

Communities By Design, a
nonprofit 501c(3) training and education
organization, in cooperation with the
City of Redwood City,
is pleased to present:

The Forum *at Redwood City*

A CONTINUING CONVERSATION ON CITY DESIGN



Improving Transit in the Bay Area: Principles of Effective Systems

2006-07 SEASON: FORUM #3
WEDNESDAY, DECEMBER 6, 2006
LITTLE FOX THEATER
2209 BROADWAY
REDWOOD CITY
6:00 P.M. - 7:45 P.M.

On December 6, 2006, the City of Redwood City and the nonprofit "Communities By Design" hosted its third presentation of the 2006-2007 Forum season. The presentation was given by transportation expert Alan Hoffman, Founding Principal of The Mission Group in San Diego, CA. Alan Hoffman led the Forum at Redwood City audience through a series of market research findings and case studies to help explain how "Improving Bay Area Transit" could be achieved.

Mr. Hoffman opened with the question: "Why do cities invest in transit?" The answer, he said, usually lies in wanting to improve air quality and increase transportation choices, while decreasing congestion and sprawl. Before these goals are accomplished, the lone driver must be lured from his or her car and onto public transit. To actually get people out of their cars, we need to understand the relationship between driving and the passenger's desire to save time and money.

Market Research Findings: Three Transit Essentials

Mr. Hoffman outlined the following three essential criteria for successful transportation planning - all of which must be carried out simultaneously:

1. **Network Structure, or Connectivity:** Getting people from point A to Point B without significant interruptions. This means that transit has to take people from where they are to where they are going.

2. **System Performance:** Getting people to their destination quickly, without keeping them waiting. The current high-frequency pick-up interval is 15 minutes; however Mr. Hoffman asserts that 10 minutes is more appropriate.
3. **Customer Experience:** Making the rider feel good about their choice in transportation, both during and after their trip.

Network Infrastructure: Creating Market Value

The best approach to create an effective network structure is to design a system with the most connections in the quickest amount of time and to the right areas. Transit nodes should be located at important civic centers, not in the peripheries where sprawl would consequently be encouraged. A weak network design is manifested by spread-out, polycentric, activity centers. A community's transportation map should not appear as a linear series of dots connected by one transportation corridor. Developments don't care about proximity to such corridors; instead corridors should connect important developments so that future land use patterns *are* concerned with corridor proximity.

System Performance

The most effective network design consists of "connecting the dots." If the easiest way to get to your destination is typically by transit, then you've made a good system. Mr. Hoffman stated that, "Places next to transit are like gold to developers." Mr. Hoffman added that the use of traditional transportation design is adequate for very centralized cities; however, multiple, more creative transit models are necessary for sprawled areas. Mr. Hoffman stated that, "In short, the aim is to make transit not merely convenient or useful, but to make it indispensable." Transportations systems, like corporations, must compete for customer business; transit use will increase when it becomes the best option for passengers.

Success Stories – Case Studies

Curitiba, Brazil, the rapidly growing South American city, knew they needed to blanket their city with a well-functioning transportation network. A subway system was the first option considered, however it that would have been far too expensive. Light rail was the next option, yet once again costs were found prohibitive. One thing was for certain, Curitiba didn't want their city be dictated by the auto, instead public transit was to guide the form of the city. Their solution was to create a network of buses that functioned as a "surface subway." To avoid buses getting caught up in the rest of the heavy traffic, they created bus-only roads with traffic signal priority over the auto, resulting in the bus system becoming the preferred mode of transportation. Compact and convenient station tunnels that were accessible and flush to the bus door allows for the average stop time of buses in Curitiba to be between only 20-40 seconds. At larger points of transportation convergence, a series of stations were positioned for quick transfers. This station set-up made provisions for a sophisticated system that enhanced the customer experience. For the longer commute, an additional network overlay of "speedy" buses was added to directly connect major transportation centers. Curitiba was able to cover the city with a great system in less than 25 years at low overall cost. In turn, ridership increased from 7 percent in 1970 to 70 percent today.

"What makes transit sexy is not the mode or the technology, it's how you design it."

- Alan Hoffman

Mr. Hoffman's also showed less successful transit developments, including Rio Vista West and San Ysidro in Southern California. These "Transit Oriented Developments" were what

Mr. Hoffman called, “T.O.D.’s without the T” for transportation - due to the fact that the development was too far removed from transit.

Transmilenio in Bogota, Colombia, is another noteworthy case study with a reputable bus rapid transit system that followed a minimal investment strategy. Stations are usually never farther than one-third of a mile apart. Transit lines were built to intersect each other and get the most convenient destination proximity. An additional express route system services passengers embarking on longer trips by eliminating frequent stops.

Operating costs for such major transportation systems are crucial. Mr. Hoffman stated, “Lower unit operating costs for rubber based tired systems permit higher frequencies and the overlaying of multiple express systems, reducing vehicle round trip and cycle times and serving more riders.” In other words, frequency trumps mode.

Brisbane in Queensland, Australia, has a spectacular transportation system that Mr. Hoffman said “should be the envy of other cities.” Downtown Brisbane is small but doubling. Their initial commuter rail system did fairly well for nearby users but was inadequate for farther residences. To improve their effectiveness, Brisbane utilized a grade separated bus method called “quickways.” Underground bus stations feed subterranean tunnels, then surface to grade separated lanes so buses are not tied up with other traffic. Generally, passengers use the express inter-city bus until they reach the core. At the core, rocket buses travel along main lines, then separate to serve more remote locations. The Brisbane system, which cost \$22 million/mile to build, became so successful that it now carries 15% more people than the busiest light rail system in North America, is operating at or near full cost recovery, and was forced to quit marketing because Australia couldn’t keep up with bus manufacturing demands.

Customer Experience

The customer’s experience while using transit is crucial to the system’s success. People value connectivity, time and experience. User friendly design elements such as legible mapping, easy boarding, and a safe atmosphere help enhance the passenger’s likelihood to continue using transit. Mr. Hoffman continually conducts focus groups to obtain data on the customer experience. His market research found that sleek, transparent, uncramped vessel designs are highly preferred. Gender differences also play an important role in the customer experience. Women, Mr. Hoffman noted, are more likely to desire safe and composed environments, whereas men value having a sense of control. For example, men generally respond well to stations where arrivals and departures are clearly displayed, especially with audible warnings.

Mr. Hoffman wrapped his presentation up by giving one last piece of advice, “Intensive, systematic and focused market research should be an integral part of your planning process and should be used to help guide the design of your systems.”