Sierra Club: Why not a BRT system?

Bus Rapid Transit (BRT), which many rail critics propose as a solution; would be difficult to implement in Honolulu. BRT systems have been extensively studied. BRT essentially takes buses and adds elements which make them function more like trains; such as giving them dedicated lanes, elevated boarding platforms, prepayment options and multiple entry doors.

BRT works best in areas where there are wide roads where 20 or 30 feet can be taken from existing rights-of-way to make room for dedicated bus lanes and platforms. Honolulu has relatively narrow roadways and taking 20-30 feet of them to dedicate to buses and platforms would be extremely problematic. No unused land is available along the length of the city that wouldpermit building new road lanes. So any lanes taken by BRT will disperse cars onto the remaining lanes, causing a sharp increase in congestion and reduce the available space for bicycle lanes.

The BRT system still must intersect with traffic at intersections or have ramps built to go over or under intersections. Any over/under ramps must conform to the physical needs of the longest bus; i.e., the ramp must have sufficient length to maintain a consistent slope in order to ensure constant speed in order to avoid sharp speed changes that could cause accidents or injuries to passengers.

In addition, downtown Honolulu’s short city blocks are a choke point for an at-grade system. In order to avoid blocking cross traffic – which would only make traffic worse- at-grade trains or buses cannot be too long or they will jut into the intersection and prevent cross traffic from moving. For the same reason, there cannot be too many buses or train cars backing up at a particular stop. Put simply: there is a maximum limit to the number of light-rail-type trains or buses that could travel at-grade through downtown. The Sierra Club questions whether, with such limitations, an at-grade system could provide the requisite Level Of Service. In other words can at-grade deliver the kind of efficient mass transit that is essential if the city is to push growth into a denser “smart growth” pattern that would halt suburban sprawl?

In an at-grade system, the dedicated lane has to be located either on the outside lane (left or right for one-way streets) or in the center. Unless the dedicated lane has some type of barrier, it is impossible to prevent other vehicles from using the lane and crossing in front of the light-train or bus. This inevitably and regularly leads to accidents and fatalities in the cities where such systems are in use. Ticketing and police enforcement have some deterrent effect, but people frustrated in traffic will use any route available and all it takes is a couple of cars in the dedicated lane to slow down an entire light rail or Bus Rapid Transit system. For dedicated lanes on the outer sides of the road, the system has to accommodate traffic turning onto intersecting streets, which means leaving breaks in the barriers in which cars can enter. For center lanes, the system must provide a walkway for passengers to enter and leave the center lane station. These are not all insurmountable problems, but resource constraints confronting at-grade systems, whether rail or bus, have been described in the BRT Environmental Impact Statement and the Federal Transit Administration Honolulu BRT Evaluation (2006), amongst other documents.
The biggest obstacle to these BRT proposals was quite simply a lack of political will to remove existing general-use road lanes currently used by cars, buses, trucks, and bicycles, and dedicate them exclusively to a transit system. In the early 2000s, TheBus experimented with dedicated lanes but quickly abandoned them after objections by citizens, the State Department of Transportation, and State Representatives and Senators. TheBus was also unable to pursue pre-boarding payment or other common features for an at-grade mass transit system. We have seen nothing to convince us that this lack of political will is about to change. Neither do we see voters in Honolulu easily accepting the loss of two traffic lanes on King and Beretania Streets.

In order to implement efficient BRT in Honolulu, and to meet growing demand as the population continues to grow in coming decades without severely impacting roadway traffic, it will eventually and inevitably become necessary to build an elevated guideway to run the buses on. The problem with doing this is that the primary advantage BRT has over rail is the lower capital costs that come with using existing infrastructure (roadways). However, most of the cost of Honolulu’s rail system is the cost of the guideway. Electric, steel-on-steel trains are cheaper to operate and maintain than rubber wheeled buses and so, if you’re going to build a guideway, it makes far more sense to run trains on it than buses.

Moreover, an elevated bus guideway would require more space than for the train. A bus is wider than a train, so a two-way bus guideway would be wider than the rail guideway. The guideway would have to be 3-4 lanes wide at the BRT stations so that buses can pull to the side for passenger loading, while still allowing other buses to pass. This would make the BRT wider and longer than the rail station.

Finally, if the BRT is to be able to leave the guideway and make local stops, it will require on/off ramps. On/off ramps must conform to the shape of the bus, its turning radius, and speed. The height of the guideway will be a function of the possible ramp lengths. Imagine every elevated BRT station will be accompanied by either a cloverleaf of on/off ramps or some variation of the cloverleaf. How else will buses travel both directions and get on/off the elevated guideway? The touchdowns of the ramps will require property takings, as well as significant displacement and relocation of existing infrastructure, homes, and business, to be able to connect them to local streets and integrate into local patterns.

If the buses stay only on the guideway and do not descend, then what’s the advantage of using a bus over a train?

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