

# CAN PERSONAL TRAVEL PLANNING SHIFT MODE CHOICE AND TRAVEL BEHAVIOUR? LESSONS FROM AN EMPLOYEE PROGRAMME FOR WWF SOUTH AFRICA

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## ABSTRACT

This paper reports on a 16-week voluntary Travel Demand Management project for employees at World Wide Fund for Nature (WWF) (Cape Town and Johannesburg), where employees were encouraged to shift from single occupant vehicles to more efficient modes, or to reduce the number of trips taken. WWF elected to refer to the concept as EcoMobility.

Key purposes of the project were to influence individual travel decisions through an understanding of personal challenges and barriers to sustainable mobility shifts; to gather quantitative and qualitative data (emissions as well as challenges); and to provide evidence-based input into travel behaviour change policies and programmes nationally.

The WWF EcoMobility project took a social marketing approach to planning and communication, and project principles were based on theories regarding stages of change. Participating employees were given the opportunity for individual or group 'coaching' sessions, and received information booklets and travel diaries, from October 2017 to January 2018. The diaries included questions about weekly travel goals, challenges experienced in trying to achieve the goal, and intentions for the week ahead. Travel diaries and emissions logs were analysed weekly, and a summary was returned to participants.

Overall, participating WWF employees already do pay careful attention to the way in which they travel, but that for those who wished to further reduce their carbon impact, alternatives were limited. Without frequent and reliable public transport, as well as safe last-mile walking trips from public transport to work, private car use remains the most obvious option to those who can afford it (despite congestion and travel times). Personal safety, safe and affordable vehicle parking, and trip chaining were particular barriers to public transport use. Valuable insights were gained into the barriers to using lift-clubs and ride-share, and to employees' attachments to their private vehicles. Institutional interventions, such as alternatives to parking subsidies at work, employee shuttles, bicycle-purchase schemes, working-hour car-pooling mechanisms, and walking-buses, are being explored, as these are the areas in which large employers are able to make the greatest contribution and impact.

## 1. INTRODUCTION

Travel Demand Management (TDM) is a term for strategies that result in more efficient use of transportation resources<sup>1</sup> – as opposed to building new infrastructure such as roads and parking, primarily to accommodate private vehicles at great cost (TDA, 2016; GTZ, 2003).

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<sup>1</sup> <http://www.vtpi.org/tdm/>  
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Essentially, this means managing movement to make better use of existing capacity and infrastructure, and promote lower-carbon choices. TDM measures are to some extent aimed at changing the behaviour of the users of the transport system, by encouraging a shift from single occupant vehicles (SOVs) to more efficient modes, or by reducing the number of trips. Thus, TDM requires incentives to shift travel choices more or less permanently.

## **2. PURPOSE OF THE WWF EMPLOYEE ECOMOBILITY PROJECT**

The goal of TDM should be sustainable modal shift rather than the reduction of congestion (TDA, 2016). The literature shows that large employer strategies such as parking cashouts<sup>2</sup> and flexible working hours (Odendaal, 2002) can have a significant impact on travel behaviour – within the company itself (TDA, 2015). However, there is little evidence that these interventions are necessarily successful city-wide in reducing congestion, for example, and need to be accompanied by a basket of other measures to achieve this goal (TDA 2014 ab; Behrens *et al*, 2015;). Employer strategies are thus more valuable in reducing corporate carbon impacts, and in shifting individual approaches to travel.

Since 2011, WWF Global has hosted the One Planet City Challenge, to recognise cities that aim to provide sustainable housing, transportation, and energy. The theme of the 2017-2018 Challenge was sustainable transport and mobility. The South African WWF office, based in Johannesburg and Cape Town, determined that in line with its own commitment to sustainable resource use, it would implement a sustainable transport programme for employees, taking the form of a voluntary Travel Demand Programme.

Named the WWF EcoMobility project, its objectives were to:

- Facilitate a shift among employees to sustainable modes and travel;
- Facilitate and implement the uptake of strategies/solutions within the organisation;
- Achieve quantified carbon emission reductions;
- Contribute to strategic TDM discussions at national, local and organisational level.

The objective was neither to plan for nor to expect different trip decisions by all employees for all trips, or even one different trip decision for all trips, but to enable employees to become aware of decision-making processes and the alternatives available to them, in addition to reducing emissions (TDA 2014a; Behrens *et al*, 2015).

## **3. POLICY SUPPORT FOR VOLUNTARY AND EMPLOYEE TDM IN SOUTH AFRICA**

South Africa's national policy environment is directed toward transforming public transport, and attending to road congestion and single-occupancy vehicle travel. At the core of the Public Transport Strategy and Action Plan (2007) is a focus on prioritising 'car-competitive' public transport, and walking and cycling. A goal for the metro areas is to achieve a mode shift of 20% of car trips to public transport trips by 2020 (NDoT, 2007).

This policy attention on mode shift continues throughout documentation such as South Africa's contributions in terms of the 2016 Paris Agreement, the National Strategy for Sustainable Development and Action Plan 2011–2014; the national Climate Response Strategy (DEA, 2004); the National Integrated Urban Development Framework (COGTA, 2016) and the National Development Plan (Ch 5, Transition to a Low-Carbon Economy). South African metro, district and provincial Integrated Transport Plans (ITPs) by and large include chapters on proposed TDM measures. These include workplace or employee travel

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<sup>2</sup> The option of exchanging your subsidised parking bay for cash.  
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programmes such as flexi-time or remote working, bicycle promotion, car-pooling, and car-sharing (eg TDA, 2006; EMM, 2013; GITMP25, 2013; Stellenbosch, 2016).

#### **4. THEORETICAL FRAMEWORK OF THE WWF ECOMOBILITY PROJECT**

Technical or economic factors alone will not be enough to achieve the carbon emission goals set worldwide or to contribute to other issues such as road safety and traffic congestion. The necessary transition to a low-carbon environment also calls for behavioural changes, including reductions in single car use (eg Hiselius 2016).

Although awareness of climate change is reasonably high among private car users – including conceptual awareness of the link between transport and climate change, there seems to be an attitude-behaviour gap between a concern about the relationship between climate change and transport, and the actions required to mitigate its effects. It is the translation of awareness and concern into action that is most pressing (Hiselius 2016).

The link between attitudes and travel behaviour has been recognised in the literature for some time (Rose *et al*, 2001). Knowledge or information can influence attitudes and ultimately behaviour, but few travel programmes are explicitly designed to move beyond ‘raising awareness’ – what I call the ‘poster-brochure’ approach. While awareness is an essential first step in changing behaviour, shifting behaviour along a continuum is critical. Thus key to this project was an attempt to influence individual travel decisions through an understanding of actual personal challenges and barriers to sustainable shifts, and expressed desire for change (rather than to base interventions on generic assumptions).

For this reason, the WWF EcoMobility project took a social marketing approach to planning and communication, and project principles were based on the Stages of Change theory (Prochaska and DiClemente, 1983). Each ‘stage’ of change requires a different form of intervention, and shifting participants in the WWF EcoMobility project from one stage to the next (for example, from never considering sustainable mobility, to planning to change) was as important a goal as achieving reduced carbon emissions.

Social marketing is the use of commercial marketing techniques to promote the adoption of a behaviour that will improve the health or wellbeing of a target audience, or society as a whole. Information (telling people to drive less, for example) has not yet made a lasting impact on the problem; interventions that address the problem more specifically, with a clear insight into the ‘problem’ and the ‘price’, as well as more defined and selected target audience, are more likely to be effective.

A combination of interventions directed toward the needs of people in specific ‘stages’, together with interventions to change beliefs and intentions, and habit-changing interventions that disrupt the factors that cue habits, are more likely to successfully change behaviour (Behrens & Del Mistro, 2996; TDA 2014a; Behrens *et al*, 2015).

##### **4.1 Voluntary Travel Demand Management**

Since the late 1990s, there have been examples of travel behaviour change programmes using what are termed ‘voluntary behaviour change methods’ – primarily in Europe and Australia (Ampt *et al*, 2003; Taylor *et al*, 2003). These relatively newer approaches attempt to work with individuals, intending to facilitate individual travel behaviour change through personal choice and individual action.

Personal travel planning (PTP) involves providing people with tailored information and assistance that might persuade them to voluntarily increase their use of sustainable modes while reducing their dependence on private cars (Bonsall, 2009). The idea behind PTP is that by providing targeted information and incentives, individuals can come to recognise that alternative travel patterns are actually better for them than the previous patterns to which they have become habituated. The new patterns have to make sense to the individual in multiple ways – being ‘green’ is not necessarily sufficient (Bonsall, 2009).

With PTP or VTDM, there is no ‘stick’ – only a carrot. It involves no form of regulation, fiscal or physical measures – only information, encouragement and advice (Bonsall, 2009).

#### *4.1.1 Travel Blend*

Travel Blend, which influenced the WWF EcoMobility project, is a trademarked programme at household level in Australia, whereby people in participating households complete a travel diary, return their diaries to the programme organisers, and receive customised feedback (Ampt et al, 2003). At WWF we adapted this for employee purposes, and included the opportunity for personal (face to face, skype or email) feedback and workshops.

## **5. METHOD**

For a voluntary TDM (VTDM) programme to have influence, it is essential to work with people who wish to make changes (who’s attitudes are internally consistent), and then to assist them with the knowledge and information they need to make those changes. (Ampt, 2003). For this reason, the WWF EcoMobility project first established a baseline of travel behaviour, and a second survey identified individuals who wished to make changes, but did not necessarily have the knowledge to facilitate and enable this change.

### **5.1 Baseline survey**

The Human Resources department at WWF mailed a baseline survey, using a professional survey software programme, to all 158 employees in the Cape Town office and all 15 in the Johannesburg office. Participation in the survey was voluntary, and no rewards or incentives were offered. The introduction to the survey stated that “this survey will give us a baseline to establish the way in which people in our organisation travel to and from work (and other trips), and give us an idea of WWF-SA’s emissions patterns.”

The survey asked questions regarding travel and journey times, time of travel, travel distances, and main and feeder modes<sup>3</sup>.

Car travel dominates employee commuting, with single occupancy car travel the most common. Workers travel long distances to get to work, which means long travel times and a large emissions burden. Non-motorised transport is seldom used, although many individuals travel less than 5-10 km.

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<sup>3</sup> Of the 88 responses, 50 employees travelled by private vehicle (59%), while nine travelled in a shared vehicle (10%) and nine travelled by train (10%). Five employees travelled by bus (6%) while four travelled by minibus taxi (4.75%). Three people walked as their main mode (3.5%), one person cycled (1.20%), one person travelled by Gautrain, and one by BRT (Rea Vaya). No one travelled by motorbike, Uber or meter taxi as their main mode.

96% of respondents travelled to the office during the morning peak (until 9 am), while only 29% left the office during the afternoon peak (after 5 pm). 65% left the office between 3 and 5 pm).

Car travel is the main source of emissions (94% of total emissions), and distance is a significant factor. 47% of emissions are from employees travelling more than 30 km to work (from 33% of the employees); 65% of emissions are from employees travelling more than 20 km to work. Most individuals use more than one transport mode for travel, and those who travel further are more likely to use a higher number of modes.

## **5.2 Participant survey**

Thirty-eight of the 88 respondents indicated that they would like to receive feedback about their personal travel emissions and participate in WWF's employee EcoMobility project. These respondents received a further survey, which aimed to achieve insight into the 'stage of change' of the participant, their travel behaviour change goals, and the way in which they approach change and its challenges. Of the 88 respondents to whom these surveys were sent, 16 filled them in (although a total of 26 participated further in the programme overall).

The majority (87%) of the respondents wished to reduce their carbon impact, while 50% wished to reduce the cost of travel, 56% to use their car less often, and 31% to travel less often (reduce the number of trips). 25% wished to travel for shorter lengths of time, and 12% wished to travel shorter distances.

No respondent mentioned not knowing how to use public transport; although this is a small sample, it is worth noting that many travel behaviour programmes focus on interventions that assume that this particular lack of knowledge is a hurdle to public transport use.

81% of participants had already tried to change the way in which they travelled, by walking to public transport, car-pooling and using Uber, taking the train or bus, reducing the use of the family's second car, and cycling. Of the 19% who had not attempted to do so, reasons included working in a dangerous area, lift-share being inconvenient (different working hours), public transport being inconvenient, and crowded or dangerous. Two respondents selected the answer: "I love travelling to work in my car, as it gives me time alone to listen to music or podcasts."

Asked what one new way of travelling (even just one day a week) most appealed, joining a lift club was the most popular answer choice (31%). Cycling, taking the train, taking the bus, or walking, were second choices.

## **5.3 Next steps**

Each participant was given a booklet compiled by WWF, which contained information about WWF pool cars and ride-share apps, cycling maps and lanes, maps and other details of public transport stops and stations close to the office and participant's homes or travel routes, and links to route and fare information.

A weekly travel log (in pdf for printing, and excel format) asked participants to fill in a weekly goal, and to record all trips (including details of time of travel, distance, trip purpose, mode, and number of people in the vehicle). Weekly carbon emissions were calculated<sup>4</sup> based on a formula prepared by The Green House<sup>5</sup>, and returned to participants.

In addition to the opportunity for personal contact, participants were invited to monthly workshops (in both Johannesburg and Cape Town), to share travel changes and challenges.

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<sup>5</sup> [www.tgh.co.za](http://www.tgh.co.za)

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Initial workshops shared the purpose of the project; discussion centred on the fact South African cities are set up to be easier to travel by car – therefore no one is or should feel ‘bad’, and that even a slight change in attitudes toward travelling is a change of value.

A final evaluation process involved individual 30 minute face-to-face interviews with participants (lapsed or current), the communication team, and other relevant stakeholders. Findings and discussion are presented below.

## **6. FINDINGS**

### **6.1 Communication**

The WWF EcoMobility project team made the assumption that as employees of WWF, participants would be familiar with the basics of climate change and carbon impacts. However, one unexpected shortcoming of the project was the challenge of communicating the importance of reducing transport-related emissions as part of a low-carbon lifestyle.

One participant, for example, shared her difficulty with believing a change in her travel behaviour has a substantive role to play in climate mitigation. She recently a major change in her life by becoming a vegan, so is comfortable with and able to make substantive changes. *“The shift from driving 1 km to cycling 1 km doesn’t have that same dramatic impact.”*

*“Everyone can only focus on one crisis at a time,”* said another participant. *“Now it’s water. Justifying my carbon impact is further down the line vs how I eat, how I use water, etc. It’s not as compelling. Transport is a difficult area to change, it’s the most difficult. I can recycle, I can change how I eat - but when it comes to transport, it’s not logistically plausible.”*

### **6.2 Travel logs and feedback**

*“I tried to make changes, but it’s difficult to get into a habit. You need to do it enough to get into a routine. But it did get me to start thinking more about my [carbon] footprint”*

*“What I learned is that I use my car more often than I think. [The logs] made me aware of whenever wanted to take her car, do I really need to. Before, it was a no-brainer.”*

One of the challenges of a VTDM programme is that because it works at the level of individuals, it may involve subtle changes in behaviour and attitudes, and ‘is inherently more difficult to monitor the impact than that of more conventional policy interventions’ (Bonsall, 2009). However, during one-on-one evaluation interviews, every participant noted that they had been compelled to at least pay attention to the way in which they travel, even if it were to ‘justify’ to themselves why they needed a car, or question themselves as to why they were reluctant to participate or try something new.

Participants were positive about the logs: *“I filled in my logs every day. Diligently. That really worked for me; It’s a lot of admin – but it works.”* *“What worked for me? The constant awareness of what I was doing.”*

There was a request that feedback include more detailed explanations as to “what the emissions measures mean” and that personal emissions should be reflected on a spectrum: *“I don’t know if I’m doing well, because I wasn’t being told what other people were doing.”*

Another discussed how she would *“love to an app – like My Fitness Pal, Discovery rewards or a fitness watch – that would be great. It could log your carbon impact, and you can automate a graph on how you are doing. And maybe some rewards – some motivations. Hooray congratulations. Your new goal is. ...”*

It became clear during the programme that carbon reduction is not a sufficient goal, and people are motivated by different incentives: whether it be alleviating cognitive dissonance, gaining personal benefits, seeing their progression, receiving rewards and recognition, or measuring their progress against those of others.

### **6.3 Walking and cycling**

A number of participants would have liked to walk to work or to public transport, but believed it to be too dangerous, or found it a challenge as they had children to transport. These modes also required a different set of planning or logistical decisions.

Cycling safety was not necessarily the reason participants did not ride: One participant, who is a regular recreational cyclist and who lives 800 m from the office, noted that her challenge is not to find a safe, easy route, but the issues are more around “getting around to it”, feeling confident riding in ‘normal’ shoes on clipless pedals, having a place in which to change, and a place to keep her bike indoors. Sometimes she thinks of getting a cheaper bike specifically for commuting. Walking would be a simpler option, she suggested, but her main lesson was that she doesn’t plan around walking: *“It’s been hard for me to think ahead and plan – I pick up my step son, so that’s also an issue, I’d have to walk home and get the car. So it’s really conditioning and convenience, and you have to go to some extreme to break these habits.”*

Another participant, who also cycles regularly for recreation, had *“lived in Europe and done the whole cycle to and from work / university thing. But it’s a mind-set here ... There’s the safety issue, traffic, the way people drive, people don’t take account of cyclists.”*

Walking appealed to participants who lived short distances from the office, but *“carrying luggage or things to work”* was a barrier. *“I also discovered that the reasons that put me off walking are safety, like when I have to take my laptop home, or camera equipment. Generally, walking is not always pleasant – there are catcalls, and I don’t feel comfortable.”*

### **6.4 Trying out car pooling**

*“Traction is difficult with lift-share. As you go up through the ranks, you feel that you deserve your own car.”*

Although car-pooling was the change most employees indicated they would like to make, there was no take-up of the selected car-pool app.

WWF had registered as a group on lift-club app, and all employees were invited to training in using the app (which works on both android and apple devices). The app development team was available to assist participants who struggled to download or use the product.

*“I did download the app,”* said one participant, *“and I’ve had a conversation once or twice with a colleague about it. But she has kids. So it’s a flexibility issue. There is a willingness. But it’s not going to be every day.”*

Flexibility, leaving at different times to return home, and travelling with children, were the most frequent barriers to both formal and informal car-pooling: *“Travel is very personal. And people with kids have to leave different times of the day.”*

A desire to be alone is a stated reason for avoiding sharing (and, 6.5, a reason for preferring one’s own transport). *“I downloaded the app but never tried it,”* said one participant, who preferred to walk to the rail station. *“I think I’m just not for car-pooling. It must be absolutely on time, scheduled, organised. For me, I don’t like sporadic. I get flustered. And making conversation also plays a role. But if I were to start car-pooling – it would be problem, then I’d feel guilty. Awkward. But you can ignore everyone on public transport.”*

Three Cape Town colleagues decided to car-pool together rather trying out the app: *“I didn’t download the app, but I had the details. I know how to do it, I didn’t move to looking people in my area. The time and effort is too much bother – I’d have to figure out how it works. It’s much easier just to speak to my colleagues.”* The three have their own WhatsApp group, and decide weekly what time to leave: *“We talk to each other, play the radio. You have to feel it out. If it’s your car, you [decide on what to] play.”* This has led to a suggestion to try a more informal car-pooling project, aimed initially at employees who travel during the day from the office, rather than to and from the office.

Another two colleagues who lived close to one another agreed to try lift-share (only one of the two owed a car), but ultimately it didn’t work out: *“The thing I committed to in the programme was to car-pool or get on the ride share app, but I never did. Why didn’t I? Because I like the flexibility of hopping in my car and five minutes later I’m here.”*

Employees who work in WWF’s Braamfontein (Johannesburg) office but live in Tshwane do car-pool fairly regularly, although they experience challenges, particularly around different working hours, and parking (where to safely leave your own vehicle all day). *“Quite a lot of us live in Pretoria – but we live all over Pretoria, and we have different schedules...”* Three employees regularly meet up at *“at the house closest to the office. We drive there, [this house] has parking. Then one of us takes a week when we drive there and back.”* This has led to a suggestion that the organisation subsidise parking bays in Tshwane, or at Gautrain station (see 6.6), rather than at the Braamfontein office.

## **6.5 Giving up one’s car**

*“The convenience of [a car] overrides everything.”*

*“Having my own car vs three taxis to work – no, the financial argument is obsolete compared to the time saving.”*

While national public transport policies, and TDM programmes, refer to ‘car competitiveness’, for individual private vehicle users, neither congestion, cost, nor carbon are enough to shift them to more sustainable travel behaviours. A grasp of the subtle as well as obvious value of car travel is necessary before substantive voluntary mode shifts can be sought.

*“What I love about my car – there’s no coordination. The flexibility. If I decide to sleep in, I can decide in the moment. But with ride share you have a commitment to another person.”*

*“Why was I so useless?”* asked a further participant. *“I live a block away from the bus and mini-bus... I have so many options. I might have to stand for three minutes at the taxi rather than the car. It’s hardly inconvenient. I love it, with the other people, the music, the people.”*



*It's interesting. I don't even have to find out about timetables, I just have to walk. But nothing competes with the quiet and musing [of your own car]."*

The ease of driving compared to public transport was also a clear incentive: *"Metrobus goes right past my house,"* said one Johannesburg participant, *"but I'm comfortable in my car, it's easy to drive, the road is straight there to the office. Why would I try any other options?"*

## **6.6 Public transport**

*"Public transport doesn't actually connect me to where I want to be."*

Every participant in the project indicated that they would 'love' to use public transport – and many had used the MyCiTi bus before taking up employment at WWF's Cape Town office: *"I used to take MyCiTi, in my old job, it was pretty easy – but it doesn't go in this direction."*

But by and large, public transport as it currently operates in Cape Town was described as "onerous", "horrible", "just not an option", with "too many transfers," "unpredictable" and "routes too indirect". Unreliability is a substantial hurdle: *"They don't tell you when the next train was coming. If you knew it was an hour, I'd wait. It is the uncertainty that's worse."*

One Cape Town participant noted that while *"it is possible to take public transport from XX – but this would entail taking a Golden Arrow bus to Wynberg, and then taking either a train or minibus-taxi to Newlands. This is an onerous trip, and besides, I enjoy the family time together in the car. It's two hours in a day that we would have spent together otherwise."*

Participants in Gauteng described Gautrain as cheaper than owning a car for commuting, but most employees would be taking Gautrain in addition to owning their own vehicle. This works out as "very expensive" and the "parking costs are too high". Mini-bus taxis from Tshwane to Braamfontein, however, are "just not an option" despite being substantially cheaper: *"I would leave home at 7am, arrive in the office at 9.30 – on a good day..."*

Off-peak travel is *"much better"*, in terms of cost and travel time, *"but then there's the issue of how late you get back home."*

## **7. CONCLUDING THOUGHTS**

*"You give up way too much to save on your carbon. You have to sacrifice too much."*

*"I really like the idea of the project. But I was disappointed that it didn't yield any wonderful ideas for me – an indication of the SA transport system."*

A voluntary shift to more sustainable modes and practices is a gradual process, and substantial and quantified carbon emission reductions is perhaps an unrealistic goal within an organisation with an already high percentage of employees travelling by public transport. Voluntary change is more likely if there is a wide range of truly car-competitive choices, and support at every transition in the change continuum.

For those who currently travel by private vehicle, change is extraordinarily difficult when lower carbon or public transport alternatives are limited. Without frequent and reliable public transport, as well as safe last-mile walking trips from public transport to work, private car

use remains the most obvious option to those who can afford it, despite congestion and travel times. Personal safety, safe and affordable vehicle parking, and trip chaining (multiple trips to schools, shops and other stops) are also barriers to public transport use.

Even with tailored information and assistance about how to voluntarily reduce a dependence on private vehicles, it is unlikely that without substantive changes in the transportation environment, SOV drivers will experience alternative travel patterns as actually better for them. For our sample, there is insufficient urgency, reward and personal benefit to adopting a new transport behaviour – being 'green' is not enough, when the alternative is experienced as inconvenient, inflexible, unreliable, time-consuming, unsafe, slow, 'horrible', and dangerous. None of the participants were new to WWF, which meant that the project was not able to harness the opportunity for change that a new travel pattern presents.

However, where large employers cannot change systemic and national transportation challenges, they can offer substantially more proactive support than they do at present. To facilitate attitudinal and modal shift, and emissions reduction, in an employee-based voluntary TDM programme, institutional interventions appear to be essential. Alternative parking subsidies, remote working, employee shuttles, scholar transport opportunities and child-care facilities, bicycle-purchase schemes, working-hour car-pooling, and last-mile walking-buses, are proposed interventions. Office block, precinct-level and business campus interventions could also be explored. In this way, by committing internal communication and project resources to evidence-based TDM programmes, large employers do have the opportunity to transform the transport environment within their reach.

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