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Sustainable transport in the UK continues its steady decline into the dustbin of a mobility obsessed governmental agenda. The last few weeks have seen the abolition of Cycling England which made dramatic progress in giving cycling policies status, money and a bigger share of everyday trips. During the lifetime of Cycling England and its support of “Cycling Demonstration Towns” it became clear that focused action supported by a budget could actually work and that progress has now been swept away. It is very clear in the new world of 20% plus budget cuts that cycling will receive very little real cash with which to change our average 1% cycle modal shares in UK cities in the direction of Berlin (15%) or Freiburg (27%).

The demise of cycling support is happening at the same time as a £95 million cut in funding for local transport over the next 2 years. Bus services, especially in rural areas, are losing funding and at the same time as there would appear to be very large funds for high speed rail and bypasses. At a very conservative estimate the UK government has already agreed to spend about £20 billion on useless projects to make us all travel more often and further than we need to. An inspection of the current raft of budget cuts and budget increases across transport policy clearly indicate that we now have a national UK transport policy committed to 4 principles:

• The encouragement of longer distance trips by faster modes of transport
• The transfer of resources from the daily travel needs of the relatively poor and disadvantaged to the desires of the relatively wealthy
• The entrenchment of disorganised, privatised, fragmented public transport systems so that there can be very little chance of producing the finely tuned co-ordinated system recommended by Mees in his book “Transport for Suburbia: beyond the automobile age”
• The rejection of the role of planning in reducing the demand for transport and creating the “city of short distances” and the right conditions for the encouragement of walking and cycling.

The four principles will be heavily disguised by exaggerated references to competitiveness, low carbon economies and economic growth with a dash of sustainability thrown in for good measure but the budgets tell the truth.

In this issue we carry a strong rebuttal of an earlier article on travel behaviour change (Morton and Mees in volume 16, 2 of this journal). Morton and Mees were very critical of the claims made by academics and others on the potential to deliver sustainable transport solutions within a behaviour change paradigm rather than a more fundamental restructuring of the ways in which we organise cities, public transport, funding and subsidy. Ker in this issue rejects these arguments.

We are also delighted to publish the article by Joshua Odeleye on Lagos and the links between Bus Rapid Transit (BRT) and wider transport concerns. BRT, like behaviour change can be seen as a magic bullet to solve transport problems but these problems will also require a highly co-ordinated approach across the whole range of spatial planning, budgets, investments in walking and cycling and the economics of transport supply in very large and very fast growing cities.

Reference

Abstracts and Keywords

Ian Ker

In a previous issue of this journal (Volume 16 number 2) Morton and Mees presented an analysis and an argument that cast doubt on the validity of behavioural change modification as practiced in Europe and Australia. This paper rejects the Morton and Mees criticisms and asserts the statistical robustness and policy effectiveness of so-called TravelSmart interventions and solutions.

Keywords: TravelSmart, Behavioural Modification, public transport, individualised marketing, personalised journey planning

Interventions to Reduce Car Use in Towns and Cities
Call for Evidence: House of Lords Science and Technology Select Committee
Eric Britton

In 2010 the UK House of Lords (the unelected upper chamber in the UK ) Select Committee on Science and Technology called for evidence on behavioural change as a way of delivering policy goals with a specific interest in transport policy and modal shift. This article summarises the evidence presented to that select committee. The submission takes a strongly critical line of the UK’s insularity in rejecting best practice from other countries and recommends the adoption of a clear central policy objective of reducing vehicle kilometres of car travel, getting the prices right and increasing the quality of alternatives to the car.

Keywords: House of Lords, behaviour change, modal shift

Road Traffic Congestion Management and Parking Infrastructural Planning in Metropolitan Lagos:
The Linkage
Joshua A. Odeleye, PhD

The paramount urban transportation planning objective of the introduction of Bus Rapid Transit (BRT) scheme in the Lagos area is to minimise significantly the overbearing negative influence and contributions of car traffic to the ubiquitous road traffic congestion in the metropolis. However, due to the fragmentation of the public transport operation among the poorly organised public bus operators, who offered erratic and unsafe services, more commuters agitated for better services, while the middle class commuters who can afford cars rely on cars for all intra-urban travel demand. Therefore, increasing car traffic, being a supposedly reliable means of movement, has continued to aggravate the attendant effects of road traffic congestion in metropolitan Lagos. This paper is thus aimed at determining the extent at which the integration of park and ride facilities is engendering the optimal utilisation of the BRT scheme by all classes of commuters in the study area. The survey revealed a conspicuous inadequacy of park and ride facilities for all classes of commuters along the BRT corridor. For instance, exclusive pedestrian walkways and bicycle paths from commuter neighbourhoods to the nearest BRT stations are not available. In as much as the BRT corridor is located on the built -up area of the metropolitan, whereby it may be difficult to acquire adequate land for expansive car park
facilities, the paper thus recommended the development and integration of a comprehensive Green mode infrastructure as a way of attracting more middle class commuters to the scheme, as well as significantly reducing the volume of car traffic in Lagos and consequently reducing traffic congestion. Furthermore, this approach will equally enhance energy efficiency in Lagos and assist the world to reduced global CO₂ emission level.

Keywords: Bus Rapid Transit (BRT), Traffic congestion, Public Transport, Accessibility, Mobility.
Interventions to Reduce Car Use in Towns and Cities

Call for Evidence: House of Lords Science and Technology Select Committee

Behaviour Change
Travel-Mode Choice Interventions to Reduce Car Use in Towns and Cities

The House of Lords Science and Technology Select Committee has appointed a subcommittee, chaired by Baroness Neuberger, to investigate the use of behaviour change interventions to achieve policy goals. As part of this inquiry, the sub-Committee has decided to conduct a second case study into the use of behaviour change interventions to alter travel-mode choice in order to reduce car use in towns and cities and therefore the level of carbon emissions from transport.

Behaviour change interventions to encourage people to travel more sustainably have become an integral part of transport policies in recent years, featuring in the previous Government’s Low Carbon Transport Strategy of 2009. To date, however, such interventions do not appear to have led to a major change in transport mode choice, or a significant reduction in CO₂ emissions.

The Committee would welcome submissions on behaviour change interventions, whether in the public sector, the private sector or by voluntary organisations, designed to change travel-mode choice in order to reduce car use in towns and cities, in the United Kingdom or internationally.

Evidence submission and commentary

Eric Britton, New Mobility Agenda and World Streets.
Paris France. 26 January 2011

Summary

The submittal that follows is quite rough due to time limitations, but here is a summary of the key points that I would hope to draw to your attention. Thank you for bearing in mind that these observations and suggestions come from someone who has been in and out of the UK for professional reasons over the years but whose work is primarily international.

1. I address this committee on the understanding that you are looking for information, ideas, perspective and arguments to define and defend the public interest: social, economic, environmental, without reference to party or politics of whatever stripe.

2. While the exact question you are addressing – better understanding matters of behaviour change and ways to reduce car use in cities – is a good one, I would propose that it will be useful to take a step back first to determine if that in fact is the best next step or issue to be considered under the circumstances. I would say that there is a broader set of issues and trade-offs behind it, which need to be sorted out first.
3. Our past international work makes it clear that the range of viable alternatives to own-car travel are too few in number and far too low in quality to give citizens reasonable (i.e., competitive) options. This is true virtually all over the world and certainly true in the UK.

4. It is in this context that the whole idea of "behavior modification" comes into context. For if the game is to see how we might today or in the near future tempt people to opt for what for many users might be considered to be an inferior mobility options (example: inferior quality public transport), then there is something fundamentally disloyal about such a concept. The first step has to be to develop competitive alternatives to car travel, and then to use our various analytic and operational tools and measures to bring them to the attention to the public so that they can in turn make their own choices.

5. We need to bear in mind that advantages of car travel to car owners are considerable, and even more so from a psychological perspective if we bear in mind that the "next trip" one takes in ones car is generally considered as being "free". So whatever our alternatives are in a fair society they must be many in number – bearing in mind that the car offers quite a broad range of potential services – and they must be seen as being competitive. Including being perceived as "free" as using your own car for that next trip.

6. Which of course is very far from being the case today. But at least once we become aware of this underlying reality, the real challenge of "behavioral change interventions" becomes far more clearly delineated.

7. Popular conceptions aside, it is an incontrovertible fact that the majority of people in the UK are for a wide range of reasons not car owner/drivers: they are either too young or too old to drive, too infirm, too tired, too nervous, lack the necessary physical flexibility and reflexes, not psychologically prepared for the responsibility, cannot really afford a car (though they still may have one), have dangerous driving habits (smokers, drugs, mobile phones, text messages and other dangerous distractions), or perhaps simply prefer to live without a car -- and the long list goes on. This is an important political point. We are looking at a majority of the population, and all these people vote (even if they are not effectively organised as are the car and road lobbies). These citizens need and deserve first class alternatives to own-car travel, and the public authorities (and private players) are not yet providing enough of them.

8. This outside-looking-in view of transport, mobility and infrastructure in the UK makes it clear that you have grossly
overbuilt your infrastructure in and around cites – and are now grossly under-managing it. This is, in fact, very good news. What it means is that you are not going to have to spend great gobs of taxpayer money on expensive infrastructure in the immediate future – you can instead get on with the management and creative innovation functions. The entire challenge is thus well within your means.

9. But you lack an overarching strategy. You have many groups working on various pieces of the puzzle, but as far as I can make out there is not broader unified vision or strategy. This is vital to determining what government could and should be doing next.

10. I therefore strongly recommend that you lay the base for a national dialogue on the topic of how to go from today’s grossly unsatisfactory situation to a far more sustainable transport system as quickly as possible – and specifically in the period 2011 – 2015, starting this year. And as part of this dialogue there should be an immediate push to create and share information on numerous outstanding demonstration projects, which show the way in detail to what the broad strategic lines are trying to target and obtain.

Background:

I shall get to your questions shortly, but to be useful to you I must first take a few steps back and share with you what I, as an interested and not entirely uninformed observer of the UK transportation and government policy situation, have noted over several decades.

I hope these remarks will serve your committee as evidence from an outsider international perspective that I have been able to develop through a long process of in-place observations, consulting and advisory work exactly in the field of sustainable transport and sustainable cities over many years and around the world.

I look at the issues that define transport, sustainable and otherwise, in the UK with some knowledge and considerable sympathy, if at times a certain level of impatience as I ask myself how is it that, with all the assets you have in hand, you are doing by and large so poorly in the broad area of sustainable transport, whether at the level of specific projects, cities or, indeed the country as a whole.

Policy soft spots:

Why is this? Well, as an outsider I spot a certain number of soft spots which you really could correct once you put your minds to it. And once you have the appropriate strategic structure in place – this is really at the end of the day what is most lacking – an appropriate, articulated, explicit, responsible, consistent and continuing strategy for sustainability -- many of the specific questions you bring up here will become clearer. The so-called soft spots in your policy frame include:

1. Your successive governments, of no matter what political stripe, give full expression to the idea of supporting sustainability and pattern-break innovations until they take office – at
which point they become de facto bearers of the standard of old mobility, old ways, and unsustainable transport. This of course is not limited to the UK, but still that is no excuse.

2. In general one notes a tendency among a quite large share of the brightest people working in the sector in government, to be far better at criticising and shooting down than creating and supporting useful actions. There is an almost comic situation in which new ideas from outside the assigned channels get shot down before they have had a chance to mature and advance. Greater openness and creativity needs to be encouraged (but there you really have a problem of behavior change.).

3. Local government holds the key to the move to sustainable transport but is by and large today confused and nervous. The local council leaders have a hard enough row to hoe just to keep what they have going as well as they possibly can. They face real problems of resources, but above all seem to me to have a major vision failure. And if you don’t have the vision, you have nowhere to go.

4. Your NGOs and various interest and action groups are often world class, however by and large are organised into quasi self-contained silos. And those who do take a broader approach are for the most part substantially underused assets. The attitude of government to these important assets strikes me as ranging from patronising to evasive to adversarial, and by and large altogether unhelpful.

5. Currently the deep cuts and lack of serous support for sustainability on the part of your latest government are putting just about everybody who is committed to and working on the sustainability and social issues in the sector on the defensive so there is today a general climate of deep despair, which I very much hope your committee will be able to help reverse.

6. The UK continues to be an island when it comes to deep knowledge about what is going on at the leading edge in other parts of the world. You need to get around more to develop hands-on knowledge about what works, and what doesn’t. The EU helps a bit with its various programs, but does not seem to be lively or creative enough, or sufficiently catalytic to see off a wave of innovations. In all too many cases the process of questioning and evidence building for decision tends to get stuck in the island.
7. A clear vision and understanding (by all) is needed to pull all of this together. That vision at present does not exist. This is not the place for me to articulate what I firmly believe to be the strategy that is needed to break this impasse. But let me at least try to give you a few of the main pillars of what I believe needs to be done to give yourselves the needed firm base.

8. The only possible strategic starting point is to make it the prime government policy (a) to reduce VMT steadily starting in 2011; and (b) make this the central core of all government policy and investment decisions for the period 2011-2015. Cutting back VMT has many enormous advantages, environmental, social, economic and strategic. And it can be done, but only with new thinking and strong leadership and participation from many levels of society. We have to help your government to understand this.

9. Once you have the strategic basics in place, the second core element of a viable sustainable transport policy has to be absolute consistency. No shilly-shallying. The same rigorous acid tests of cost-effectiveness, performance and impacts need to be applied to all public expenditures and investments. Once these principles are put into place, it is surprising how easy it become to separate the wheat from the chaff.

10. The third core value in the years immediately ahead has to be frugality. We are living in hard economic times. All allocations of public moneys need to be reviewed and decided rigorously on the basis of the actual impacts that are achieved within the rigorous planning and policy structure. This works out well since almost everything that is needed to achieve these strategic objectives can be achieved with far lower levels of public investment than the old heavily infrastructure-oriented policies.

11. The soul of success in sustainable development is not only vision, but also continuity once you get into an action mode. There is a huge amount of start and stop in Britain, which does no one any great good. It discourages and acts to sap the courage and energy of the sector.

12. And finally the grim bottom line reality. If you spend all your money on infrastructure you get infrastructure. But if what you want is high quality and fair mobility, well you have to spend the money on people. Year after year, government after government, you are consistently spending the great part of taxpayer money for the sector to support cars and roads. But the appropriate starting place for transport policy is people, not hardware I guess the first step has to be for you to figure out who you are and who you want to be.

I thought it important that I set the stage in this broader way so that you can see from where I come on all this. But I shall now dig into three of the questions you ask.
Responses to three selected questions:

What are the most influential drivers of behaviour affecting an individual’s choice of mode of travel?

Let me look for now at just one specific modal choice example to see if we can find some clues: Why do people decide to join carclubs? There is plenty of experience and evidence on this. Here, as someone with rather deep knowledge of the field is my quick read of the evidence from the perceive of the user:

a. The alternative offers an improved mobility option in specific situations.
b. It is considerably cheaper than owning and operating another car.
c. It frees the driver from the charge and cost of dealing with parking
d. It opens up a number of advantages of being "carfree" – that is unencumbered by the burden (financial, time, inconvenience) of such things as vehicle maintenance, upkeep, insurance, fueling
e. There are bragging rights associated with backing away from being totally unsustainable.
f. Most if not all people who share cars in this way have at least some awareness that they are behaving responsibly in terms of environment and climate.

What can we ascertain concerning your question from this brief and admittedly incomplete off the cuff profile?
Simple: You must be able to offer a superior travel option if people are going to make new and better choices.

This is a challenge since the received wisdom has been that public transport (which is almost always very narrowly defined: fixed route, schedules services, usually run on a deficit and government financed) is basically the poor man’s transport that Mrs. Thatcher reminded us all about so vividly so long ago. Waiting for a bus in the rain is not an option. Also: this suggests that we have a far broader and more strategic picture of what in act are those "other modes" as opposed to only and travelling by own car. Here are a very wide range of alternative options and it is important to know and understand them in depth, before asking about choice criteria.

2. What is the role of infrastructure in encouraging and facilitating changes in travel-mode choice?

Of course it is vital. But not perhaps as one might at first think. Here are a couple of important infrastructure truths which once properly understood give some useful clues for effective government policy at all levels.

a. Our road and parking infrastructure in almost all of our cities across Europe, and certainly in the UK, have been grossly over-developed in terms of their dimensions and share of the total land area of the city. In summary: we have over-built and under-managed the system. When we understand this, it opens up a whole new strategy of polices and measures adapted to this situation.
b. And we know too of course that the answers to the problems we face do not lie in more building and other forms of capacity expansion. For either moving or parked cars. This hard earned lesson is clear beyond any doubt.

c. So, we go to work with what we have. (which turns out to be a very good thing indeed).

d. 21st century infrastructure policies (a) shift available street space away from inefficient users of that space (namely private cars) and (b) make it available to efficient users, namely pedestrians, cyclists, public transit and other forms of shared transport.

e. The strategy has to be not a "war on motorists" but a deliberate and steady tightening of the noose on all inefficient users of the city's scarce space and environment. In addition to reducing road space available for these inefficient users (a purely physical strategy) a critical component of the infrastructure use strategy has to be the strategic reduction of parking space for private cars. This is a far more cost-effective policy than congestion charging, and lends itself to being planned and handled with political address.

f. A key tool in infrastructure management is that of slowing down all traffic in built up areas. There is no good reason why all city traffic in the UK should not be strictly limited to a 10/20/30 mph strategy. The justifications for this are accident reduction and a range of public health and environment improvements.

g. But we will, for the couple of decades ahead, still be seeing lots of cars in and around our cities, so our strategy must take this into account and not simply plunge into a denial mode. Cars are not the enemy, they have a place in society, but their indiscriminant inappropriate use is something that we can remedy. With strategy, with technology, with people skills and with patience.

3. What are the most appropriate type and level of interventions to change travel-mode choice?

Critical intervention N. 1: Get pricing right:
Once you have finally put into place a pricing system that fairly exacts the full social and environmental costs from the users of each transport mode, much of your problem simply disappears. Getting this right requires vision, courage, excellent analysis, careful interaction with all branches of the travelling public, and a well thought-out implementation and communications strategy that gets the great majority of the voting public on your side. This is possible, necessary and can be done. If you want to.

At the other end of the travel-mode choice chain the most creative thing you could do in the UK in the years immediately ahead and starting now (since it is possible) is to organise and deliver through creative partnerships a broader palette of high quality alternative transport options.

This is a long list which can start with things like access control measures, strategic parking
policies, innovative public transport, car clubs, ridesharing, new uses of taxis and small bus/van systems, safer and better cycling conditions in the city, ditto for walking, integrated ticketing and access systems, improved and consistent enforcement of regulations, and the long list goes on.

The target mode has to stretch way beyond traditional scheduled fixed route public transport and bus services. They are going to be part of the solution, but only part.

A core driver for all new services is going to be information and communications technologies, so if you are going to use policy to drive innovation, here is a sector that bears far better promise than the traditional costly vehicle, motor and fuel technologies which are the proper affair of the private sector.

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Thank you for giving me this opportunity to share my experience and views with you. It is encouraging to know that you are giving these issues importance and looking for new thinking and new solutions to these pressing problems, challenges . . . and, yes, opportunities.

Eric Britton

Some references for the reader

A PDF of this paper if available here:
http://worldstreets.wordpress.com/about/mission/whats-wrong-with-old-mobility/

You can follow progress of the inquiry via the Science and Technology Committee web pages, accessed from http://www.parliament.uk/hlscience.

The call for evidence for this stage of the enquiry is available at:

The first call for evidence is available on the Committee’s website at:
www.parliament.uk/business/committees/committees-a-z/lords-select/science-and-technology-committee/inquiries/behaviour/

The Mission Statement of World Streets provides additional depth of background on the overall strategic approach referred to here is available at http://wp.me/PsKUY-xq

A critique of "Old Mobility" here:
http://wp.me/PsKUY-BS

A recent interview with the author that appeared in Mobility Magazine on 20 January 2011 is now available at:
http://wp.me/psKUY-1ih

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Introduction

Marketers know that repetition creates familiarity and a way into long-term memory that is likely to establish an implicit acceptance (http://changingminds.org/principles/repetition.htm). So if we see the same message multiple times, we have a natural tendency to accept it, which is most unfortunate if the message is erroneous.

This could be a description of experience with so-called ‘critical analysis’ of voluntary travel behaviour change (VTBC), which is ironic given that VTBC (or TravelSmart, as it was originally conceived and developed in Perth, Western Australia) has provided more substantial documentation of methods and outcomes (see http://www.transport.wa.gov.au/14974.asp#houshold for documentation on Perth, Western Australia, alone) than almost any other transport initiative known to the present author.

In 2003, a number of erroneous statements to the effect that VTBC initiatives (TravelSmart/IndiMark™, in particular) had not been proven to be effective were published (Stopher and Bullock, 2003). Despite substantial rebuttal (Roth et al, 2003; Ker et al, 2003) in the same venue (26th Australasian Transport Research Forum), these erroneous claims have developed a life of their own, independent of the rebuttal.

Two years later, Paul Mees presented a paper (Morton and Mees, 2005) to the 28th ATRF in Sydney, New South Wales. This paper was criticised from the floor of the conference on the grounds that it was selective in its use of published evidence, was highly simplistic in its analysis and reflected only one side of the debate that had been held two years before at the 26th ATRF.

In 2010, the identical paper was published in this journal (Morton and Mees, 20101), without any attempt to address previous criticisms or reflect developments and experience since 2005 (eg, Brög and Ker, 2009; AGO, 2006).

This response to Morton and Mees is necessary for three reasons:

- The apparent inability of the authors to respond to substantial criticism made in other forums;
- The absence of reference to experience and published work since the paper was presented in 2005; and
- The difficulty of getting a balanced view of voluntary travel behaviour change published.

Background

In the light of continuing scepticism about (denial of?) the effectiveness and value of voluntary travel behaviour change, it is appropriate to recall the words of Joseph Dunninger:

For those who believe, no explanation is necessary.
For those who do not, none will suffice.
Joseph Dunninger (1892-1975)

Given the inadequacies of criticism of travel behaviour change by Stopher and Bullock (2003) and Morton and Mees (2010), Dunninger’s words might be paraphrased as:

For those who understand, no explanation is necessary.
For those who do not, none will suffice.

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1 Since the 2005 and 2010 papers are identical, reference to Morton and Mees (2010) should be taken to include the 2005 paper. Page references are to the 2010 published paper.
The German philosopher, Arthur Schopenhauer (1788-1860), described the experience that new ideas historically have had to endure as: “All truth passes through three stages. First, it is ridiculed. Second, it is violently opposed. Third, it is accepted as being self-evident.”

The reality of transport is approaching the third stage, after repeated successful travel behaviour change interventions in Australia, New Zealand, Europe/UK, the USA and Canada (Brög and Ker, 2009), but is hindered by commentators like Morton and Mees (2010) being stuck at the ‘ridicule’ and ‘violent opposition’ stages. Morton and Mees claim, without providing evidence, that support for travel behaviour change is because decision-makers seek an easy way out.

It is worth also noting an apparent double-standard in the quality of analysis regarded as acceptable. TravelSmart is consistently required, by critics, to demonstrate that its measurements and the statistical interpretation of its measured achievements are valid, but critics appear not to apply the same standards to their own data and analysis. For example:

- Stopher and Bullock (2003) misinterpret reported TravelSmart achievements because of a misunderstanding of how results were measured (Roth, et al, 2003), an error that could have been avoided by talking with TravelSmart practitioners. The authors have neither retracted nor corrected their assertions and the errors continue to be disseminated (Morton and Mees, 2010). Likewise, Morton and Mees did not seek information or clarification from those involved with the principal work that they criticise.

- Möser and Bamberg (2008), despite making comments about “weak quasi-experimental evidence” (p19) report results of statistical tests on that same evidence and, even more disturbing, use data (Table A1) that contain so many errors that the specific conclusions are invalid despite the reported statistical tests (Wall, et al, 2008).


In passing, I note that neither Stopher and Bullock (in 2003) nor Morton and Mees (in 2005 or between 2005 and 2010) contacted any of the people who had actually been involved in the development, delivery or evaluation of the initiatives of which they are so critical. In the case of Morton and Mees, this is all the more disturbing because the 2005 referee review strongly recommended that the authors be required to check many of their statements and conclusions with those familiar with IndiMark™ as the reviewer did not have sufficient direct knowledge to be able to comment on their validity.

The paper by Morton and Mees is more rhetoric than research and misinterpretation posing as analysis, so it is difficult to know how to address the content without inadvertently giving credence to what it says. However, since papers and policy advice that themselves make uncritical reference to either Stopher (2003) or Morton and Mees (2005) papers are now appearing, it is important to put the published record straight.

Political Economy of Travel Behaviour Modification

Morton and Mees (2010) assert that “The attractiveness of TBM to governments is obvious: it is much cheaper than investing in infrastructure or services…” (p8), as though the public transport system has so much spare capacity that additional riders can be accommodated at no cost. Whilst it was partly true for early
TravelSmart projects in Western Australia, population growth and higher fuel prices mean this is no longer the case.

Voluntary travel behaviour change initiatives increase, rather than substitute for, pressure on governments to invest more heavily in public transport, as there are now two major sets of stakeholders in support:

- Those who already used public transport but find that their level of service (e.g. getting a seat on the bus) is reduced by the additional users; and
- The new users, who come to have increased expectations of improvements to public transport (Figure 1).

Figure 1: TravelSmart and perceptions of public transport

![Figure 1: TravelSmart and perceptions of public transport](image)

Source: Socialdata (2003, p77)

Morton and Mees (2010) appear to belong to the physical determinist school of transport planning, paraphrased as “if you build it they will come”. However, it is at least as important to develop a constituency of support for building it in the first place, something that TravelSmart has very effectively achieved. If Paul Mees is in any doubt about this (which would be surprising after his long service in the Public Transport Users Association of Victoria), he should read the paper by his University of Melbourne colleague, John Stone in this journal (Stone, 2010).

One is forced to ask why, if the public transport system has so much spare capacity, people are not already using it. Morton and Mees cannot have it both ways. If there is spare capacity, it makes sense to use it; when the ‘spare’ capacity starts to be filled, governments will have no option but to invest in more and better services and infrastructure.

More than Public Transport

Morton and Mees (2010) focus their attention on public transport and consequently ignore many of the outcomes of TravelSmart/IndiMark.

Whilst Individualised Marketing did begin, in Europe, as a tool for increasing public transport use (UITP, 1998), TravelSmart is not mode-specific. The objective is to reduce car driver travel, with its social, environmental and increasingly, with Peak Oil (www.peakoil.net) making transport fuel more costly, economic downsides. Cumulative results for TravelSmart Household in Perth (Table 1) clearly show non-motorised modes gaining more than public transport, in terms of trips, although probably less so in terms of kilometres of travel.

Investment in public transport, on its own, might achieve higher patronage, but it will have less effect on car use than does TravelSmart, because it does nothing for other non-car-driver modes.
The results in Table 1 appear to show a small reduction in overall trips per person, but there was no reduction in the number of activities accessed per person. This can be a result of:

- Some trips converting to car passenger (not shown in the table);
- Trip-chaining, reducing the effective number of trips per activity; or
- Relocating or rescheduling/combining activities so that more than one can be served by a single return trip.

Relocation (substituting local for regional) or rescheduling/combining (more likely for long-distance trips) of activities also helps explain why the percentage reduction in car-km is greater than that of the number of car trips.

### More than Work Trips

Morton and Mees (2010) use Census journey-to-work data to cast doubt on reported results from the South Perth IndiMark/TravelSmart, on the grounds that:

- There were increases in public transport, walking and cycling in other inner areas around the same time; and
- The changes were most likely due to an increase in the share of workers employed in the CBD due to the combined effects of central employment growth and gentrification of the inner city.

However, the data they show (Morton and Mees, 2010, Table 1), whilst apparently supporting their initial contention with respect to public transport, do not support any similar argument with regard to car use, for which Victoria Park (the next local government area to South Perth and also across the river from the Perth CBD) showed an 0.3% reduction in car trips to work and South Perth a 2.2% reduction.

The Moriarty and Kennedy (2004) data quoted by Morton and Mees do not distinguish between car driver and car passenger, yet one in five of the car driver trips averted by TravelSmart were changed to car passenger and are internalised within the ‘car’ category. Using overall figures from South Perth (car occupancy, before = 1.33; increase in car passenger trips = 9% (Socialdata, 2003, p61)), the census results indicate a 5.9% reduction in car driver trips for work by South Perth residents (Table 2).

#### Table 2: Mode share for journey to work (South Perth): allowing for change in car passenger

<table>
<thead>
<tr>
<th></th>
<th>Actual</th>
<th>Deduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Driver</td>
<td>62.9%</td>
<td>(b)</td>
</tr>
<tr>
<td>Car Passenger</td>
<td>20.8%</td>
<td>(b)</td>
</tr>
</tbody>
</table>

1996 Census: South Perth

<table>
<thead>
<tr>
<th></th>
<th>Actual</th>
<th>Deduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Driver</td>
<td>83.7%</td>
<td>(a)</td>
</tr>
<tr>
<td>Car Passenger</td>
<td>20.8%</td>
<td>(b)</td>
</tr>
</tbody>
</table>

Increase in car passenger

<table>
<thead>
<tr>
<th></th>
<th>Actual</th>
<th>Deduced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Driver</td>
<td>59.2%</td>
<td>(c)</td>
</tr>
<tr>
<td>Car Passenger</td>
<td>22.7%</td>
<td>(c)</td>
</tr>
</tbody>
</table>

Implied change in car driver trips between 1996 and 2001

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Car Driver</td>
<td>-5.9%</td>
</tr>
</tbody>
</table>

(a) Moriarty & Kennedy (2004)
(b) Socialdata (2003)
(c) Deduced by application of car passenger change
Now, 5.9% is certainly less than the 14% reported overall reduction in car driver trips from TravelSmart in South Perth, but it is larger than the reported South Perth results for work trips, which show a relatively small percentage reduction in car driver trips of 3.8% on rounded figures (Figure 2). In effect, the data are actually capable of supporting both the Morton and Mees hypothesis about the share of South Perth workers in the CBD and the travel behaviour change reported by TravelSmart South Perth.

**Figure 2: Car driver trips before and after IndiMark: South Perth (rounded to nearest percentile of ‘before’ car trips)**

A further problem with using census journey-to-work data is that, as a record of travel on a single day, it can be heavily influenced by the weather. Census day 1996 in Perth was cold (14.8°C) after an extremely wet previous day (25.4mm of rain) and a cold night (7.0°C) – conditions that were likely to work against people walking, cycling or using public transport. In 2001, census day was typical in terms of overnight (12.4°C) and daytime (19.6°C) temperatures and had a small amount of rain (2.2mm) after two dry days, conditions that are less likely to make people depart from their usual travel behaviour.

**Durability**

Morton and Mees (2010, p10) question the durability of behaviour change. Long-term evidence is necessarily scarce for a relatively new initiative and can be difficult to demonstrate given the increase in confounding factors over time, but there is no evidence of diminution for a period of 4-7 years (Roth et al, 2003). In Cambridge, Western Australia, bus ticketing data shows a consistent (and if anything growing) increase in public transport over four years.

Any reversion to previous travel choices is most likely in the first nine months following the project but people who have not reverted by that time tend to stay with their new travel choice (Maunsell Australia, 2004, p57). On this basis, the ‘after’ survey (typically 12 months after the ‘before’ survey, to preclude seasonality influences) will already incorporate most reversion to previous behaviour.

**Perceptions and Reality**

Morton and Mees (2010, pp8/9) appear to have a problem with the morality of changing people’s perceptions of reality. Normally, not being a fan of social engineering, I would have some sympathy with this point of view, but in the case of transport we know that people typically:

- Under-estimate the time and cost of travel by car.
- Over-estimate the time and cost of travel by public transport, often through a lack of
familiarity with routes, schedules and fare structures (Figure 4).

Figure 3: Public transport boardings: Cambridge WA

![TravelSmart Household Durability](http://www.transport.wa.gov.au/ts_cambridgebusdata.pdf)

Where there is a substantial and consistent gap, it makes sense to address perceptions before, or perhaps at the same time as, devoting resources to changing the reality. Indeed, one source quoted by Morton and Mees (2010, p9) makes exactly this point (although they interpret it in a negative way through selective quotation):

“...for public transport, where services and travel quality [are] much higher than perceived, personalised approaches can have very large effects, but where such a gap does not exist the travel behaviour effects could be negligible...” (DfT, 2002, 8.3).

They ignore proximate comments from DfT (2010), as follows:

- The potential for these techniques ... is very large in the UK (also para. 8.3); and
- The approaches described above would work best where:
  - there is a known 'perception gap' between what exists, and what people know about, generally where services have been improved but little publicity has been given to this, and
  - analysis has been undertaken to show that patronage on services (or the level of cycling and walking) is lower than would be expected given the quality of those modes in the area and the journey demands that exist (para. 8.4)

We also know that TravelSmart does, indeed, reduce the extent of misperception (Figure 5)
When Did Change Happen?

Morton and Mees (2010, p10), following Stopher and Bullock (2003), state that: “...the increase in bus patronage appears to occurred in February, while the individual (sic) marketing component of TravelSmart ran from March to June.” If they had looked at the data, they would see that there were no data for February 1999, so it is not possible to make such a statement.

At first sight, the small increase between February 2000 and 2001 could be seen to indicate that a systematic increase in public transport patronage started in February, rather than March 2000 (Figure 6), as claimed by Stopher and Bullock (2003), but such an interpretation is unduly simplistic. February is a particularly difficult month to make superficial statements about in Australia, as the new school year starts on the first Monday or Tuesday in February (which can vary by as much as a week – five school days) and other artefacts of the calendar can significantly affect public transport usage:

- In 2000, February was a particularly ‘long’ month. There were 21 school days and 21 work days in February – the school term started on Tuesday 1 February and it was a leap year (29 days in February);

- In 2001, there were only 18 school days and 20 work days in February – the school term started on Monday 5 February. Given the practice of some working parents not to resume work after the summer break until their children return to school, the effective number of working days would have been less than 20.
Morton and Mees (2010, p10) also argue that, because South Perth TravelSmart only started in March 2000, it is unlikely that substantial impacts would be evident in that month. However, at least a part of the difference between March 1999 and March 2000 was because the 1999 March value was abnormally low. In 1999, the last three days of March were in the week of Good Friday, when some people choose to take time off work, as the last opportunity to do so with summer weather. This week usually falls entirely within the month of April, which also helps explain the small increase in April 2000.

If we convert the public transport usage in South Perth to a working/school day basis (ignoring, for simplicity, the effect of weekends, which is unlikely to vary substantially from year to year), the picture is less clear-cut (Figure 7).

What is clear is that whether or not, as Morton and Mees (2010, p10) repeating Stopher and Bullock (2003) claimed, “something else must have caused patronage to rise in February [2000]”, there is a substantial further rise in patronage in February (and March) 2001 that would require another explanation if it is not attributable to TravelSmart).

When 27 per cent really is 27 per cent

Morton and Mees (2010) cast doubt on the reported 27% increase in public transport for the Alemein (Victoria) case study because it relied on a 12% reduction in public transport in the control group, which they say cannot be due to “trends or seasonal influences ... at the population level over a period as short as six months” (p16). In fact, this was exactly what the reduction was due to, as investigation by the Victorian Department of Infrastructure (the client for the Alemein project) showed that it was related to the timing of school holidays and, hence, would have had similar effects in both the control group and the project itself.
This striking similarity to the analytical inadequacies identified in the previous section is indicative of the double-standard is apparently regarded as acceptable in so-called critical analysis. It is very disturbing how often criticism is based on assumptions that:

- Those undertaking the original work were not as clever as the critic, so failed to spot such matters; or
- If they did spot them, they did not seek to explain them and sought to hide them.

The cumulative sample represented by multiple interventions in Perth, Western Australia – reported results (Table 1) are now for 143,000 persons across 8 projects;

- Repetition and consistency across multiple projects; and
- Demonstrated 99% statistical confidence of behaviour change for the large-scale Brisbane North project (Socialdata, 2007).

Critics focus on the probability of the true result being lower than the measured result as a result of sampling errors. In fact, there is an equal probability that the true result is greater than the measured result. Ker and Brög (2007, pp105-107) show that, for the 13.4% measured reduction in car driver trips (with 99% probability of being greater than zero) in Brisbane North, there is:

- 90% probability that the true result is greater than 6.4%; and
- 80% probability that the true result is between 6.4% and 20.4%.

Put another way, there is only a 10% probability that the true result was less than 6.4% reduction in car driver trips.

This highlights a significant issue for public policy research and its influence. In complex systems it is very difficult to isolate cause-effect relationships, even using control groups, to the
same extent that it is in, say, medical research. We should question whether the statistical ‘requirements’ (principally 95% confidence) are appropriate given that an intervention in areas of public policy where failure does not result in unacceptable consequences.

Response Rates
Morton and Mees (2010) are critical of the response rates achieved in the Alemein project on the basis that 27% did not respond to the ‘before’ survey and 17% of those did not respond to the ‘after’ survey. Attrition is always a problem with panel surveys, as used for this project, which is why most TravelSmart/IndiMark projects use repeated random cross-sectional surveys. Nevertheless, the response rate for the ‘before’ survey was very high and would be reagrded enviously by anyone with experience in travel surveys.

The limited evidence available, where both panel and cross-sectional surveys have been carried out, suggests that panel surveys show lower levels of travel behaviour change than cross-sectional surveys (Brög and Ker, 2009, pp95-7) despite attrition. This is not what one would expect if the attrition were the result of those with least ability to change their travel behaviour dropping out, as implied by Morton and Mees.

The Expectancy Effect and Non-Response Bias
Morton and Mees (2010) seek to discredit results by saying that survey respondents might consciously or sub-consciously seek to comply with implicit expectations of the intervention (p12), including the ‘good subject’ effect (p17) with falsified responses or non-responses (the latter in the case of those who had ‘failed’ to change behaviour but invoked the George Washington response of being ‘unable to tell a lie’).

There is no evidence of this. Indeed, it could only be even potentially significant in the case of a panel survey or where the surveys were not differentiated from the intervention. Neither of these applies to TravelSmart/IndiMark as surveys are separate from the intervention, respondents are never asked if they have changed their behaviour and surveys are almost always random samples of the intervention population – the probability of the same household being surveyed both before and after is small.

Morton and Mees betray their lack of understanding of the survey and measurement in TravelSmart when they say that “behavioural guilt is...to be expected in TBM studies, particularly when the target group self-identifies as seeking behaviour change” (p13, emphasis added). The change is actually measured over the whole population of the target area, of which, in the case of South Perth, less than half formed the ‘target group’ that might be characterised as ‘seeking travel behaviour change (Socialdata, 2003, p32).

Morton and Mees also invoke a strange ‘doppelgänger’ of the expectancy effect in the control group (p17) when they suggest (without evidence) that some in the control group, knowing that TravelSmart is under way in the area, might “under-report their use of public transport, walking and cycling and/or over-report their car use to ensure that the researchers got the comparative result they wanted” [emphasis added by the current author]. This really beggars belief, unless Morton and Mees are able to produce some evidence of this – not just here, but anywhere.

Conclusion
Morton and Mees (2010) have repeated, uncritically, a number of fallacies about TravelSmart Individualised Marketing first stated by Stopher and Bullock (2003), with only passing reference to the substantial rebuttals by Roth et
al (2003) and Ker et al (2003). They also add their own negative interpretation of the political economy of travel behaviour modification. They have a clear propensity for speculation rather than using analysis. Where they do present analysis, it is superficial (despite their description of it as ‘careful analysis’ (p21)) and fails to take account of specific factors that work against their arguments.

Morton and Mees (2010) is identical to the paper they presented at the 2005 Australasian Transport Research Forum, which was subject to substantial criticism from the floor at the time. The authors have neither addressed those criticisms nor reflected more recent work in their 2010 paper.

Morton’s and Mees assert that TravelSmart is an easy and cheap option for governments to increase public transport use, compared to investment in infrastructure or services. Such a view is disingenuous, as increased usage of public transport will inevitably increase the constituency of support for more and better public transport, especially as any existing spare capacity is filled by new users.

Morton and Mees (2010) focus their attention on public transport and ignore many of the outcomes of TravelSmart/IndiMark, the primary objective of which is to reduce car driver travel. Non-motorised modes have generally gained more than public transport.

There appears to be systematic and often spurious criticism of TravelSmart/IndiMark on the basis of misinterpreted or incorrect information. In the case of Morton and Mees (2010), and its progenitor Stopher and Bullock (2003), their use and interpretation of data was highly simplistic. Using publicly available information and data, that would have been equally-available to all four of those authors at the time they were writing, it has been shown that:

- There is a wide divergence between perceptions (of travel time and cost) and reality that provides the essential condition for voluntary travel behaviour change to be achieved.
- The change from car driver to car passenger, ignored by Morton and Mees, makes their reported journey-to-work data completely consistent with both the reported effects of TravelSmart in South Perth and a longer-term trend away from car driving for commuting to central cities.
- Their argument about the increase in public transport starting in February 1999, a month before TravelSmart/IndiMark, is weakened when one adjusts for variations in the number of work and school days in February between years. Further substantial increases in patronage in February (and March) 2001 would require yet another explanation, if not attributable to TravelSmart.

More generally, the very need for this response highlights a disparity in the quality of analysis that is regarded as ‘acceptable’. TravelSmart is required by critics to demonstrate that its measurements are valid and the statistical validity of its measured achievements, but those critics appear not to apply the same standards to their own data and analysis.

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References


Road Traffic Congestion Management and Parking Infrastructural Planning in Metropolitan Lagos: The Linkage
Joshua A. Odeleye, PhD

Introduction
Public transport in any form is a universally accepted component of mobility management in urban transportation planning and development. One of the significant advantages of public transport, when properly planned, designed and operated, is that it facilitates the realisation of transit-oriented development in cities. For, it provides an incentive for car owners to think of using alternative means of transport, to access spatially located land uses and opportunities. Consequently, the concept of mobility management as emphasised in literature has helped tremendously in minimising road transport externalities, such as congestion, air and noise pollution, accidents, energy inefficiency, as well as other related environmental problems, in urban environment globally. The aim of this paper therefore, is to determine the extent of integration of green mode infrastructural on feeder routes to the Bus Rapid Transit (BRT) corridor in Lagos.

The Problem
Commuter traffic in metropolitan Lagos is unevenly shared between road, rail, and waterways modes of transport. Notably, over 90% of commuter’s demand for travel is met by road, while rail, that diagonally traverses the city, and the poorly developed waterway infrastructure attract less than 5% of the total volume of commuters daily traffic. As a result, the road network in metropolitan Lagos is synonymous with heavy vehicular traffic, especially at peak periods; and consequent traffic congestion that “elongates and increases transit time unnecessarily” (Odeleye, 2008). The Lagos authority, however, in its bid to minimise traffic congestion and enhance accessibility and mobility in the metropolis, introduced a mobility management strategy known as Bus Rapid Transit (BRT) Scheme (see Fig 1). The objective of the BRT scheme is to discourage and minimise car-oriented travel patterns in Lagos, in favour of optimal public bus utilisation by commuters in the city.

Fig 1: The Mile 12-CMS BRT Infrastructure

Notwithstanding, the introduction of BRT Scheme, road traffic congestion persists on the BRT corridor (see Fig.2). This is an indication that the system has not been able to attract the patronage of a reasonable percentage of commuters that drive to and from work daily in Lagos. For, the percentage of affluent citizens patronising the scheme for journeys to and from work, as observed, is relatively low.

This is an indication of a blatant defeat of the primary objective of the scheme, which is aimed at managing commuter’s travel demand through a dynamic public transport system. Thus, there is
the need for a reversal of the above-analysed problem, if the BRT system in Lagos is to achieve its sustainable urban transport objectives in the metropolis.

However, the scope of this paper is limited within the coverage of the first phase of Lagos BRT corridors commissioned which commenced operation in March 2008. The corridor is tagged Mile 12-CMS BRT corridor. It covers a distance of 22km, with lane width of about 3.3 metres. The corridor is shown in red (see Fig 3).

The Conceptual Background
The concept of traffic congestion has been diversely defined in literature. For instance, Sadiq 1999; and Varaiya 2005 perceived it as a scenario whereby users of a particular facility begin to interfere with each other, due to the limited capacity of the infrastructure. However, Roth 1999; and Ogunsanya 2002 conceptualised it as a situation whereby too many cars are occupying a small amount of a road space.

The positive attributes of traffic congestion in an urban environment, according to Webber (2000), is that it stands “as a mirror on city’s economic vitality and the pace of its social life.” Hence, Webber concluded “congestion is a built-in attribute of then prosperous metropolis.” Wachs (2002) also agreed that worsening traffic congestion is most often associated with prosperity rather than poverty; and with growth in population in business rather than decline.

Despite the positive attributes of road traffic congestion, measures in terms of policy and infrastructural re-engineering are put in place by urban transport planners and engineers to curtail and minimise its negative impacts on the liveability and competitiveness of any given urban environment. One of such measures is the Bus Rapid Transit (BRT) system, which is a road infrastructure re-engineering that provides a separate travel lane for a specialised public passengers’ bus.

For BRT to be effective, according to Wright (2004), it has to be fully integrated with all options and modes. In truth, other transport options such as walking, cycling, driving, taxis and other public transport systems should not be seen as competitors with the BRT systems. Rather, such complementary services should interact with BRT as the seamless set of options serving all aspects of customer needs. For appropriate management of traffic congestion through the adoption of a BRT system, Wright (2004) suggested that the BRT system interface options must be maximised by the system designers with other urban transport modes. Otherwise, the system will not be able to attract and optimise the potential customer base.

Wright (2004) added succinctly; “The BRT system does not end at the entry or exit door of the
station, but rather encompasses the entire client capture area”. In other words, if customers cannot reach a station comfortably and safely, then they will cease to become customers (Wright, 2004). The inadequacies in complementary alternative transport infrastructure, such as exclusive pedestrian walkways, bicycle paths on BRT feeder routes, as well as lack of bicycle parking facilities at stations are in part responsible for the uneven patronage of the BRT facility across the social strata of Lagos.

![Fig 3: Mile 12-CMS BRT Route](Source: LAMATA (2010))

Methodology

This paper adopted the contextual factors method to collect data on the identified planning deficiency in the provision of complementary BRT feeder routes infrastructure, such as bicycle path, pedestrian walkway, and bicycle parking facilities at BRT stations, especially in adjacent neighbourhoods of the BRT stations in metropolitan Lagos.

Hence the physical aspects of the BRT route in question, such as its land uses, socio-economic profile, environmental landscape, as well as its traffic and transportation characteristics are used as indicators for determining the adequacy of alternative transport infrastructure on the selected BRT corridor. The contextual method is used in this paper, because understanding the modal and location characteristics of a given corridor will better enhance its positive modal integration.

The road traffic infrastructure data gathered were presented and analysed qualitatively in tables and photographs, thus emphasising the gaps in complementary roles the infrastructure are expected to play in an integrated modal scenario in the study area.

Overview of Lagos BRT Planning and Implementation

Lagos BRT scheme is an off-shoot of a study titled “Lagos Urban Transport Project (LUTP)”, funded by the Lagos government. The study, undertaken in 1999, has as one of its core objectives the provision of enhanced bus services across Metropolitan Lagos. The LUTP study consequently recommended the replacement of the unconventional Lagos bus system that comprised of an unsafe fleet of buses called in local parlance Molue and Danfo.

Consequent upon the recommendation of the LUTP, the Lagos State government engaged the services of a consultancy firm ‘Transport Planning Limited’ in August 2006 to carry out a feasibility study of the proposed BRT Scheme in Lagos. The mandate of the consultancy firm was to design and develop a BRT Scheme that would be affordable, safe, cost-effective and environmentally-friendly.

The study eventually recommended a pilot BRT corridor along Ikorodu Road. It is regarded a pilot
project, being the first of its kind in Nigeria. The length of the proposed corridor is 22 km, starting from Mile 12-CMS Marina in Lagos Island, the city core Central Business District (CBD). Moreover, the corridor serves as a major link between the North East and the coastal South of the city, where the core commercial activities in Lagos take place. The scheme was officially launched on 17th March 2008, with a fleet of 100 buses. The fleet of buses was later increased to 220, when the government realised the upsurge in demand by commuters within a week of its inauguration. The BRT-Lite segregated lane on the corridor is demarcated from other traffic in the corridor by concrete kerbs 400mm high. The width of the segregated lane is 3.3m. The scheme is a public private partnership initiative of Lagos Metropolitan Area Authority (LAMATA); a government institution with substantial financial support from the World Bank.

The Characteristics of Mile 12-CMS BRT Corridor

The BRT corridor is situated in the built-up environment of the Metropolitan Lagos (see Fig. 3). It is dominated by residential land-use as well as a few commercial land-use areas spatially located along the corridor (see Table 2 and Fig. 4). The built-up characteristic of the corridor is partly responsible for the inadequate provision of spaces for exclusive parking facilities near the BRT stations along the corridors. Although, there are two exceptions with expansive car park facilities namely, Ketu and CMS.

However, going by the projected increase in the population of the immediate neighbourhood of the corridor as shown in Table 1, acquisition of vacant land around the BRT stations for construction and development of exclusive parking facilities along the corridors, especially for cars, would be difficult in the near future (see Table 1). Therefore, the appropriate option out of this identified infrastructural gap would be to consider provision and integration of alternative green mode infrastructures, such as exclusive pedestrian walkways, bicycle paths and parking facilities in and around the BRT stations. These facilities, when provided, will facilitate increased patronage of the scheme, especially among the affluent living in the neighbourhood of the corridor.

For, according to Wright (2004), a BRT scheme that fails to provide alternative transport options that will cost-effectively feed the BRT corridor is designed to fail. In other words, a “stand alone” BRT infrastructure, without complementary alternative feeder transport options, cannot in any way discourage the use of cars, increasing car traffic and its attendant effects of road traffic congestion in cities (see Fig. 2).

Table 1: Population Projection by 2015 of Local Government areas served by the Mile 12-CMS BRT corridors

<table>
<thead>
<tr>
<th>Local Government Areas</th>
<th>Projected population by 2015</th>
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<tbody>
<tr>
<td>Ikeja</td>
<td>975,845</td>
</tr>
<tr>
<td>Kosofe</td>
<td>1,749,878</td>
</tr>
<tr>
<td>Lagos Island</td>
<td>1,127,306</td>
</tr>
<tr>
<td>Lagos Mainland</td>
<td>694,160</td>
</tr>
<tr>
<td>Mushin</td>
<td>2,257,258</td>
</tr>
<tr>
<td>Oshodi/Isolo</td>
<td>1,880,889</td>
</tr>
<tr>
<td>Shomolu</td>
<td>1,475,092</td>
</tr>
<tr>
<td>Surulere</td>
<td>1,933,094</td>
</tr>
</tbody>
</table>

Source: Lagos State Digest of Statistics, 2003
Alternative Transport Infrastructure Provisions on BRT Feeder Routes in Lagos

Table 2 shows the deficiency in complementary infrastructure provision along the corridor. Notably, all the stations are connected with overpass pedestrian bridges, with ramp (see Fig 4).

Table 2: Assessment of complementary transport Infrastructure on Mile 12-CMS BRT corridor, Lagos (+ = Available, ++ = Not Available)

<table>
<thead>
<tr>
<th>BRT Stations</th>
<th>Land Uses</th>
<th>Parking and Feeder Routes Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Exclusive Walkways</td>
</tr>
<tr>
<td>MILE 12</td>
<td>Residential/ Commercial</td>
<td>++</td>
</tr>
<tr>
<td>KETU</td>
<td>Residential/ Commercial</td>
<td>++</td>
</tr>
<tr>
<td>OJOTA</td>
<td>Residential/ commercial</td>
<td>++</td>
</tr>
<tr>
<td>NEW GARAGE</td>
<td>Industrial/ Terminal</td>
<td>++</td>
</tr>
<tr>
<td>MARYLAND</td>
<td>Residential</td>
<td>++</td>
</tr>
<tr>
<td>IDIROKO</td>
<td>Residential</td>
<td>++</td>
</tr>
<tr>
<td>ANTHONY</td>
<td>Residential</td>
<td>++</td>
</tr>
<tr>
<td>OBANIKORO</td>
<td>Residential</td>
<td>++</td>
</tr>
<tr>
<td>PALMGROOVE</td>
<td>Residential</td>
<td>++</td>
</tr>
<tr>
<td>ONIPANU</td>
<td>Residential/ Commercial</td>
<td>++</td>
</tr>
<tr>
<td>FADEYI</td>
<td>Residential</td>
<td>++</td>
</tr>
<tr>
<td>JIBOWU</td>
<td>Residential/ Terminal</td>
<td>++</td>
</tr>
<tr>
<td>BARRACKS</td>
<td>Residential</td>
<td>++</td>
</tr>
<tr>
<td>STADIUM</td>
<td>Residential/ Recreation</td>
<td>++</td>
</tr>
<tr>
<td>LEVENTIS</td>
<td>Residential/ Commercial</td>
<td>++</td>
</tr>
<tr>
<td>CMS</td>
<td>Residential/ Commercial</td>
<td>++</td>
</tr>
<tr>
<td>TBS</td>
<td>Residential/ Commercial</td>
<td>++</td>
</tr>
</tbody>
</table>

The overpass allows for free access to and from the stations by commuters. Table 2 further shows a total absence of exclusive pedestrian walkways, bicycle paths and bicycle parking facilities at stations and stations neighbourhood.

However, the majority of these commuters live at locations within a minimum distance of 500 metres and above from the station.

The available transportation option for reaching out to the BRT station are through
unconventional mode of public transport such as Mini-bus, tricycle and commercial motorcycles known as “Okada” in the local parlance (see Fig 5).

Fig 4: Overpass under construction connecting BRT station to Fadeyi neighbourhood

This unconventional means of transport provides unsafe, unscheduled and erratic services to commuters, hence the affluent rather prefer the use of their individual cars for journey to and from work.

Lagos BRT Patronage

However, against all odds, the BRT scheme has continued to enjoy unprecedented patronage from commuters, right from the inception. Fig 6 shows the growing trend of patronage of the scheme by commuters. Also, Fig 7 shows a queue of commuters embarking at one of the stations along the corridor. In an overview of the scheme by LAMATA (2010) the agency reveals that the scheme carried more than 195,000 commuters daily on the corridor, between 6.00a.m and 10.00p.m. For instance, during peak hours it conveys 10,000 people in one direction of flow. As a result, about 37% of the public transport commuters on the corridor patronise the BRT. However, in the first year of operation, the scheme moved over 120 million passengers (LAMATA, 2010).

The daily ridership on the 22km BRT route, according to Amiegbekhor (2009), is approximated at 200,000 passengers. Also, it has an average load factor of 1000 passengers carried per bus daily. Meanwhile, the average passenger kilometers travelled is 5 kilometres, while the kilometres travelled by bus daily is 220 kilometres.

Fig 5: Intermediate Means of Transport (IMT) providing feeder services to the BRT
Fig 6: Lagos BRT Patronage by Commuters in Lagos, March, 2008-April, 2009 (Source: Amiegbeborah, D (2009))

Fig 7: Commuters Embarkation at Jibowu station

The BRT average transit time of 55 minutes, which is relatively shorter, when compared with the 70 minutes transit time experienced in other forms of public transport on the corridor; endears commuters to BRT especially at peak periods (Fig. 8). Furthermore, the locational characteristic of the corridors whereby it stretches through the heavily populated sub-

urban part of the city where the majority of the workforce domicile (see Table 1) and terminates at the CBD make journey to work, home, commercial centres, recreation predominant on the corridor.

In the course of a user’s interview conducted, it is observed that 7 out of 10 commuters used the BRT mostly for the journey to work, especially during morning peak periods, and the journey home in evening peak periods. As stated earlier, the corridor serves as a link between the main Central Business District (CBD) and the adjacent dormitory settlement of Ikorodu town and its environ, in the Northern part of the city. Hence the journey to and from work is the dominant journey type on the corridor.
BRT Infrastructure in the New Lagos Strategic Transport Master Plan

Lagos is categorised as one of the world fastest growing cities. For instance, a recent UN report states that Lagos is expected to hit the 24.5 million population mark, thus joining the league of ten most populous cities in the world by 2015. The ensuing huge demand for transport in the city, necessitates a long term transportation strategic planning. In view of the future transport demand challenge in Lagos, the authority has decided to expand the BRT scheme by adding 10 more corridors to the existing corridors. The proposed corridors include: Yaba-Oyingbo/Iddo-CMS; and Oshodi-Mile 2-Orile-CMS among others (see Fig 9).

The Lagos government, through LAMATA, has developed a strategic Transport Master Plan that is envisioned to provide a modern integrated multi-modal transport system, which is capable of meeting the increasing travel demand as well as making Lagos a world class city. The introduction of an additional 10 BRT corridors is one of the hallmarks of the newly developed Lagos Strategic Transport Plan. The green lines on Fig.9 signify the existing and proposed BRT corridors, while other colours represent additional networks of rail, road and water routes.

Discussion of Findings

The study area is dominated by residential land use, with commercial land use spatially distributed along the corridor. The two prominent commercial land uses are the Ketu market, on the mainland; and the Lagos Island end of the corridor, which is the commercial nerve centre of the city.

The overwhelming residential land use characteristics of the corridors should have necessitated provision of designated bicycle and pedestrian path/network, linking the neighbourhoods that are densely populated (see Table 2) with the adjacent BRT stations, which are within a range of 500 metres. Apart from the fact that bicycle and pedestrian walkways are not provided on the corridor as revealed in Table 2,
and the admixture of trucks, tricycles, minibuses, motorcycles and heavy pedestrian traffic on feeder routes, is enough excuse for the affluent, physically-challenged and elderly commuters not to patronise the BRT scheme. They thus continue to depend on cars for meeting their travel demands, and consequently aggravate the road traffic congestion situation in Lagos. Typical examples of the scenario painted above are noticeable in Ketu, Ojota, Ojuelegba among others.

The above scenario therefore, negates the spirit behind the concept of BRT system. Hence Wright (2004) stated “if it is not convenient or easy to travel to a BRT station, then the other qualities of the system become somewhat irrelevant. Without adequate access to the stations, customers will not utilise the system. The working environment is a key determinant in whether the transit system is of use to the customers or not. Therefore, there is a need for the development of dedicated pedestrian zones around the BRT stations in Lagos. Curitiba, Brazil is a good example in this regard, where pedestrian access routes have been planned over a radius of at least 500 metres around each station.

Recommendations

The following are therefore recommended as ways of harnessing the environmental sustainability of BRT systems, as well as creating an affordable access for all class of public transport users, in metropolitan Lagos.

i. The Authority needs to complete the BRT system project by doing a reappraisal of the feeder roads, so as to provide exclusive pedestrian and bicycle paths where appropriate.

ii. Also, complementary infrastructure such as over passes and under passes must be made accessible to all. The existing ones are still not accessible to elderly and physically challenged persons, who may wish to move around unaided.

iii. Bicycle parking infrastructure should be integrated into the new Lagos BRT system, because it will provide customers access to the transit system. It is also capable of covering a distance 5-10 times greater than walking in the same time period. More so, it is capable of effectively increasing the BRT customer catchment areas some 25-100 times. Therefore it should be prioritised in new investment in the Lagos BRT system.

iv. Kerbs along the pedestrian road to the BRT station should all be ramped, so as to provide access to customer on wheelchairs, as well as those carrying bicycles and trolleys.

v. Authority should support a “Green Mode” initiative evaluation of the scheme regularly, so as to ensure that the scheme is achieving its primary socio-economic and environmental objectives in the study area.

Conclusion

The authority in Lagos has taken the right steps towards sustainable urban transport, by considering Bus Rapid Transit option as a process of improving accessibility in the mega city. However, this initial achievement may nose-dive, if it fails to put in place some vital complementary infrastructure that will aid and increase optimally the BRT patronage, across the strata of the society.

For, unless adequate complementary/alternative public transport infrastructure, such as park-and-ride; and park- and –kiss, designated exclusive pedestrian walkways, bicycle path/network are provided on the adjacent feeder roads of the BRT stations, the Lagos
authority would have only succeeded in improving mobility and not accessibility for her teeming urban population. Therefore, it is paramount to reverse the prevailing trend, such that a well-integrated BRT infrastructure would be optimally utilised to accomplish equitable access to all in Lagos.

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References


Lagos Metropolitan Area Transport Authority (LAMATA) www.lamata-ng.com 18/11/2010


Roth, G (1999) Combating Congestion with cash. Urban Age, Fall

