give us the instant answer to anything, even the speed of the internet is increasing to give us a *more* instant answer to any possible question. New technologies are making this speedy world possible and our lust for that speed and convenience is undeniable. Löfgren and Wikdahl speak of this ambition for the next technology: “Each new technology makes us blind to the old. We become intoxicated with speed. Stress is frequently laid on the unique capabilities of the new technologies” (40). Knowing that our lives are accelerating, we must ask ourselves whether it is in our best interest, and in the best interest of our cities’ development.

The argument for Trams is not an argument for speed. There are new and faster technologies that exist and are currently in use. The question is about quality of life. Does moving faster improve the quality of life in our routines? Does speed of transportation improve the quality of city’s life?

People's intuition about speed is that it is convenient. But speed is only convenient if the destination is far away. Imagine a city where school, work, the grocery store, pub, yoga studio, park, and daycare is at a walking distance from home. The rush of commuting slows to human-scale pace. One's daily tasks are close by. One's life-world becomes localized. The goal of the modern urban utopia is to increase density, diversify services, and make everything local and pedestrian accessible. Cities become interconnected nodes of localized activity – neighborhoods of diverse cultures and ideas. This vision is commonly known as the *urban village* (Franklin & Tait, 2002, p.257).

The *urban village*, also known as the *urban quarter* seeks to emulate “essential characteristics” of real villages (p.257). Franklin and Tait precisely detail the necessary requirements for an urban village in their 2002 piece, *Constructing an Image: The Urban Village Concept in the UK*:

The main features are that it should be mixed-use; have a maximum area of 100 acres (40 hectares) so that every facility is within walking distance; have a population of 3000–5000 people; be pedestrian friendly with adequate public transport; offer mixed tenure housing; possess a varied townscape and a sense of place; foster community commitment; and be sustainable (p.257).

With the monumental growth of cities, the modern city dweller is increasingly looking for an “urban village” experience. This means that your city is composed of neighborhoods where everything is local. One can hop down the block to pick up a bottle of wine and cheese to meet with friends in the park. Around the corner you walk to your yoga studio and meet up with a friend after for tea. All these routines should be highly public and accessible by foot. Community is built from the chance interactions with those in our area. Sitting in gridlock or driving to pick up milk is unheard of and riding your bicycle is as utilitarian as it is fun. This lifestyle is afforded by the high density afforded by tram infrastructure. Tram development builds urban village typologies.

#### *North American Cities: Tram Cities*

How cities have grown through history was dependent on the transport technology of the time. Medieval cities formed from walking paths – often leading from waterways where

fisheries and trading roots intersected with on-land markets. Their tight streets are evident in cities like Lisbon, London, and “old towns” in other European capitals like Stockholm. North American cities, since the late 19<sup>th</sup> century were largely formed by trams. George M. Smerk stated that “It was the electric streetcar that proved to be the most potent force of all in determining the shape, quality and direction of American city growth” (as cited in Gormick, 2004). After being built along long roadways, trams spurred on development that built up corridors of mixed-use activity. Because of their length and density, these neighborhoods were highly accessible to high density building units right down to detached single-family houses. Since trams services pedestrians, all development was built at walking distances and to the tram corridor. These neighborhoods thrived and now make up the most desirable urban environments in North America.

#### *Trams and Development Driver*

Mirroring the historical legacy of trams as development drivers, trams are once again being used to renew urban cores that have fallen under decay since the end of tram era. It is now one of the most convincing modern arguments for cities in North America that are pondering bringing trams back into their city streets. Trams have an incredible ability to inspire confidence, not only in users, but in developers. Case after case has shown the significant investment that occurs within blocks of a tramline. In many cases, private investment partners with cities to finance the tramline. To capitalize on the great possibility of the tramline to move people, development is zoned to accommodate mixed-use residential with ground-level shops and amenities. The density that ensues, with shops a walk away makes for vibrant neighborhoods and desirable urban living situations.

Portland, Oregon has become the poster-child for cities looking to drive development and renewal in their urban cores. Portland calls it a “new approach to shaping cities that promotes investment at the City’s core, provides homes for people of diverse income groups and supports the urban amenities that make great



**Figure 12**– Construction happening along the tramline in Portland, USA.

cities great” (Adams & Michael, 2008). The resulting evidence has supported Portland’s hunch: 3.5 billion dollars (USD) have been invested along the streetcar alignment with 10212 new housing units, 5.4 million square feet of office space, along with shops and parks. Developers were able to build units with significantly lower parking spaces providing options for people to live within the city with or without a car (Adams & Michael, 2008). Developers accredited the tramline as key to allowing them to build neighborhoods at higher than normal densities:

The developer has stated that without the Streetcar and the accessibility it provides, these densities would not have been possible” (Adams & Michael, 2008).

With such a unique capability to inspire development at human-scale densities – trams become city culture-builders.

### *City Identity and Branding*

Without a doubt, cities have the potential to be branded by vehicles in their streets. For decades, the greatest symbol of London was the quintessentially red, double-decker bus. When any pair of eyes around the globe saw a picture of that bus, London was understood. To a similar effect, city branding has been conveyed through the yellow taxicab of New York City, the bicycle in Amsterdam, or even the paddled gondola in Venice. San Francisco’s historic cable-car tram is the starkest example of tram branding in a North-American city.

Surely it is the repetition of the symbol throughout the city that is key in creating associations. Colour and shape have a way of accentuating that repetition and creating identity in the mind. It is the redness of the London bus that towers above the rest of the traffic, and the uplifted ends of the Venetian gondola being rowed by the man in the striped shirt and ribboned hat. It is, therefore, not solely repetition that creates associations; it is uniqueness in combination with repetition that really brands a city.

Donlyn Lyndon, in referring to ornamentation on buildings, speaks to the power of shapes in unifying people together through memory: “Certain shapes have become so

embedded in our culture that they carry with them recollections that bind us together” (1994, p. 2003). Lyndon’s architectural partner Charles Moore supports the claim by adding that

...some generic shapes are so deeply embedded in our culture that they almost inevitably start a train of associations, reminding us of other places, other cultures, or, more simply, the presence of other people. To carry such associative force, these shapes must in turn be either ubiquitous – found again and again so that they become thoroughly familiar – or so intensely, so engagingly particular that they are emblazoned in our minds (p.235).

Moore’s statement certainly explains the impact that shapes have on the human mind and our social consciousness. London’s double-decker buses, New York’s taxi cabs, and San Francisco’s trams embody both the “ubiquity” and the “engagingly particular” form that can create cultural significance in the mind. It is through these lessons that cities are able to brand themselves, and discover a unique identity around which pride develops.

Gothenburg’s half marathon held in 2011 saw an amazing two-hundred thousand people participate making it the most significant public event of the year for the city. To characterize the city in one symbol, the city chose to put one of their much beloved trams on the competition medals given to all the runners. This act is a self-affirmation that Gothenburg is indeed a tram city – embodied through the tram as a cultural symbol. It is a whimsical move to put trams on the competition medal – a leap of sorts to connect the race to tram culture in the city. This move by the marathon organizers plays to the citizens’ own sense of self identity, not only as tram lovers and city lovers, but as light-hearted people willing to cast the image of their trams in gold.

Conversely, portraying the tram on the medal may have been a political move to canonize the image of their most modern addition to the fleet.



**Figure 13** – A tram shown on the participation medal of the 2011 Gothenburg Half-Marathon.



These Italian-built trams have come under scrutiny by the media and the general Gothenburg user for not responding to seasonal weather changes, trying strange seating patterns, and making futuristic noises. The decision, therefore, was either a celebration of trams or a way of bringing the new trams into the cultural fold.

Either way it points to the entrenched care that Gothenburgians feel for their trams and by extension their city. Trams have truly become both an external branding tool and an internal identity building symbol. The medal both reflects Gothenburg identity and performs identity at the same time. Pride and memory are created through the repeated and unique image – sentiments to bind a city together.

## **Conclusion**

### *Trams for our Cities*

With exponential population growth, mass migration to cities and global climate change from the burning of fossil fuels, it is incredibly important to find ways of designing sustainable cities that have great flexibility and proven levels of quality of life. Cities in North America formed by streetcars from 1880 to 1948 – known as “streetcar cities” - are examples of flexible and sustainable city forms where people have the choice to not own a car, and live their lives as pedestrians. The density that tram infrastructure supports is such that shops, schools, activity centers, churches, and parks, among the many amenities that make for a rich lifestyle are all accessible by short walking distances. Those original tram-formed neighborhoods exist today and are part of large gentrification processes inspiring the creative class of society in a social and localized atmosphere where real-estate prices are soaring. Tram cities are sustainable, fun, social, communities with human-scale energy and activity. The most livable neighborhoods of North-America cities were streetcar *wards* and are the model neighborhoods for urban living's highest ideal. Cities, however, are doing little to recreate those circumstances (trams) that fostered such successful and sustainable patterns of urban growth. Only those cities with foresight have re-applied the *tram method* of urban development and they have, in turn, seen the profound social and economic benefits attributed to trams.

Cities like Portland, Oregon and Seattle, Washington in the USA are leading a significant movement of cities choosing to re-introduce trams to their city streets. Developers are lining up to partner with cities to renew their urban cores and once again build neighborhoods for pedestrians. Car ownership is declining and people are choosing a life of walking and public transportation. New areas of town are reaching sustainable high-densities that otherwise would not be possible without a tramline to support movement and accessibility. These areas are pedestrian friendly where small businesses, art, and social cooperation is flourishing. Standard of living is rising and young families are choosing city lifestyles as urban, social, sustainable alternatives. Cities are once again blossoming as places to live, work, and play – an echo of times past.

### *People and Trams*

People are responding to trams in a way that is not possible with buses. Owing partly to the appeal of rail experience, people relate to trams as a soothing presence in cities. The nature of tram movement and sound makes for an experience where people can feel relaxed, safe, and at peace knowing that they will arrive exactly where they expect – and enjoy the journey through the city along the way. The rails give visual cues to riders that their path is secure and inevitable. Trust is formed in the user's mind and people tend to easily incorporate trams into their daily routines. The precise routines of tram trips brings a consistency to the user's life. This consistency helps in developing attachment and dependency in the user.

Since tram speed and route is firmly fixed and predictable, pedestrian life outside the tram develops a sense of freedom and accessibility over the landscape – or rather the *streetscape*. In this way, trams compliment walking and foster a pedestrian lifestyle in city culture. Conversely, city culture is built around the constant presence of the tram's form, colour, and steady movement. The ubiquity and uniqueness of the tram's presence forms common memories amongst the inhabitants. These shared experiences form city identity and personal identity at the same time. People grow attached to their city through trams, and secure in the personal identity as members of that city. Culture is simultaneously co-created and co-performed. Through the general presence and the nature of tram experience, people building relationships with trams and their cities.

More and more cities are replacing bus lines with tram lines and Ridership numbers are skyrocketing. Tacoma is the prime example where their new tramline has replaced a bus line and ridership jumped five-hundred percent. People are being lured from their cars to trams – a common trend associated with rail transportation. City cores are being renewed and as the tram undergoes a rebirth, city-life and culture is being reborn. The simple fact is that people shape the lives around trams, and cities grow in dense and positive patterns around trams.

With cities around re-introducing trams to their streets, the future of trams is healthy; however, with time and the pace of human growth, new technologies will be developed and city scale will evolve into something unimaginable. My journey through the tram world began with a gentle romantic journey through sweltering sambaing Rio de Janeiro, and ironically ended in the same city. I recently discovered that Rio has installed a network of hanging Gondolas – ski-lift-like compartments are suspended by cables which flow in the sky above slums from mountain peak to mountain peak. It is intended to give mobility to slum-dwellers who live in such incredibly dense neighborhoods (or mini-cities) over steep mountainsides. These residents would walk for hours down switchbacks through their mountainside neighborhood just to get to a commuter train to work. That same journey is now being done on a 16 minutes suspended cable tram journey. Commuters are walking onto ski-lift like towers (now community meeting points) and being carried up above their reality to sweeping views of the sun rising over their sprawling and scenic metropolis and whisked down to schools and jobs. After Rio de Janeiro scrapped their tram system, the city imploded on itself with population and poverty bursts and an ensuing growth of extremely dense slums. Richer nations exploded outwards and sprawled low density while cities were abandoned to decay. Trams have proven to mitigate urban issues and inspire regeneration in North American cities. It has is not so easy to untangle the neighborhoods of Brazil, Hong Kong, or India. Rio has taken a pragmatic leap and come up with a sensible solution for the needs of its people. Trams do not offer a miracle *one-size fits all* solution for every city. However, for cities that have lost their course over time and wish to re-densify, or develop new city areas with human-scale growth, trams are extremely useful. Users overwhelmingly prefer trams over buses, and commuting habits can be transformed through the *rail effect*. People come under the

tram's spell, cities grow in ergonomic and sustainable ways, and life becomes a ride on tram number seven - to heaven.

### **Recommendations (Application)**

Since academic discussion is often circular and self-assuring, the following section provides opportunity to discuss concrete ideas to bring to tram infrastructure. This is a section where the analysis can be turned into guidelines, principles, and ideas for building trams and tram networks.

#### *Trams in the Streets*

Trams have the ability to become a solid and consistent part of the street atmosphere. Accessibility is a key motivator for putting rail at street level. This means that by putting the transportation at eye level, in the open, and in our midst, the ability to hop on and off and more importantly the moment when one makes the decision to take transit become more of a realistic and attractive option for pedestrians.

#### *Ideas for Streetscape*

The debate is constantly raging between whether to have trams running separate from traffic along the inside of a street, or to have them running along the outside of the street to allow for pedestrians to hop on and off directly onto the sidewalk. The benefits of having the trams running in dedicated right-of-way lanes down the middle is an increase in speed.

#### *Small Details to Support Route Understanding*

Gothenburg's much embraced tram system offers, like many Swedish innovations, many lessons for helping riders understand their tram system, and therefore depend and use trams more. One good design detail is the route sign posted on the front and side of the tram. This route signage combines a simple number with a colour. The simple number system from 1 to 14 is easy to remember. Buses, by comparison, are given more complicated route numbers such as "173." To further cement the identities of routes into the mind of users, a colour is associated with the assigned number. In Figure 14 shows an example of Gothenburg tram signage; the "Angered" line is simply combined with its

number and colour. The combination of these simple details leads to very successful identity building. When one is in a certain area of town and sees a bit of red or purple on a passing tram, the user files that unconscious detail into their memory. Later on, at a hub where many trams are passing, the colour associations filed in the user's mind over time help to orient the user and connect a tram with a destination. Each line builds a distinct identity which helps users understand the network as a whole. Gothenburgians tend to understand their entire network by this system of colour and number associations – a lesson for other networks.



**Figure 14-** Clear and simple route signage, combined with easy to remember numbers and colours make identifying routes easier.

### *Tramcar Design*

The experience inside the tram seemed strongly connected to not only the feeling that riding on rails affords, but the design and layout of the interior. Whilst a ground level entrance increased accessibility to elderly, physically challenged, and carriages, users often felt a benefit from being high up and above the regular traffic. This sense is only natural as it offers greater vantage points to what is happening outside, and enforces a sense of metaphorical hierarchy. Certain trams in Gothenburg offer both grade-level entry along with sections with higher seating. These trams are also the most preferred of the three most typical design choices in the city.<sup>4</sup>

Further to the interior design, a recurring theme on certain lines, especially suburban lines, was the need for more room for baby carriages. In a particular line on the outskirts of Berlin – a line serving massive housing complexes – mothers and fathers loading carriages were often left with awkward and bizarre scenarios for not only storing the baby buggies, but placing and removing them like a game of Tetris. Rows of spaces directly adjacent to the door were optimal with room to extract them into space nearest the door is

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<sup>4</sup> Gothenburg generally deploys three models of trams: a vintage model from 1969, the most preferred model from 1986, and the modern Italian-made model from 2006.

best. Flip down seats provide opportunity for people to sit in the carriage spaces when there are no carriages.

It can be important to allow spaces for baby carriages. As families are accommodated on the tram, children have the opportunity to grow up using the service and can grow accustomed to public transportation as a way of life.

### *Improving Safety for Pedestrians*

From conversation with informants it became evident that being a pedestrian is inherently congruent with being a tram-rider. From leaving one's home to heading to the shopping centre, the tram connects both pedestrian experiences. The tracks themselves are often built into the streetscape so that pedestrians can cross over them and hop through the doors of a waiting trolley. Since rails are imbedded in the road, pedestrians are constantly given a visual cue, a warning to look both ways for oncoming trams. This fact, however, is dependent upon the pedestrian looking down at his/her feet and being aware of ambient noise. How common is it nowadays to see a young person strolling along with Ipod in hand and headphones blasting top-40 hits into their ears, oblivious to the busy world around them. A tram horn or classical "clanging" bell might not suffice in warning the pedestrian. One possible idea is to put a type of "flash" on the front of trams to warn the unaware walker. It is one possible design idea to incorporate more ways of warning people – something especially necessary around busy stations.

### *Exterior Tram Shapes and Forms*

The experience of riding the tram is something more unique than simply riding a train at street-level. Since trams were historically types of wagons on rails, and the evolution of trams have seen the form resemble something more fitting for street life – something with qualities of an old style passenger train, charter bus, car aspects, and so forth, then modern trams should replicate that unique form that has accompanied them over time.

Certain modern trams have the tendency to emulate bullet train forms and resemble rocket ships. This form can indicate speed and modernity for the user, but disregards aspects of nostalgia and human-scale travel in the city-street environment. With an

overly streamlined design, movement and speed can take visual precedence over the outward conversation with the street environment.

Whilst preserving a ‘tram’ sense to trams, it is also important to design into trams a differentiation from bus designs. It is all about affecting the perception of the user; to visually associate trams with buses is to attach bus meaning to trams.

In Toronto, for example, the lower trim on the streetcars is formed with apparent wheel wells, much like busses would have. The effect is that their trams end up looking similar to buses. The tram does not stand out in a traffic scenario and people tend to equate both buses and trams as equal options (equally unappealing options).



**Figure 15** – Toronto streetcar have cutouts that resemble wheel wells on buses.

Figure 16 shows two trams in Tokyo. Many of their characteristics make them appear to be buses. With squared bodies, bus-like proportions, wheel wells, squared headlights and small windows, it is easy to mistake these trams for buses.



**Figure 16** – Trams in Tokyo look like buses.

Buses and trams are two modes that have qualitatively different experiences onboard - the off board experience should represent this fact. Making flush sides running the length of the exterior base visually conveys the smoothness and efficiency that is obvious to the onboard experience. Approximating train qualities furthers the associations with rail technologies – a proven attractive mode for potential riders.

#### *Lessons from Success Cases: Portland and Gothenburg*

Portland, Oregon has been the poster-child for cities looking to spur on development and renew their urban core. The move to install a tramline was bold enough to inspire investment, but the details of that line have made the Portland Streetcar a pride for locals and a model for other cities. One example of successful design was Portland’s intention

to make the tramline fit into the urban environment. This means that they evaluated what characteristics neighborhoods and streets had, and customized the tram to support what kind of environment they wanted to build. In some cases they left car parking between the sidewalk and the in-street tram, at some points the tram rides on dedicated right-of-ways, and in some cases the tram takes turns into pedestrian only squares. Planners were able to use the flexibility of the tram travel modes to compliment the urban landscape.

### *Payment*

While, the many factors that play into whether a tram network is economically self-sufficient or not are complex and many, the simple fact remains: if a tram network is maintaining high ridership, and at least most of those riders are paying the set fare, then that system should be economically viable. The revenue difference from different fare-payment systems is the topic for another study, but user-preference and the practices of riding the tram under different payment systems was researched in this thesis and the results are clear. Typically, an “honour system” of payment where riders are trusted with paying before boarding (or onboard through their mobile phone or electronic kiosk) leads to a system that users feel comfortable with, and that users find easier to naturally incorporate into their life routines. While this system opens up the opportunity for more entrances and exists, and therefore speedier service, it also removes metaphoric barriers to deciding to ride the tram.

### *Trams versus Trolley-buses: There is Something Missing*

Cities today are grappling with the question of whether to have a tram system or not. The most common counter suggestion – the same posed during the near-extinction of trams in North America in the 1950s, *Why not have a trolley-bus instead?* This question presumably stems from a look at the economics of installing a tramline. The capital cost of building a trolley-bus network is lower. And if was to exclude all of the research and analysis conducted in this thesis, the instant conclusion would be that trolley-buses are ‘equally as environmentally friendly, serve the same purpose, function, and capacity at a lower starting cost.’ This assumption is a *surface level* assessment made without considering system/component life cycle, user-preference, ridership potential, public-



space impact, longevity, safety, maintenance, public transit image, long-term cost, and cost in relation to other technologies (i.e. metro underground, monorail).

It is true that trolley-buses can serve a function that is similar to trams. The main and crucial differences are the way that trams *inhabit* the street atmosphere, and the “rail effect” – the unique way that trams feel inside, and move – gliding on steel rails. The unique nuances of the experience that are described in this paper tend to attract users – particularly those who would otherwise drive a car. Though a trolley-bus or Bus Rapid Transit can emulate some of the characteristics of trams, they cannot truly replicate the unique feeling and experience of riding on rails – a detail that is paramount to the past and present success of trams in cities around the world. The fact that tram infrastructure is solidly built into the environment, users tend to unconsciously trust trams more and incorporate trams into their routines more readily. Private investment falls under the same spell and significant development has been proven to naturally follow the construction of a tramline. Tram infrastructure inspires a sense of longevity to both users and businesses. The simple fact is that people shape the lives around trams, and cities grow in dense and positive patterns around trams – a phenomenon not replicated by trolley-buses.

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Figure 13 Photo taken by Arvid Boström, Gothenburg, May 2011.

Figure 14 Retrieved from

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