

An aerial photograph of a suburban neighborhood with houses and trees. A white line graphic is overlaid on the image, starting from the top left, curving down, then running horizontally with a small circle in the middle, then curving down again to the right, ending with a small circle. Another horizontal white line with a small circle at its right end is positioned below the main title. A third white line segment is at the bottom left, angled upwards towards the center, ending with a small circle.

TRANSPORT FOR SUBURBIA

BEYOND THE
AUTOMOBILE AGE

Paul Mees

Transport for Suburbia

Beyond the Automobile Age

Paul Mees



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Transport for Suburbia

*To my parents, Roma and Tom Mees,
on their 50th wedding anniversary*

Preface

This book is for people concerned about the environmental and social costs of automobile-dominated cities. There are plenty of books that outline these costs, and the other reasons for moving beyond the automobile age, but few that offer practical suggestions about how the move can be made. We need alternatives to the car, and we need them now, because problems like climate change and insecure oil supplies are urgent.

Public transport is not the only alternative to the car – indeed, walking and cycling are the only truly sustainable transport modes – but it is a necessary ingredient in a post-automobile future. Unless public transport is so convenient that it offers real competition to the car, then schemes to promote walking and cycling, and restrain car use, will founder. But providing first-rate public transport seems too hard in most English-speaking countries: the Swiss and some other Europeans can manage it, but we can't. And the task seems impossible in the spread-out suburbs and ex-urbs where most population growth is taking place.

My central argument is that the public transport problem is easier to solve than people think. We don't need to demolish our suburbs and rebuild them at many times their current densities; nor do we need a fundamental transformation in human consciousness, however desirable that might be for other reasons. The high-quality public transport found in places like Switzerland has been adapted to serve the existing urban environment, and a population that shares our faults and failings.

The critical ingredients of first-class, 'European-style' public transport are planning and politics, the same factors behind public transport failures across much of the English-speaking world. The idea that compact cities, or consciousness-raising, or the free market can provide a substitute for getting policies and planning right has been widespread across the 'Anglosphere' for at least two decades. The results have not been promising. It's time for a new approach: this book outlines that approach and the grounds we have for believing it can work.

In putting these ideas together, I have had the assistance of a great many people, too many to name. But I do want to mention some.

First among them is Erica Cervini, who has supported me through the whole process that produced this book, dating back to my PhD and before.

I also want to thank my students, who have challenged and educated me, helping produce and test many of the ideas that appear in the following chapters. In particular, I acknowledge the contributions of five research students whose work I have used extensively: Sami Al-Dubikhi (Ottawa, Vancouver and Perth), Tim Petersen (Zurich and Graubunden), Eden Sorupia (Curitiba, Foz do Iguacu and Graubunden), John Stone (Vancouver and Perth) and Wei Wang (Singapore).

I was helped to write this book by part of the proceeds of an Australian Research Council grant (LP0455266). This enabled me to employ Rachel Funari, who provided invaluable research assistance. Thanks to Sami Al-Dubikhi for permission to use Figure 7.1, to the *Zürcher Verkehrsverbund* for Figure 8.1, and to Truls Lange of Civitas Consultants for Figure 9.1.

I was part way through writing this book when Melbourne University, where I had worked for ten years, charged me with academic misconduct for criticizing the officials responsible for the failed privatization of Melbourne's public transport. My observations, made at a public forum, were along similar lines to those in Chapter 6, although expressed in more robust language. The university podcast my talk; the Department of Transport complained and asked for the podcast to be removed.

The university complied with the request and, without consulting me, prosecuted me for 'bringing it into disrepute'. The university's 'investigator' rejected my defence, which was that I had reported the truth I'd uncovered in my academic research. He held that since my comments had offended the official who complained, it did not matter whether they were true or not. When this was reported in the press, in May 2008, I am relieved to record that the Melbourne community showed a much stronger interest in truth than the university.

As I have not had a chance to do so, I would like to thank those academic colleagues and members of the public who supported my right to speak my mind, including those who did so despite disagreeing with what I said. I also thank my new colleagues in the Environment and Planning Program at RMIT, for welcoming a political refugee from the other end of Swanston Street.

Good public transport requires good planning and policy, along with honest and competent public administration. These things do not come about by accident; they require an active, informed community that demands high standards from its politicians and bureaucrats, and insists that policies be based on evidence rather than spin. The truth really does matter, no matter how upsetting it is to the powers that be.

Paul Mees
Melbourne
August 2009

List of Abbreviations

ABS	Australian Bureau of Statistics
ALRT	Automated Light Rapid Transit
AMPO	Auckland Metropolitan Planning Organisation
ARA	Auckland Regional Authority
ARC	Auckland Regional Council
ARPA	Auckland Regional Planning Authority
ARTA	Auckland Regional Transport Authority
BCC	Brisbane City Council
BRT	Bus Rapid Transit
CABE	Commission on Architecture and the Built Environment
CATS	Chicago Area Transportation Study
CBD	central business district
CEC	Commission of the European Communities
COE	Certificate of Entitlement (Singapore)
CTA	Chicago Transit Authority
DfT	Department for Transport, UK
EEA	European Environment Agency
ECMT	European Conference of Ministers of Transport
ETH	<i>Eidgenössische Technische Hochschule</i> /Federal Institute of Technology (Zurich)
GM	General Motors
GVRD	Greater Vancouver Regional District
HOV	High Occupancy Vehicle
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
LTA	Land Transport Authority (Singapore)
MMBW	Melbourne & Metropolitan Board of Works
MMTB	Melbourne and Metropolitan Tramways Board
MTA	Metropolitan Transit Authority (Melbourne)
OECD	Organisation for Economic Co-operation and Development
ONS	Office for National Statistics, UK

OPEC	Organization of the Petroleum Exporting Countries
PE	Pacific Electric Railway (Los Angeles region)
PRT	personal rapid transit
PTC	Public Transport Corporation (Melbourne)
PWC	Public Works Committee, Queensland
RATP	<i>Régie Autonome des Transports Parisiens</i> /Paris public transport agency
RCEP	Royal Commission on Environmental Pollution (UK)
RhB	<i>Rhätische Bahn</i> /Rhaetian Railway (Graubünden)
RIT	<i>Rede Integrada de Transporte</i> /Integrated Transport Network (Curitiba)
S-Bahn	<i>Schnellbahn</i> , or fast city train (Germany, Austria and Switzerland)
SBB	<i>Schweizerische Bundesbahnen</i> /Swiss Federal Railways
STA	State Transit Authority (NSW, Australia)
S-Tog	Copenhagen S-Bahn
SURS	Singapore Underground Road System
TfL	Transport for London
TTC	Toronto Transit Commission
UBC	University of British Columbia
UN	United Nations
URBS	<i>Urbanização de Curitiba</i> /Curitiba municipal transport department
VBSH	<i>Verkehrsbetriebe Schaffhausen</i> /Schaffhausen municipal public transport agency
VBZ	<i>Verkehrsbetriebe Zürich</i> /Zurich municipal public transport agency
ZVV	<i>Zürcher Verkehrsverbund</i> /Zurich regional public transport agency

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Public Transport 101

MONASH UNIVERSITY

The second university of the Australian city of Melbourne celebrated its 50th anniversary in 2008. Since the passage of its enabling legislation in 1958, Monash University has educated over 200,000 students at its campus in suburban Clayton, granting degrees in disciplines ranging from medicine to literature. But regardless of their academic discipline, most Monash students over the half-century have been educated in one unofficial common subject. This subject could be called Public Transport 101, and it has been offered continuously since the Clayton campus opened on 11 March 1961.

Sir John Monash, the Australian engineer and general after whom the University is named, spent much of his early career building railways. In military and civilian life, Monash demanded the highest standards of planning, organization and delivery. He might not have been impressed had he tried to reach the university named after him by public transport. To do so, one takes a suburban train to Huntingdale Station, some 17km from the city centre. From there, the campus is just over 2km away by privately operated bus.

Let's visit Huntingdale Station in the first week of the academic year and join the students taking Public Transport 101.

The most popular train reaches Huntingdale at 8:40 am, which should leave plenty of time to reach campus for the first lectures at 9:00 am. The Clayton campus is home to 32,000 staff and students, and even though most drive, that still means around 200 alight from the train. They must queue to leave the station, as the single exit is a narrow ramp, leading to a cramped subway. Passengers emerge into the station car park, which must be crossed in the open. It's raining, so they cop the full force of the weather.

Past the car park is a busy road. On the other side are two bus stops, one for each route that travels to Monash. Each stop is in a different street, with a blind corner in between, so if a passenger waits at one and the first bus comes to the other, they will miss the bus. There is no such problem today: the 8:35 am bus is still waiting, as a long queue of passengers from the previous train boards, one by

one, each required to insert a ticket into a validating machine. Eventually the bus departs, ten minutes late and packed to the gunwales, leaving dozens of passengers behind. They are joined by those from the 8:40 train. As the shelter at the stop only holds five people, everyone else waits in the rain; some take refuge among cars parked in the undercroft of a nearby factory. The 8:46 bus arrives and eventually leaves, full, at 9. The last passengers from the 8:40 train reach Monash University at half past nine.

At quieter times, the problem is the opposite of overcrowding. Some students stay back at night as the campus libraries are open late, while students living on campus often go out at night and come home through Huntingdale. Because the bus and train timetables are not co-ordinated, waits can be up to half an hour. The main bus stop is in a laneway between the blank concrete wall of a road overpass and the blank brick wall of a factory. Students are understandably afraid to wait there after dark.

A visiting Canadian academic colleague returned from a trip to Monash fuming. The squalid facilities, the long walk in the open and the lack of timetable coordination astonished her. The visitor was from York University in Toronto, which is of similar age and size to Monash, and also a few kilometres from the nearest station. Dedicated 'university rocket' express shuttles leave every two minutes (the frequency drops to every two minutes 15 seconds in the off-peak)¹ from the top of the escalators serving the station platform. As explained in Chapter 6, there are no delays from ticket checking as the bus terminal is inside the station fare gates. The Toronto Transit Commission is currently planning to extend the rail line to York University.

My colleague could not understand why things were so much worse at a place that in other respects was so similar. 'How long has this been going on?' she asked me. The answer is: since Monash opened in 1961. For many years, the main bus route and the train service both ran every half-hour during the evening: as the bus actually ran in the evening, it was regarded as good by Melbourne standards. Each bus reached the station two minutes after the corresponding train left, ensuring a 28-minute wait for the next train – which was even helpfully shown on the timetable. This continued until 1990, when the bus company, citing low demand, scrapped most evening services.

I told the story of the bus missing the train in my 2000 book *A Very Public Solution*, but apparently nobody in Melbourne noticed, because in 2006 the saga was repeated. A second bus route, called 'Smart Bus', was introduced between Huntingdale Station and the university, as part of a government response to complaints about Melbourne's privatized, but state-subsidized, public transport. Smart Buses provide the very best Melbourne has to offer: they even run seven days a week – which is handy because the Monash library is open every day, including Sunday. The new Smart Bus ran every half hour on Sunday mornings, just like the train, with buses departing Huntingdale at 4 and 34 minutes past the hour. As trains reached the station at 7 and 37 past the hour, each bus missed the nearest

train by three minutes. After 7 pm, trains arrived three minutes earlier – at exactly the time the buses left. Since even an Olympic sprinter would take two minutes to reach the bus stop from the station, all this ensured was that passengers could view the departing bus from the station platform, before waiting half an hour for the next one.

This story does have a happier ending. I incorporated the printed Smart Bus timetable, which actually showed the buses and trains missing each other, into a presentation for the Australian Government's Garnaut Climate Change Review. My presentation was placed on the review's website, where it embarrassed the bus company into changing the timetable. Smart Buses now connect with trains at Huntingdale on Sunday mornings and evenings, although not during the day or most of the rest of the week. The interchange facilities remain as appalling as ever.

So what have 200,000 Monash graduates learned in Public Transport 101? Before the end of first semester, the crowding problems at Huntingdale ease as students begin to desert public transport and drive cars. By graduation, nearly all of them are driving to campus. The student environment office helps them by organizing car pooling: even it has given up on public transport. The Monash Clayton campus is surrounded by a sea of parked cars, and parking shortages are a constant subject of on-campus discussion.

These same students are among the most environmentally aware section of the community, concerned about issues like pollution and global warming. They are avid followers of the Garnaut Review's warnings about the need to reduce carbon emissions, including those from transport.² Monash students take courses on climate change, insecure oil supplies and other constraints on a car-dominated future. They learn that a sudden interruption to supplies of affordable oil, or a serious attempt to reduce carbon emissions from transport, would cripple the university and the metropolis of Melbourne. Some of the more curious ask why their city and campus are not better prepared for the future. Why has public transport to campus been so hopeless for so many years, and why is nothing being done about it?

The answer students at Monash and other Australian universities most commonly receive is that their parents' housing preferences are to blame. Urban density is the major cause of automobile dependence, so public transport problems can't be fixed until Melburnians abandon their separate houses and backyards, and begin living in apartments like Europeans.

STERNENBERG

Nobody in Sternenberglives in an apartment. The 349 residents of the highest and remotest municipality in the Canton, or State, of Zurich prize their rural lifestyle. Sternenbergl's rustic charms were celebrated by its most famous resident,

the poet Jakob Stutz, who lived there from 1841 to 1857 after being convicted on a 'morals charge' in his previous home town. In Stutz's time, the municipality had 1400 residents, but rural depopulation reduced this to a low-point of 297 by the 1980 census. People live on farms or in tiny hamlets of three or four dwellings scattered across the municipality's 9km². The village centre is a few houses grouped around the picturesque 1706 church. Farming is still important, but so is tourism, particularly summer hiking along the Jakob Stutz Way and other trails.³

In recent years, the population has begun growing again, thanks to commuters with jobs in the City of Zurich and its suburbs. The majority of workers are still employed locally, mainly in rural industries, but nearly half now travel to jobs outside the municipality. This reflects a pattern seen across the Canton of Zurich and indeed across Europe: the City of Zurich, which houses a third of the canton's 1.3 million residents, has been losing people since the 1960s, while suburban and rural populations are booming.⁴

The church at Sternenberg is 42km from the centre of Zurich, but because of the mountainous terrain, the route by road or rail is longer. It takes an hour by train to reach the village of Bauma from Zurich's main railway station, and then another 15 minutes by bus up the hairpin bends of the Sternenberg-Strasse.

Of the 171 municipalities making up Canton Zurich, Sternenberg has the worst public transport service – because it's the only one without an urbanized population of 300, the minimum required for regular-interval, all-day public transport (see Chapter 8).⁵ Bauma, with just over 1000 residents, has two trains an hour every day of the year, from 6:00 am to midnight, with an hourly all-night bus service on Fridays and Saturdays. Of course, if Sternenberg was in Australia or the UK it would have no public transport at all, and Bauma would be lucky to see a bus a day.

There are seven buses to Sternenberg each weekday, five on normal weekends and seven on summer Sundays and holidays. Each Sunday bus leaves from outside Bauma station at 24 minutes past the hour, connecting with trains arriving at 20 past the hour. The bus calls at the church, dropping off hikers, then does a circuit of the main hamlets collecting locals before returning to Bauma to connect with an outward train. Once they board the bus, residents of Sternenberg don't need to worry about timetables. Each bus meets the train at Bauma, which in turn connects at the regional hub of Winterthur with another train to Zurich, as well as departures to Zurich Airport and major centres across the canton. Each of these trains is met by connecting bus services at stations en route, providing access to every place with more than 300 residents or jobs.

Sternenberg is about as car-dependent as it gets in Canton Zurich. Only 19 per cent of workers used public transport on census day in 2000; 10 per cent more walked or cycled. These figures are, however, much higher than the mode shares of 13 and 3 per cent respectively recorded for metropolitan Melbourne at the following year's Australian census.⁶ They are also higher than every US metropolitan area except New York, and higher even than most British urban

regions. Public transport is only the second-most popular mode for travel to work in Sternenberg, but its share of travel is increasing: Zurich is the only Swiss canton in which public transport's share of travel is growing, and the increase is occurring mainly in suburban and rural areas. Only 14 per cent of Sternenbergers took public transport to work in 1990. The shift away from the car that Zurich City achieved in the 1980s is now being repeated, admittedly on a more modest scale, in the rest of the canton.

So if the oil supply was suddenly interrupted, or carbon emissions from transport rationed, even rural areas of Canton Zurich could cope. Sternenberg has not yet moved beyond the automobile age, but it is ready if it needs to. And the hikers could keep coming.

DENSITY AS DESTINY

Nobody in Sternenberg thinks the population density is too low to justify an integrated, albeit basic, public transport service designed to make travel by car a choice instead of a necessity. But the dominant view in the much larger, denser metropolis of Melbourne is that suburban densities cannot support viable public transport. It's a local truism that transport policies that work in European cities could not possibly hold lessons for Australia.

Urban planners across Australia, the UK, the US, Canada and New Zealand insist that transport patterns are outcomes of urban form. The way to improve public transport is through compact cities, new urbanism, smart growth and transit-oriented design. In the words of one prominent New Urbanist, 'we have to earn our transit through urbanism.' There is much less interest in directly tackling transport policy, reflecting a mindset among planners that goes back decades. Transport planning is boring and mathematical; design is artistic and creative. Planners 'own' city design; transport means working with engineers and economists, who are much better at maths than us. Urban design is what we do; transport planning is what other people do.

Many transport planners are happy to agree with these arguments. Even Switzerland has powerful highway agencies that specialize in building new and expanded roads. The professionals who staff these agencies are intelligent enough to realize that, as communities become more concerned about the environment, questions will increasingly be asked about the wisdom of continued large-scale road-building. The notion that urban form, rather than transport policy, determines transport outcomes is convenient for these bodies. It can also suit those responsible for providing public transport, because it pins the blame for poor services on suburban residents rather than public transport providers.

For two decades, the Australian capital, Canberra, was racked by controversy about a proposal to build a freeway through the Canberra Nature Park. Hardly surprisingly, environmentalists and concerned citizens were horrified. They argued

that the funds would be better spent tackling Canberra's woeful public transport. In 2001, a parliamentary inquiry was called to resolve the controversy. It conceded that the freeway was environmentally disastrous, but argued that there was no alternative:

The committee is struck by [the] major differences between the transport studies with a car-oriented approach and those making public transport pre-eminent ... the car-oriented strategy is associated with a dispersed city of mostly low rise buildings; whereas the public transport approach is associated with fairly dense 'urban villages'... The committee is not convinced that the [Canberra] community is ready, or would understand the need, for town planning changes of the kind associated with the public transport strategy... These town planning considerations lead the committee to conclude that the car-oriented strategy ... continues to be appropriate.⁷

The freeway went ahead in the face of legal challenges and protests, opening in 2008. Escalating construction costs helped create a financial crisis that led to closure of a fifth of Canberra's government schools. Within weeks of opening, the freeway was jammed with traffic, and the government announced that it would be doubled in width.

While the results of the committee's decision to give the green light to the freeway were disastrous, it is difficult to argue with the logic. If suburban densities in cities like Canberra really are too low for viable alternatives to the car, then we are in serious trouble, because large increases to the density of big cities take many decades, and may be politically impossible in a democratic society.

Suburbanization is now a global phenomenon. It may have been invented in the US – although Chapter 6 argues that Australians were the true pioneers – but it has been successfully exported. Europe's suburbs house the majority of the populations of their metropolitan regions, and account for most or all population growth. Suburban sprawl can be found across the continent, as the European Environment Agency notes in a 2006 report suggestively titled *Urban Sprawl in Europe: The ignored challenge*.⁸ Employment is also decentralizing, and urban Europe is becoming increasingly poly-centric. Even if we wanted to see The End of Suburbia, as the title of a popular documentary suggests, this would require the rebuilding of entire urban regions – a task that might take a century even if it were affordable or politically possible.

The difficulty of the task can be seen in the glacial rate of progress in the two decades since ideas like new urbanism and the compact city became dominant among planners. The amount of new housing that has been built in accordance with these ideas is vanishingly small, but more importantly, there is little reliable evidence that it has produced any appreciable reduction in automobile use. The slide shows look great, but where are the data on mode share? The new urbanist

solution risks becoming like the new religion lampooned by G. K. Chesterton back in the 1920s: 'it only manages to remain as the New Religion by always coming to-morrow and never to-day.'⁹

Meanwhile, most transport analysts argue that the task of providing effective public transport in spacious suburbs is impossible, and should be given up as hopeless; few have even contemplated attempting the task in the still more difficult terrain of rural towns and villages like Bauma and Sternenberg.

SOLUTIONS FOR SUBURBIA

The central argument of this book is that density is not destiny. Transport policy itself has a bigger impact on transport patterns than urban planners have realized, and suburbs don't have to be totally reliant on the car. Planners who insist that car dominance can only be addressed by impossibly large increases in density may actually be entrenching the problem they are trying to solve.

In recent years, problems like climate change and precarious oil supplies have led an increasing number of people to ask whether the end of the automobile age is at hand. As explained in Chapters 2 and 3, there are many good reasons to change course on urban transport. But problems like global warming and volatile oil prices are real and urgent: they can't wait decades for solutions – especially when those solutions are not backed by solid evidence of effectiveness.

There is an alternative, and Zurich is not the only example of it. In parts of Europe and some other places, the high-quality public transport previously found only in dense city centres is being extended to suburbs and even rural areas. Public transport networks which once catered only for peak-hour commuters have been reconfigured to serve cross-city, off-peak and – as we saw with the hikers of Sternenberg – even recreational trips. By providing a complete substitute for the car, high quality public transport networks also promote increased walking and, in some cases, cycling. A model of successful public transport network planning for low-density urban areas is emerging, with evidence of effectiveness to back it. This is a genuine success story which should be welcomed by urban planners and environmentalists.

But the story remains a secret. Most of the work building effective suburban public transport has been done by practising public transport planners, who don't have time to write books or travel the world showing PowerPoint slides. Transport academics have largely ignored the real-world success stories; prestigious journals are instead filled with endless reports on new technologies and the intricacies of mathematical modelling. Urban planners, as Chapter 4 explains, can't see the gains achieved because there is no accompanying development in the desirable new urbanist form. The dominant school of economists dislikes these success stories because they have not relied on the free market (see Chapter 5). Some environmentalists are so certain that cycling is the answer to the urban transport