The Vital Role of Metropolitan Access in Commuter, Regional, Intercity and Overnight Rail Passenger Transportation -- and Its Relationship to Technology and Transit

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Abstract

The main thesis of this work is that planners and transportation professionals must think broadly in designing systems. Specifically, when designing an intercity transportation system, the objective is getting the customers from their actual origins to their ultimate destinations. With today's large and sprawling metropolitan areas, interconnections between urban and intercity transportation systems are a must – the customer's actual origin and ultimate destination are usually nowhere near an airport or a rail terminal. Whether this 'access leg' is provided by intermodal transfers or direct service is a matter of local circumstances, but it must be considered in the intercity transportation system planning process.

Future rail technology should not be designed to emulate either aircrafts or taxicabs. An aircraft is very good at traveling long distances quickly, but is unable to make intermediate stops, and thus a poor alternative for servicing dispersed demands. An automobile can make many intermediate stops efficiently, but cannot travel very fast. The ubiquitous automobile also suffers from ubiquitous urban congestion. Thus, it cannot service either extremely high demand densities or long corridors. Rail technology offers an intermediate option. In urban areas, rail offers efficient service to massive demands through high carrying capacity and dedicated rights-of-way. In rural areas it offers higher speeds by virtue of steel-wheels-on-steel-rails guidance. The combination of these two qualities makes intercity rail a winner in connecting one sprawling metropolitan area with another nearby – especially when coupled with such incremental enhancements as 'maglevication' of existing railroads. 'Shiny-go-faster' or personal rapid transit approaches ignore these advantages of rail transportation at their peril.

Intercity rail must exploit both advantages to compete effectively. The traditional, limited-stop high-speed rail approach ignores rail's ability to service many dispersed points of origin (streetcar suburbs), while the 'airport access' approach ignores the possibility of a direct service from a neighborhood 'subway station' to another one in a different metropolitan area. The key to success is not the one-seat-ride, but in eliminating the transfer, terminal and 'backtracking' time associated with many air-rail or air-bus solutions. These advantages are best demonstrated with a passenger utility model that is sensitive to the different values-of-time a customer perceives during difference phases of a door-to-door trip.

In the United States, higher speed rail is necessary in many cities for rail to stay competitive, but highest speeds are neither cost-effective nor necessary. Each scheme for increasing line-haul speed should be judged, using the total logistics-utility framework, against alternatives to improve access and options to make time disappear. Demands for speed, accessibility, amenities, and other upgrades that improve the customer utility must be balanced against each other. The results from the customer utility studies should be used to inform intercity transportation system design, to create a system that works in harmony to move people.

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