4.1 Components that Pass Step A

This section describes the transit components that pass the Step A screening. Some of these transit components are currently used in the Portland-Vancouver region, and others appear to be promising options based on their typical operating characteristics. More details regarding these modes and their respective features, strengths, and weaknesses follow. The cost information included in this section is for informational purposes only; capital and operating costs are not criteria used in Step A screening.

4.1.1 TR-1 Express Buses in General Purpose Lanes

Description:

Express bus service has a limited number of stops and operates either from a collector area (such as a park-and-ride) directly to a specific destination or in a particular corridor with stops en route at major transfer points or activity centers. Express bus service is commonly used in many U.S. cities for longer-distance trips, and is currently used to provide bi-state transit service in the I-5 corridor (e.g., C-TRAN's route #134 from Salmon Creek to downtown Portland). The travel time and reliability of express bus service is directly affected by general congestion levels, since buses share traffic lanes with all other vehicles.

The capital costs of express bus service cannot be reduced to a cost-per-mile basis. Rather, capital costs for express bus service are based on the number of buses in service and the number of capital and passenger facilities constructed. **Figure 4-1** shows express buses operating in general purpose lanes.

Figure 4-1 Express Bus in General Purpose Lanes

Express buses operating in existing or new general purpose lanes passes the Step A questions because they could:

1. Increase transit capacity and reduce auto demand within the Bridge Influence Area.
2. Increase the speed of transit in the Bridge Influence Area, provided enough new general purpose capacity was added to reduce congestion levels. Transit reliability could also be improved if congestion were sufficiently reduced.

4.1.2 TR-2 Express Buses in Managed Lanes

Description:

This component is similar to TR-1, except that express buses benefit from improved travel times and reliability by operating in managed lanes that give preferential use to transit and/or reduce

use by other modes (single-occupancy autos, trucks). Managed lanes can be High Occupancy Vehicle (HOV) lanes, bus-only lanes, and/or tolled lanes with reduced auto volumes.

The most common form of managed lanes are HOV lanes. HOV lanes are typically reserved for vehicles with two or more occupants and often serve buses, taxis, and carpools. HOV lanes are usually used in metropolitan areas ranging from one million to over 10 million people and can be developed through new construction, or conversion or modification of existing facilities. When utilized to their full potential, HOV lanes can often double the person-carrying capacity of the existing freeway lanes.

The capital costs of constructing a new HOV lane can range from $5 million to more than $20 million per lane mile, depending on location and specific engineering required by the site. Costs include right-of-way, engineering, and construction of the freeway and related facilities. **Figure 4-2** shows express buses operating in managed lanes.

Figure 4-2. Express Bus in Managed Lanes

Express buses in managed lanes passes the Step A questions because they could:

1. Decrease vehicular travel demand within the Bridge Influence Area by giving preference and a speed advantage to transit.

2. Improve transit performance by managing congestion and reducing the potential for accidents, thereby improving transit reliability.

4.1.3 TR-3 Bus Rapid Transit LITE

Description:

Bus rapid transit (BRT) is a strategy to reduce travel time for bus riders and improve bus efficiency in congested corridors. BRT "LITE" is an all-day bus service that can operate in exclusive, managed, or general purpose lanes, and which may or may not have in-line stations and special vehicles. BRT systems are more flexible than fixed guideway rail transit because a BRT bus can enter and leave a bus lane at specific points and can operate on regular city streets. BRT vehicles can thus provide a passenger collection function (e.g., pick up passengers close to their home) and can also provide fast "trunk line" service in managed or exclusive lanes.

BRT systems are being demonstrated in cities with population sizes ranging from 500,000 people to over 3 million people. Examples of BRT systems include Pittsburgh and nine demonstration projects supported and under development by the Federal Transit Administration.

The capital costs of constructing a new BRT system can range from $10 million to $30 million per mile, depending on the location and specific engineering required by the site. **Figure 4-3** shows a typical BRT LITE vehicle.

Figure 4-3. BRT LITE

BRT LITE passes the Step A questions because it could:

1. Decrease vehicle demand within the Bridge Influence Area by substantially increasing transit capacity and providing a travel time advantage to bus rapid transit vehicles.

2. Improve transit performance by managing congestion and thereby improving transit reliability.

4.1.4 TR-4 Bus Rapid Transit FULL

Description:

BRT FULL is conceptually similar to BRT LITE described previously, with the following operational enhancements. BRT FULL would:

- operate in exclusive right-of-way for a significant distance (BRT LITE may not)
- have in-line stations and special vehicles (BRT LITE may not)
- have distinct and unique brand identity, similar to most light rail systems

Figure 4-4 shows a BRT FULL vehicle operating in an exclusive right-of-way.

Figure 4-4. BRT FULL

BRT FULL passes the Step A questions because it could:

1. Decrease vehicle demand within the Bridge Influence Area by increasing transit capacity and providing a dedicated transit lane within the Bridge Influence Area that would be uncongested.

2. Improve transit reliability and travel speed by completely separating bus rapid transit vehicles from other traffic and giving them a substantial travel time savings.