Venue Transportation Management

An Analysis of Transportation Management Plans in the City of Vancouver

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# Contents

Executive Summary 3

Introduction 4
  Importance of Sustainable Transportation 4
  Methods 6

Literature Review 6
  Characteristics of Effective Measures 6
  Segmentation to Target Spectator Groups 7
  Best Practices from Other Venues and Cities 8
  Key Points to Carry Forward 9

Nat Bailey Stadium 10

CFL and TravelSmart Partnership 12

Conclusions & Recommendations 13

Areas for Further Study 15

Bibliography 17
Executive Summary

Making transport practices within the City of Vancouver more sustainable is a key goal of the current city administration. Sustainability must be incorporated into all areas of transportation management for these goals to be achieved. This study examines how sustainability can be meaningfully incorporated into the Transport Management Plans (TMP) of venues within the City of Vancouver. This was achieved by carrying out expert interviews with key stakeholders, conducting a literature review and considering case studies.

It was concluded that there were three key ways sustainability can be incorporated into TMPs. The following conclusions and recommendations were made for venues in Vancouver:

1. Incentivise the accommodation of cars further away from the venue.
   1.1. Use distanced-based parking tariffs.
   1.2. Encourage carpooling.

2. Incentivise the use of transit and bicycles to access the venue.
   2.1. Use segmentation spectator analysis to determine incentives.
   2.2. Provide discounted transit fares.
   2.3. Provide complimentary, secure bike parking.

3. Provide easy-to-access information on transportation options.
   3.1. Provide clear information on the venue website.
   3.2. Make information accessible.
   3.3. Advertise transit options.
Introduction

Transport and traffic are key to the functioning of sporting and cultural venues, with the plans a venue puts into place becoming incredibly informative of the methods spectators use to access the venue. Therefore, whether the venue promotes sustainable modes of transport or the use of cars critically influences visitor choices. For real changes to be made in mode share, sustainability must be meaningfully incorporated into all stages of the Transport Management Plan (TMP).

This study attempts to answer the research question: how can sustainability be meaningfully incorporated into Transport Management Plans of venues within the City of Vancouver? The intention of this research is to gain an understanding of current transport management practices of key venues in Vancouver and make planning and communication based recommendations that can be implemented by venues within Vancouver.

Importance of Sustainable Transportation

The increasing reliance individuals have on the use of private vehicles as their primary mode of transportation is generating vast environmental; societal; and economic problems - ranging from the production of toxic gas emissions, which contribute to global warming, to increasing local air and noise pollution - threatening the current quality of urban life. Though there have been technological innovations aimed at reducing the impact of cars on the environment, these have not been effective enough to achieve sufficient reductions in the negative impacts of private vehicles. Instead, it is now widely believed that behavioural changes must be made to help create more sustainable transportation systems. These issues are highlighted in venues where individuals may prefer to walk or cycle instead of using a car, however concerns such as safety and comfort prevent them from doing so. For example, parking may be the cheapest option, public transportation may not run late enough into the evening, or there may not be enough bicycle parking spots.

A sustainable transportation system is one where there is “a continuum of decisions, actions and practices encompassing all aspects of transportation” that aims to “protect the environment and conserve natural resources while taking into consideration societal needs, as well as benefits and costs”. Sustainable transportation initiatives aim to address most of these concerns, by attempting to provide safer and more convenient transport opportunities for individuals.

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2 Ibid, 58.
In attempting to increase the sustainability of a transportation system mode-share split is generally considered - that is the percentage of travellers using a particular type of transportation or the number of trips using said type. When considering the four most common modes (walking, bicycling, transit and private vehicles), attempts must be made to decrease the share of automobiles and increase those of bikes, walkers and transit. These three modes are considered to be more sustainable as they produce considerably less gas emissions per user. That said, private vehicles can be made more sustainable if the occupancy is maximised.

Such considerations are of high importance in the City of Vancouver, as the city government has identified its key goal as becoming the greenest city in the world by 2020. As part of this, a long-term strategic plan for the city - Transportation 2040 - was created to guide transportation and land use decisions as well as public investments for the coming years (see Figure 1). To achieve the goals laid out in this document, ‘sustainability’ must be incorporated into all aspects of the city’s transportation, including that of venues and events. Having transport options that are easily accessible, and flexible allows people to save time and money while increasing their health and well-being. Though these are framed as city government goals and issues, implementing sustainability into venue’s transport management is crucial for the prosperity of the venue. Venues will not get permission from the city to make any capacity expansions they may have planned if they do not take into consideration these goals.

Figure 1: City of Vancouver, “Mode Share Target for 2020 and 2040,” Transport 2040 (2012): 10.

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8 Anonymous, interview by author, Vancouver, BC, February 27, 2015.
10 Brent Dozzi, interview by author, Vancouver, BC, February 6, 2015.
Methods
A literature review of academic articles and dissertations, government reports and consultant reports was undertaken. Policy measures successfully used in other jurisdictions were identified. In addition, three interviews were conducted with key stakeholders within the City of Vancouver. Interview questions were ethically reviewed and informed consent was obtained from all participants. These interviews provided two case studies of best practices within the city: the Vancouver Canadians Professional Baseball Club Nat Bailey Stadium Transport Management Plan; and the Travel Smart Grey Cup and Translink partnership. Combining the available literature with interviews and case studies helped provide a better understanding of why more sustainable practices are not being implemented and what methods are suitable for the Vancouver context. Best practice suggestions were then determined for how sustainability can be meaningfully incorporated into the creation of transport management plans within the City of Vancouver.

Literature Review
A literature review was undertaken to provide a succinct understanding of the context in which plans should be considered. Additionally it was a guide for how to assess plans in Vancouver based on research already carried out and information on what levels of sustainability are expected to be achievable. Much research has been undertaken in the USA to better understand how sustainability can be incorporated into the management of transport at sporting venues with weekly events. There is less research available for Canadian cities, this is assumed to be because the applicability of research on American cities, as well as the higher frequency and spectator capacity of many American venues.

Characteristics of Effective Measures
Transportation demand management (TDM) is often the first management method to be considered. TDM measures include: encouraging higher vehicle occupancy; providing incentives to reduce travel or change timings of trips; and promoting the completion of tasks without traveling. Gärling and Schuitema found TDM measures to be effective in reducing car use without facing strong public or political opposition - though only if coercive and non-coercive TDM measures were implemented. Management strategies must address all areas of the transportation network, TMPs must go beyond TDM measures and consider all modes and

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11 Atkinson, 2.

management possibilities. For a TMP to be truly sustainable it must be considered as a catalyst from which longer term environmental, social and political change will occur.\textsuperscript{13}

The “divide and conquer” approach, as used by the Tennessee Titan’s Adelphia Coliseum venue, enables venues to break down transportation needs by geographical area and assess the constraints and benefits for each area.\textsuperscript{14} This can aid in attempting to influence and control spectator arrival and departure routes. It is important to note that most management plans will only influence the mode choice of regular visitors - extra advertising and messaging must be undertaken to attempt to reach one-off visitors.\textsuperscript{15}

Simulations of traffic movements before, during, and after the event should be fully utilised to predict the fluctuations in traffic levels that will occur. This allows challenges to be anticipated and planned for. Such comprehensive initial planning - combined with strategies for all spectator movements to be served exclusively by mass transportation - led to a problem free Athens 2004 Olympics Games.\textsuperscript{16}

\textbf{Segmentation to Target Spectator Groups}

Individuals are more likely to accept positive (pull) factors than negative (push) factors, as such meaningful change must consider what classes as an incentive to an individual.\textsuperscript{17} Understanding the underlying factors that influence the decision to perform - or not - a given behaviour enhances the probability that mode choice behaviour can be modified, and thus the most effective interventions can potentially be identified.\textsuperscript{18} The European Commission’s \textit{Intelligent Energy Europe} study showed that segmented marketing can lead to growth in the uptake of more sustainable transportation by targeting specific values and attitudes.\textsuperscript{19} Anable highlighted that the segmentation approach illustrates that policy interventions need to be responsive to the different motivations and constraints of subgroups, given the same behaviours can take place for different reasons and the same attitudes can lead to different behaviours.\textsuperscript{20} Influencing factors must be

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\textsuperscript{15} Beyer, 435.


\textsuperscript{17} Atkinson, 19.

\textsuperscript{18} Anable, 28.

\textsuperscript{19} Intelligent Energy Europe, Segmented marketing for energy efficient transport, European Commission (2013): 5.

\textsuperscript{20} Ibid, 27.
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identified given Cao et al. found that individuals’ travel decisions are a function of the traits of the built environment and socio-demographic characteristics.\textsuperscript{21}

**Best Practices from Other Venues and Cities**

Transportation management plans from a variety of event venues, and literature analysing them, have been reviewed and compared to determine best practices that are relevant to venues in Vancouver. All of the plans contained elements addressing traffic management and strategies for other possible mode shares.

Cars have the highest mode share uptake in the majority of venues. Incentivising carpooling by offering free parking, food/beverage coupons, or reduced admission for carpools, will increase the number of occupants per vehicle and reduce the total number of vehicles used, thus reducing car emissions per person. Qwest Field in Seattle actively encourages this by providing attendees with a free event-specific ride-matching service to help spectators find carpools.\textsuperscript{22} The University of Washington reduces parking costs for cars with 3 or more occupants.\textsuperscript{23}

Encouraging staggered arrivals and departures to the event by offering special programs before or after the event to space out traffic will reduce congestion levels.\textsuperscript{24} The provision of off-site parking options such as park-and-rides and free shuttle services will further reduce congestion.\textsuperscript{25} Reducing congestion around the venue will make walking and cycling more appealing. Additionally, requiring the use of transit to travel from carparks to the venue will encourage more individuals to use transit for their whole journey.

A number of venues successfully employed varied parking charges based on location relative to the venue to minimise congestion.\textsuperscript{26} The University of Wisconsin uses special event parking prices, where lots closest to the venue cost between $10 and $12, with prices decreasing to as low as $3 as the distance from the venue increases.

Wherever possible, the use of transit to reach events should be highly encouraged. To make this option more appealing, transit hours should be extended on event days and reduced prices offered to event attendees. AT&T Park in San Francisco offered attendees pre-paid transit tickets, rewarding purchases with points in the San Francisco Giants fan appreciation scheme.


\textsuperscript{23} Atkinson, 24.

\textsuperscript{24} Ibid, 27.

\textsuperscript{25} Ibid, 24.

\textsuperscript{26} Chester & Himes, 31.
Additionally the closure to cars of key streets surrounding the venue ensured smooth journeys for pedestrians and transit users.\textsuperscript{27} Accommodation for bicyclists must be provided in forms such as secure and valet parking services, and safe bike paths, to encourage spectators to consider not driving. The City of Santa Monica offers free bike valet parking for events, this includes a secure area for attendees to leave their bicycles during the event. Bicycle and pedestrian paths are separated from vehicular traffic at both the City of Santa Monica and Nashville’s Adelphia Coliseum.\textsuperscript{28} In Nashville, a bridge used for shuttle services and pedestrian routes is closed to traffic beginning two hours before kickoff, only reopening once the area is clear post-event.

To put sustainability into practice, it is essential to make attendees aware of their transport options by providing route information.\textsuperscript{29} Venue websites can be effectively used to distribute transportation information to event attendees including: transit options; parking lot locations; and best routes. The Dallas Cowboys’ website provides attendees with the option to input their ZIP code and assigned parking lot number to find the most efficient route based on construction and traffic.\textsuperscript{30} Cleland and Winters found that encouraging the use of trip-chaining and substitution by providing travel information can lead to a reduction in vehicle miles of travel.\textsuperscript{31} AT&T Park made “Transit Ambassadors” available at events to answer questions and guide attendees to transit options. Additionally, venues must ensure clear way-finding signs are present from key transit hubs.\textsuperscript{32} If service providers coordinate, special events provide a unique opportunity to market the transportation services available within the community.\textsuperscript{33}

**Key Points to Carry Forward**

The literature review has shown that it is important to be aware of the existing transportation conditions at the venue and the reasoning for spectator choices of transport mode. Additionally preplanning and breaking up modes to consider how to make each one more sustainable are


\textsuperscript{28} Atkinson, 25.


\textsuperscript{30} Atkinson, 26.

\textsuperscript{31} Francis Cleland & Philip Winters, “Reducing Vehicle Trips and Vehicle Miles of Travel Through Customised Travel Options,” Center for Urban Transportation Research, College of Engineering, University of Florida South, Tallahassee, FL (1999): 1.

\textsuperscript{32} City of Sacramento, 47.

crucial. When creating recommendations for sustainable best practices for venues in Vancouver three key themes must be addressed:

1. Congestion around the venue should be reduced by providing spectators with information on the best access routes and incentivising the accommodation of cars further away from the venue.

2. How can sustainable alternatives to the car be made more attractive to the spectator?

3. Attendees must be provided with easy to access information on transportation to the venue.

**Nat Bailey Stadium**

The Vancouver Canadians Professional Baseball Club currently calls the Scotiabank Field at the Nat Bailey Stadium in Vancouver home. In an attempt to expand venue capacity, they recently redeveloped their TMP in partnership with the City of Vancouver. The new TMP is one of the most sustainable within the city, providing an example of strategies that should and can be used by other venues within Vancouver. Venue management has effectively used incentives to make sustainable alternatives to the car more attractive. The details of this case-study were collected in an interview with Brent Dozzi, who works in the Neighbourhood Parking and Transportation Branch at the City of Vancouver.

The recent application for expansion of capacity aimed to offset any impact from increased vehicle traffic with alternative modes of transportation and an improved parking lot layout, maximising the number of available spaces.\(^{34}\) This led to a process of community engagement to determine opinions towards a range of possible parking options, in order to prioritise the neighbourhood’s best interests. Ultimately a negative strategy was established, punishing driving. The Nat Bailey Stadium is located next to Queen Elizabeth Park in South Vancouver (Figure 2). Bordered by the park and residential areas, the City of Vancouver intentionally did not create enough parking when the venue was established, as they wanted to maintain parkland - instead aiming to make transit use, walking and cycling more attractive modes to access the stadium. In lots where parking was uncontrolled, charges based on maximum parking times have been introduced. The venue was able to marginally increase the number of parking spots as part of this process but this was not enough to meet the increased demand. The community consultation led to permitted parking being established in residential streets surrounding the stadium on event days. This ensured attendees had to pay the parking costs if they drove and that residents were not disrupted.

\(^{34}\) Nat Bailey Stadium Expansion, Development Permit 418533, Traffic Management Plan, January 2015: 1.
Driving to the venue has been effectively de-incentivised, however, on its own this is not enough to encourage mode share changes. In addition, the venue now encourages non-driving through a number of strategies. Firstly they have increased available bicycle parking spots from 50 to 200, while also introducing secure bike-parking facilities and a valet service. These services are complimentary with an event ticket. Furthermore, the first 200 people to arrive by transit receive 50¢ off their event ticket. During the redevelopment application, the City asked them to increase this incentive. They have entered into talks with Translink to create either an incentive available pre-event or combine transit cost with ticket price at a reduced cost.

Not driving to the venue was considered to be a better customer experience and the City of Vancouver wanted instructions to be provided on how to get to the stadium using non-vehicle means. The 2010 Olympic Games in Vancouver increased transit use through heavy advertising to attendees, the same method has been used by the Nat Bailey Stadium in this TMP. Attractive

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35 Nat Bailey Stadium Expansion, 1.

36 Ibid. 2.

37 Dozzi.
signage and advertising to all fans who arrive at the park will be used to raise awareness for these new facilities.\textsuperscript{38}

A number of further improvements were highlighted as part of the redevelopment application. This included that it is hard to find information on the available transit incentives on the website, this information must be made more obvious to visitors. This should be furthered with advertising on social media to reach more event-goers. There was also a need to advertise more heavily to season-ticket holders, with strategies such as providing information in leaflets or on the tickets.\textsuperscript{39} Messaging during games would further these strategies.

The Nat Bailey Stadium provides an example of how both incentivising and deterrence strategies can be used to make a TMP more sustainable overall. By segmenting the different mode shares and creating management strategies based on understanding the factors that would make each option more attractive, they have ensured the selected measures will be effective. However, the venue is a private organisation and it can be said that the redevelopment application process was used by the City of Vancouver as an opportunity to ensure more sustainable planning was implemented in order to achieve its own goals. Therefore this shows the proactive nature of the City to increase sustainability as well as providing practices that can be applied to other venues within Vancouver. However, it also highlights that sustainable thinking in venues may not come without pressure from the government and the opportunities applications for redevelopment provide them to do this.

\textbf{CFL and TravelSmart Partnership}

For the Grey Cup 2014 in Vancouver, the Canadian Football League decided to partner with TravelSmart to create an advertising campaign for transport to the game and the pre-game festival. TravelSmart is a customer-facing brand for Translink, providing tips and tools to encourage smarter and sustainable modes of transport, including cycling; walking; carpooling; and taking transit in Metro Vancouver.\textsuperscript{40} The Grey Cup campaigned that by “travelling smart”, spectators would save money and remove the hassle of attempting to park downtown.\textsuperscript{41} This strategy aimed to promote and ensure sustainability in two ways - firstly by reducing congestion in the downtown area, and secondly by providing easy to access information on possible routes to the venue.

\textsuperscript{38} Nat Bailey Stadium Expansion, 2.

\textsuperscript{39} Dozzi.

\textsuperscript{40} Anonymous interview.

\textsuperscript{41} “One Cup, Dozens of Ways to Get There,” TravelSmart, accessed March 23, 2015, \url{http://www.travelsmart.ca/en/GVRD/Transit/TravelSmart-to-the-Game.aspx}, paragraph 2.
In an attempt to reduce the expected increases in congestion in the downtown core associated with the event, TravelSmart advertised how easy it would be to get to BC Place without using a car (Figure 3). They highlighted the “dozen’s of ways to get there”, providing tips on taking rapid transit; sea bus; West Coast Express; buses; ‘Barrier-free’ transportation; rideshare/carshare/carpool; and, park-and-ride lots.\textsuperscript{42} Using transport demand techniques to encourage spectators to travel in full vehicles or use other modes of transport led to a reduction in congestion around the venue. As well as relieving pressure from the streets around the venue, this reduced the emissions associated with the event, helping to make it more sustainable. Additionally, by providing visitors with clear and easy-to-access information on the multiple ways to access the venue, the TravelSmart campaign increased the likelihood of spectators not using their cars. The Grey Cup Festival Guide presented information on a broad variety of transport methods in a clear and easy to read format (Figures 4 & 5). This booklet was available on the event website. Providing information on transport options in such an accessible way increases spectator awareness of these, which in turn is likely to lead to more individuals choosing to use more sustainable modes.

The advertising strategies used in the TravelSmart Campaign combined to encourage spectators to consider more sustainable alternative modes of transport to the car. Though statistics are not available to show how effective this campaign was, the combination did raise awareness and is likely to have led to more spectators using public transit or cycling.

Conclusions & Recommendations

Venues within the City of Vancouver must consider sustainability in their TMPs. A failure to do so will lead to the City of Vancouver government not approving venue redevelopment applications. Additionally, as the city continues to grow and demand for events increases, maintaining status quo will lead to increased congestion around the venue and increased emissions from vehicles. Together these will lead to the city not meeting its climate change goals and will worsen the overall impact the city has on global warming. That said, sustainability can be meaningfully incorporated into TMPs in order to reduce the impact specific events have on the city.

Having reviewed literature on transport management practices, conducted interviews and considered two case studies from the City of Vancouver, the following best practice recommendations for successfully incorporating sustainability into the Venue Transport Management plans of venues are recommended:

1. **Incentivise the accommodation of cars further away from the venue to reduce congestion.**
   
   1.1. Use distance-based parking tariff schemes and/or park-and-ride schemes as incentives.

\textsuperscript{42} Travel smart, paragraphs 5 - 9.
Figure 3: Invision Creative, “TravelSmart Grey Cup Campaign,” Translink.

1.2. Encourage carpooling to reduce the number of cars attempting to reach the venue. By reducing the congestion around the venue, the venue will become safer for pedestrians and easier to manage due to fewer large vehicles being present. This is more sustainable as it will reduce the number of cars used and make sustainable mode shares more attractive.

2. **Venues should incentivise the use of transit and bicycles to access the venue.**

   2.1. Spectators should be segmented to allow for analysis of what incentives would make them most likely to use non-private vehicle modes of transport.

   2.2. Venues should enter into talks with Translink to try to provide discounts for transit use, either for the transit ticket or for the event ticket if transit is used. They should also create agreements to ensure transit options are available to spectators after the event ends.

   2.3. Venues should provide complimentary secure bike-parking options, optimally with a valet service and regular security patrols.

   2.4. Directions to bike-park locations and from transit locations to the venue should be clearly marked for ease of access.

   The use of transit and bikes must be incentivised for spectators to want to switch to using them. These modes should be heavily incentivised as they are more sustainable than using private cars, given their higher densities and lower emissions.

3. **Attendees must be provided with easy-to-access information on transportation options to reach the venue.**

   3.1. The venue website should have a section that clearly explains all options for accessing the venue. Pedestrian, transit and bicycle routes should be prioritised over car access by placing them higher up the page.

   3.2. Information on transport options should be easily accessible, linked from the venue homepage, as well as provided in event communication. Spectators should be provided with this information upon purchasing their ticket.

   3.3. Advertising campaigns should be used to highlight transit options for accessing the venue. Providing clear, easy-to-find, and comprehensive information on how to access the venue early, will ensure spectators are made aware of all of their transport options and are therefore able to make an informed decision on how they will travel to the venue.
Areas for Further Study

This study has considered how sustainability can be incorporated into the action points in venue TMPs. Future work should consider the motivations behind venues implementing them: are they designed to increase sustainability at a venue; or to increase mode share, due to physical constraints such as a lack of parking, therefore making sustainability a side effect. Considering the incentive for the venue will enable strategies to be framed in a way that will most appeal to the venue.

Additional research could consider how segmentation theory can be used by venues more effectively. The reviewed literature highlights the importance of this theory in creating effective management strategies. However, in most situations it was used by city governments or researchers. Considering how it can be easily and cheaply used by venues will lead to it being incorporated into planning more frequently.
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