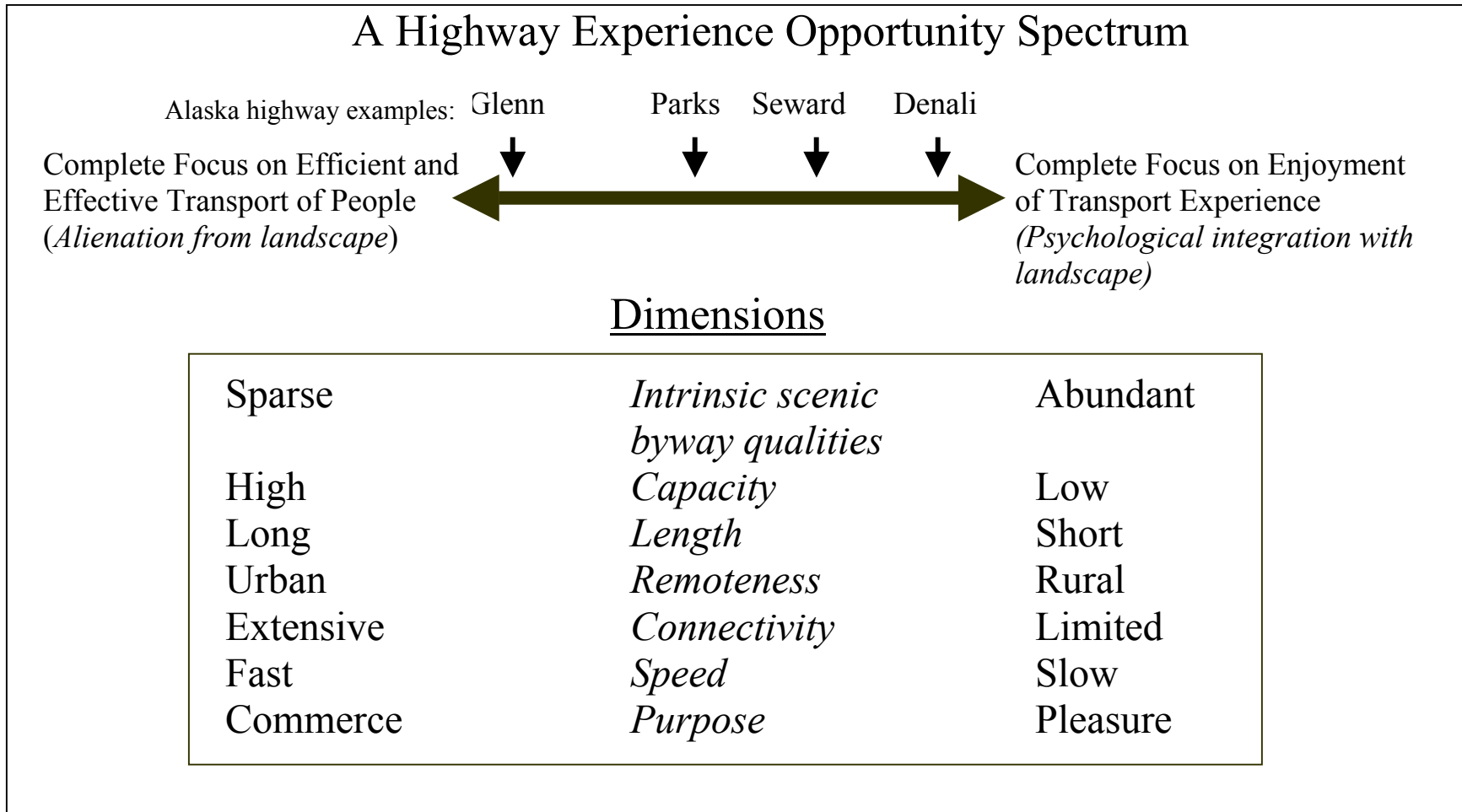


Figure 4. A proposed highway opportunity spectrum based on highway attributes and proposed placement of selected Alaska Highways



The landscapes that highways traverse are dynamic places shaped by natural and human forces. Human perceptions of these landscapes is culturally processed and refined by human action. Undifferentiated spaces, the landscapes along the highways, become *place* when endowed with value (Tuan, 1977). The understanding that highways are not simply a path from Point A to Point B but also an expression of human values and perceptions on the landscape, has the potential to transform the mission of those who design and manage the highway system. If highways are viewed as collections of landscape qualities that provide value, then those that manage the transportation system have an obligation to provide a spectrum of travel experiences and to help protect and preserve those highway qualities that make them valuable. The building of transportation systems is often technically challenging but the engineering solution space is usually bounded and relatively stable. In contrast, building transportation systems to manage for complex human interactions with the landscape is unbounded and dynamic, an undertaking that requires repeated assessments of human values and landscape perceptions. This study represents a tentative step in spatially mapping perceived intrinsic highway qualities for state or regional analysis.

The systematic inventorying of state or regional highway systems for intrinsic highway qualities is similar in function to the assessment of landscapes used to identify outdoor recreation opportunities. The Recreation Opportunity Spectrum (ROS) (1978) is a landscape classification system that describes and matches recreation preferences and experiences with recreation settings. The ROS makes assumptions about linkages between the physical environment and the human expectations about outdoor recreation experiences. The purpose of an ROS inventory is to identify, delineate, and classify areas into recreation opportunity classes based on characteristics such as remoteness, naturalness and expected social experience. The ROS defines six opportunity classes ranging from “Primitive” at one end of the spectrum to “Urban” at the other end. The inventory provides information about existing recreation opportunities to assist land and resource managers in making decisions about appropriate land uses, resource development objectives and management prescriptions.

Similarly, an inventory of intrinsic highway qualities can be used to help derive what might be termed highway experience "opportunity" classes. Highway experience opportunity classes are bundles of intrinsic highway corridor qualities that combine with physical highway corridor features to provide a range of potential travel experiences. Figure 4 presents some tentative ideas about what kind of highway attributes might be used to derive a highway experience opportunity spectrum.

The first observation about the highway opportunity spectrum as presented is that only the endpoints of the spectrum are defined. At the opposite ends of the spectrum lie two very different opportunities for travel experiences—a travel opportunity that is completely focused on the efficient and effective transportation of people and a travel opportunity that is completely focused on the enjoyment of the transportation experience. One can visualize different modes of transportation described with respect to this spectrum—for example, a commuter train designed to move large numbers of people to and from urban and suburban areas (“efficiency” based) to an off-road, backcountry jeep tour (“experience” based). Likewise, highways may be viewed on this spectrum—for example, a multi-lane urban freeway (“efficiency” based) to a national park road traversing scenic landscapes (“experience” based).

Unlike the endpoints of the spectrum, the highway experience opportunity classes that exist within the endpoints of the spectrum are more challenging to describe and define. These experience opportunities represent some mix of efficiency and intentional non-efficiency in

transportation. They might also reflect different mixes of intrinsic qualities. For example, the Richardson Highway offers relatively high “natural” qualities. Thematically, the Richardson Highway might be termed the “natural” highway, or more promotionally, “Alaska’s Most Natural Highway.” The Sterling Highway has relatively more abundant outdoor recreation and cultural qualities but relatively fewer perceived aesthetic qualities. Thematically, the Sterling Highway be termed the “recreation” highway, or more promotionally, “Alaska’s Gateway to the Great Outdoors.”

The concept of highway experience opportunity classes is a heuristic that serves to reinforce the finding that highway corridors ought to be managed for both transportation functionality and psychological outcome of the transportation experience. But it is not clear how the intrinsic qualities would correlate to different positions on the highway opportunity spectrum because no measures of psychological outcome from traveling the various highways in Alaska were collected as part of the study.

One can speculate that the efficient highways (e.g., multi-lane freeways) tend to alienate travelers from the immediate landscape while highways with significant intrinsic qualities tend to integrate travelers with the landscape. For example, the Glenn Highway that travels north out of Anchorage offers impressive views of the Chugach mountains and upper Cook Inlet but this highway corridor scores low on most intrinsic highway qualities. One possible explanation is that this stretch of highway (multi-lane, divided, and relatively straight) is designed for speed and efficient movement of large numbers of vehicles and thus alienates travelers from the otherwise outstanding intrinsic qualities of the surrounding landscape. At the opposite end of the spectrum would be the Denali Highway, an unpaved highway whose strategic transportation value has been usurped by the Parks Highway, but a highway that traverses landscapes with exceptional intrinsic qualities.

The quantity, quality, and spatial distribution of intrinsic highway qualities constitute one potential, but not fully explicated dimension of a highway experience opportunity spectrum. One could also look to other characteristics or dimensions of a given highway to determine where it might fit on the spectrum. For example, other potential dimensions include capacity (volume of traffic), length of highway, remoteness (i.e., distance from urban areas), connectivity (i.e., what cities or geographic areas does the highway connect), travel speed, and purpose (e.g., commerce or pleasure). The Glenn and Denali Highways provide excellent contrast on the different dimensions. The Glenn Highway is an urban, high speed, high capacity highway that connects Anchorage with the Matanuska-Susitna Borough, the fastest growing area in the state of Alaska. The Glenn is primarily a commuting highway and as previously discussed, is relatively sparse in intrinsic highway qualities. In contrast, the Denali Highway is a rural, low capacity, low speed highway that connects the very small rural communities of Paxson and Cantwell. Since driving the highway can result in wear and stress on vehicles and paved, alternative routes exist, many individuals choose to drive the highway for a sense of adventure or to access recreational opportunities along the route.

One advantage to describing highways on an opportunity spectrum is to ensure that state or regional departments of transportation provide a range of experience opportunities for individuals who use a state or regional highway system. There is continual pressure to expand and upgrade highway systems to accommodate greater vehicle capacity. In the U.S., there are many highways that offer the high volume, urban transportation experience and the distribution of highways on the opportunity spectrum is skewed in the efficiency direction. The opportunities for pleasure driving across landscapes with high intrinsic qualities and low volume

are less abundant. State highway transportation departments must have the ability to resist highway improvement projects that risk the intrinsic qualities that provide enjoyable highway travel experiences. Highway improvement projects within highway corridors with abundant intrinsic qualities should receive a careful level of review consistent with the protection mandate in the byways program.

Arguably, protection of intrinsic highway qualities ought to trump highway improvement projects (e.g., alignment and addition of lanes) but a “bright line” in such project decisions is often lacking because intrinsic qualities and their associated human values appear “fuzzy” while highway safety and efficiency criteria are more tangible to project engineers. The systematic inventory of intrinsic highway qualities described herein is one method to provide more equitable trade-off analyses.

There is ample opportunity for further human dimensions research on highways. The delineation of more specific highway opportunity classes would require the development and administration of empirical psychological measures of highway travel experiences to correlate with perceived intrinsic highway qualities. With a better understanding of this relationship, it would be possible to assess the social impact of potential highway changes on human use of the highway corridors, and ultimately, to manage highway corridors for a broader mix of human values.

