Moving towards more eco-efficient tourist transportation to a resort destination: The case of Whistler, British Columbia

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Abstract
Transportation is not only a key component of the tourism value chain, but it is also a critical management consideration in shaping tourism’s environmental footprint. Transportation consumes the greatest portion of the energy used in the tourism system. Most of this consumption is associated with travel to and from the destination. Despite this situation, scant research has addressed ways in which destinations can play a role in reducing this energy use challenge. Strategies such as shifting visitors to more energy-efficient modes have the potential to improve the eco-efficiency of tourist transportation. Using a case study of transportation management options and visitor responses in Whistler, British Columbia, Canada, this paper examines visitor reactions to a range of transportation strategies designed to shift skiers from private to public modes of transport. Respondents completed an online survey employing both traditional and stated choice questioning methods to examine tourists’ transportation choice behaviour. Long-haul tourists were the most likely to shift transport modes based on the management options offered to them. Destination management strategies for moving this target group to public modes of transportation are described.

1. Introduction

By definition, transportation is one of the key components of tourism. All tourists must eventually travel to and from the destinations they choose. This reality makes most types of tourism particularly energy intensive propositions, especially when long-haul air travel or automobile transportation is involved. Even though tourism is often considered a desirable form of economic development, its sustainability (especially from a travel related energy consumption perspective) is challenging (Clark, Jäger, Cavender-Bares, & Dickson, 2001). This is particularly the case for tourism destinations positioning themselves as environmentally friendly places that pro-actively practice less consumptive forms of energy use (Bates & Caton, 2002, Kelly & Williams, 2007a). While much research explores techniques for reducing internal energy consumption within destinations, few investigations have explored consumer responses to methods of decreasing the energy consumption of travel to and from such places. This research examines consumer responses to a range of destination induced policies designed to reduce external travel related energy consumption. As such its findings contribute to the growing literature on destination sustainability in general, and a specific void related to the management of external energy consumption associated with travelling the final leg of the journey to the destination.

Transportation is frequently identified as a growing concern with respect to tourism-induced energy consumption. Research has shown that transportation typically accounts for the vast majority (in some cases greater than 90%) of energy consumption in the tourism system (e.g., Gössling et al., 2005; Kelly & Williams, 2007b; Peeters & Schouten, 2006; Tabatchnaia-Tamirisa, Loke, Leung, & Tucker, 1997). In many cases, the transport mode choice of visitors plays a key role in determining the overall eco-efficiency of tourism experiences. Indeed, several studies report the energy emission reductions to be gained by shifting tourists to more eco-efficient modes of travel (Becken, 2005; Becken, Simmons, & Frampton, 2003; Gössling et al., 2005; Hoyer, 2000; Kelly & Williams, 2007b), particularly various forms of public transportation.

Eco-efficiency involves producing goods and services that require diminishing levels of energy and material resources (World Business Council for Sustainable Development, 2000). In essence, it is about increasing resource productivity or “doing more with less”.

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bility of the modal shifts associated with the demand management
tives are recognized as particularly proactive (Williams & Ponsford,
might increase public transportation use amongst private auto-
more aggressive transportation demand management strategies
skiers join the long-haul visitors when travelling on the final leg of
while other recommendations suggest that alternative and
shorter winter season (Resort Municipality of Whistler [RMOW],
2002). Of the trips made on the Sea to Sky Highway, about 93% were by private
automobile, 6% by bus and less than 1% by train (RMOW, 2004a).
The document considers the effects of transportation on climate
change and air quality in an intra-urban context only (RMOW,
2005b). While the issue of tourist arrivals via single-occupancy
vehicles is identified as an indicator of performance, no discussion
addresses inter-urban transportation strategies.

The Whistler 2020 Transportation Strategy (RMOW, 2005b)
recognizes the necessity of transporting tourists to the resort with
minimal environmental impact, addressing the viability of alter-
native intra- and inter-urban transportation options. However,
support for alternative transportation must exist outside of Whis-
tler for these strategies to be successful. The provincial government
has a significant impact on transportation infrastructure decisions
for inter-urban travel between Vancouver and Whistler.

Whistler's Transportation Advisory Group [TAG], formed in
1996, has contributed to inter-urban transportation planning
throughout the Sea to Sky Corridor (RMOW, 2004a). TAG aims to
encourage more efficient forms of transportation in Whistler
(RMOW, 1999). TAG's current goal is to reduce the portion of visi-
tors travelling between Vancouver and Whistler by private auto-
bile by 15% through alternative transportation strategies. However,
other recommendations suggest that alternative and
more aggressive transportation demand management strategies
might increase public transportation use amongst private auto-
mobile traveller by 50% over a ten year period (RMOW, 2005a).

While several of Whistler's planning and sustainability initia-
tives are recognized as particularly proactive (Williams & Ponsford,
2009), no comprehensive empirical research has tested the credi-
bility of the modal shifts associated with the demand management
strategies mentioned above. This research identifies a range of
these energy reducing external transport options, and examines
their influence on traveller mode choice. It does this by first
developing a conceptual model that positions external transport
within a broader destination transportation model. It then uses
findings emanating from a survey of destination visitors to explore
consumer responses to these options, and to suggest ways in which
destinations can help shift travellers towards more eco-efficient
transport mode choices.

2. A conceptual model of destination transportation links

Transportation links tourists with travel destinations (Gunn,
1988; Leiper, 1979, 2004), and tourism is impossible without it.
Transportation is an essential and critical component in the
management of tourism's value chain. Value chains are the sets of
structures and processes used to deliver goods and services to
clients. They can help scope and identify the set and sequence of
functions needed to produce a good or service, as well as high-
light the management activities needed to ensure that the
components collectively create value for consumers and the
industry (Porter, 1985). The service being delivered, in the case of
the tourism industry, is the tourism experience. Transportation
plays an important 'flow' function in the tourism value chain. It
links tourists at their origin with appealing stocks of environ-
mental and cultural assets at the destination. Long term value is
created when the flow of people to a destination creates positive
linkages with the environment. The management of trans-
portation's energy related emissions and impacts represent
challenges to the tourism value chains of a growing range of
destinations.

Several conceptual models highlight and describe the crucial
position of transportation in the international tourism system (e.g.,
describe the functional mechanisms of tourist movement in a long-
haul travel context (i.e., travel to the Caribbean) (Fig. 1). The model
shows how tourists move from their individual residential loca-
tions to a centralized travel hub (airport) in the region. They are
then assembled to be transported in planes to the centralized hubs
at their destination. After arriving at this central hub, they disperse
to a number of different locations for their individual on-site
tourism experiences.

While Hills and Lundgren's model goes beyond a simple focus
on transportation to explain the fundamental structural charac-
teristics of international travel, it clearly separates the long-haul
travel component (likely by air) from the travel components to
and from the respective airports. Although not pointed out by the
authors, the model identifies clearly the strategic points in this
travel process, at which travellers make crucial mode choices. The
question is how and to what extent travellers can be influenced by
various destination transport management options.

In order to make this conceptual model applicable to the case
study of Whistler, we adapted it to the specific long-haul trans-
portation characteristics of typical winter destination resorts in
general, and the Vancouver – Whistler situation in particular
(Fig. 2). Whistler also attracts a large number of short-haul visitors
from Vancouver's nearby metropolitan area, and from other prox-
imate urban centres such as Seattle, Washington. These short-haul
skiers join the long-haul visitors when travelling on the final leg of
the journey, in this case the Sea to Sky Highway.

In our adaptation of Hills and Lundgren's model (Fig. 2), we
placed the destination of Whistler, British Columbia, at the second
level of the diagram. The left (A) and right (B) sides of the diagram
are linked through transportation, corresponding to the Hills
and Lundgren model. The right side (B) of the model is the main focus of
this investigation. It focuses on the dispersal of tourists upon arrival
at a central hub (YVR – Vancouver International Airport) to resort
facilities at the regional level (W – Whistler). On their arrival at the
Vancouver International Airport, tourists have several transport
mode choices, represented by the multitude of arrows linking
the international airport and Whistler. Currently, the only
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