A STUDY OF PASSENGER TRANSFER FACILITIES


Throughout the country, a considerable effort is being made to improve public transit. However, one element of the total transit system which has not been studied at any level of detail and which has not improved to any great extent is the passenger transfer facility. The success of transit is going to depend on improvements made to all segments of the system, including safe, convenient transfer facilities. This study includes an inventory of facilities in some larger communities in New England, and a classification of facilities by size of area served and extent of system. According to an attitude survey, transit operators see a need for improved transfer facilities, minimized transfer times, and provision of shelters. The survey showed that pulsating systems had the highest number of transfers, averaging 27 percent, while transfers on non-pulsating systems generally averaged about 6 percent. The study concludes that transfer facilities must be improved to make transit more efficient and to encourage usage.

During the past few years, a considerable amount of work has been performed to develop plans for more effective urban bus systems. These planning efforts have considered the need for new buses, improved bus routes, improved frequencies, fare structures, transportation for the elderly and handicapped, and management. However, little consideration has been given to the need for improved transfer facilities.

Most systems radiate from the downtown area and stop at a central location, providing an opportunity for patrons to transfer between bus routes. In many areas, these transfer facilities are no more than the curbstone and a sidewalk with possibly a "No Parking Bus Stop" sign. In a few areas, the transfer facility has been developed to include bus shelters, pavement markings, bus schedules, and other amenities to encourage people to utilize the local system. The primary function of the facility is to accommodate transfers between local buses and in some larger areas, between various modes of transportation. The importance of such facilities will be difficult to determine, using objective techniques. Very little data exist concerning the need for transfer facilities.

Functions of Transfer Facilities

Communities with more than one bus probably have locations where passengers transfer between routes. In smaller areas, if transferring exists at all, it is only between a few local buses. In larger communities with large fleets and other modes such as rail and taxi, the need for transferring is greater. In some areas, the magnitude of transferring is considerably higher than in similar areas due to steps that have been taken to encourage transfers.

The attitude in many areas is that service must be as direct as possible, therefore minimizing transfers. However, it is virtually impossible to provide that type of service to all users. The planner and operator must determine the major movements in the area and design routes and schedules to satisfy the movements. After those conditions have been met, steps to increase the number of transferring passengers will increase the productivity of the system. The actions to be taken to maximize transfers vary, depending on the size of the service area and the types of services provided.

Types of Transfer Facilities

In some urban areas, especially the larger ones, there may be five forms of transportation which could utilize a transfer facility; they are local bus, intercity bus, rail, taxi, and demand-responsive service. Each service fulfills a special need for the traveling public and furthermore, each service requires that certain conditions exist in order to operate as efficiently as possible. It would appear that an ideal condition is for all modes to use one facility as which passengers board, alight, and transfer. It is seldom possible for this situation to exist or to be developed in an urban central business district. Some conditions to be satisfied in locating terminals for each mode follow.

Local Bus Service. A large proportion of local bus passengers presently utilize service to the center of the urban area. Recognizing that many passengers must transfer, and that many passengers have destinations in the CBD, the most effective location for a local bus transfer facility is in the center of the downtown area. The facility should be con-
veniently located to all local bus routes and to the
center of commercial and business activities. Sched-
uling should be developed to minimize transfer times. Buses departing the terminal at the same time encour-
age transfers. If such scheduling is not utilized or is
unreliable, transfers are not made and a terminal is
not required.

The cost of transfers is another important issue
on which attitudes vary. One thought is that the
transfer extends the length of service and adds
flexibility; therefore, there should be a charge. An-
other attitude is that the inefficiency of service
develops the need for transferring; therefore, there
should be no charge.

Intercity Service. In some areas, over 90 per-
cent of persons using intercity service arrive or
leave the present bus station by auto. Intercity
buses usually travel long distances, using express-
ways as much as possible to minimize travel time, so
it is critical for these vehicles to spend as little
time as possible on city streets. The closer to an
expressway interchange the intercity terminal, the
more efficient the service. This terminal must pro-
vide facilities not necessarily required for other
services, such as passenger baggage handling, tick-
eting, package delivery service, and a passenger
waiting room with seats. There also must be adequate
bus storage and passenger access to them.

Rail Service. The majority of rail passengers
tavel to the rail station by auto. To serve these
passengers, a waiting room is usually provided in
the CBD. In areas with taxi service, cab standing
areas should be provided.

Demand-Responsive Service. This service could
encourage patrons to gather at the transfer facility
for their rides home, providing that they are mobile
and that the facility is within walking distance.
This will reduce vehicle travel time, increasing
service efficiency.

One facility to satisfy all these services must
be located adjacent to the rail facility, close to
an expressway interchange, and in the CBD. In many
areas, such a location cannot be provided.

Size of Area

A direct relationship exists between the size of
the urban area and the number of local buses and
variety of modes providing service.

Small Urban Areas-To 50,000 Population. Gener-
ally, the only effective local bus service that will
operate in an area of this size, other than demand-
responsive service, is fixed route/fixed schedule
service radiating from the CBD. The type of sched-
uling which encourages the greatest number of trans-
fers is a pulsating system wherein all buses leave
the downtown area at the same time and return to-
gether to transfer passengers. This type of local
bus service requires some kind of facility to accom-
modate transfers.

Medium Size Urban Areas-50,000-500,000 Popula-
tion. The medium size area with a large number of
buses generally provides local service frequently
enough not to require a pulsating system to minimi-

transfer waiting time. Many of these systems radi-
ate from a central location in the CBD and therefore
require a transfer area. If a pulsating schedule is
not used, the space required for bus waiting can be
reduced.

Large Urban Areas-500,000 and Up Population. In
large urban areas, a variety of transfer facilities
may be needed. There are facilities located in the
downtown area for transferring between local service
and other modes. In suburban areas, facilities are
needed to accommodate transferring between modes and
local service, but usually these are not as large as
downtown facilities.

Local and express bus routes may serve rail sta-
tions and cross other bus routes, allowing transffer-
ing. Bus routes and rail service going to the cen-
tral area may be located in various segments of the
CBD rather than at one central location. This typi-
cal type of service requires a variety of transfer
points.

Large urban areas with radial rail and bus serv-
cices require suburban transfer facilities. These fa-
cilities often include major commuter parking facili-
ties to allow the transit passenger to utilize fixed
rail or the local bus system. In addition, suburban
buses traveling to the urban area may meet the fixed
rail system at the terminal, allowing for transfers
between bus and rail. These types of facilities may
also provide taxi service and, on occasion, long-
haul intercity bus service.

Bus Scheduling

In many areas, frequencies are often half-hour
or greater. Some areas schedule service so that
buses come together and depart at the same time, mini-
imizing the transfer waiting time. This type of
transfer service requires layover space that some
areas find difficult to provide. The Brockton, Mass-
achusetts system operates 20 vehicles on a pulsating
system, requiring space on two intersecting streets
to accommodate vehicles during the transfer period.
On longer frequency systems, transfers are discour-
aged if a pulsating schedule is not used. Before the
Brockton system introduced the pulsating schedule, it
had approximately 70 daily transfers. When the pul-
sating schedule was adopted, the number of daily
transfers increased to more than 800, and at the same
time, the cost of transferring was eliminated. The
transfer facility requirements for a pulsating system
therefore, are much greater than for a system which
schedules a minimum number of buses in the CBD trans-
fer facility at one time.

In larger areas where bus frequency may be 10
to 15 minutes, it is not necessary to schedule buses in
a pulsating fashion, first, because there are too many
and second, because the amount of transfer time is not
that great. The pulsating system requires each bus
to be on time. A bus that is behind schedule may
slow down the entire system.

Existing Transfer Facilities

With a new concern for energy conservation, pol-
lution, and the survival of cities, local, state,
and federal governments are involved in supporting
transit service with capital investments and opera-
ting subsidies. Through the use of public monies, many
improvements have been made including purchas-
ing new buses and funding operating assistance. How-
ever, improvements to transfer facilities have not
become very popular, although there is a growing interest in encouraging ridership by increasing transfers.

As part of this study, an inventory of transfer facilities was made in a number of urban areas in New England. Table 1 shows facility amenities, the number of local buses, and the type of schedule.

Table 1. Inventory of Transfer Facilities

<table>
<thead>
<tr>
<th>Location</th>
<th>Number of Buses</th>
<th>Type of Schedule</th>
<th>Painted Information</th>
<th>Benches</th>
<th>Curbs</th>
<th>&quot;No Parking&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridgeport, Ct.</td>
<td>40</td>
<td>N-Pulse.</td>
<td>x</td>
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<td>x</td>
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<tr>
<td>Danbury, Ct.</td>
<td>8</td>
<td>N-Pulse.</td>
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<td>x</td>
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<tr>
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<tr>
<td>Westport, Ct.</td>
<td>18</td>
<td>Pulse.</td>
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<td></td>
<td>x</td>
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<tr>
<td>Brockton, Ma.</td>
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<td>Pulse.</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Fall River, Ma.</td>
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<td>x</td>
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<td>x</td>
<td></td>
</tr>
<tr>
<td>Fitchburg, Ma.</td>
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<td>Haverhill, Ma.</td>
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<tr>
<td>New Bedford, Ma.</td>
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<td>x</td>
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<td>Pittsfield, Ma.</td>
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<td>Portland, Me.</td>
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<tr>
<td>Manchester, N.H.</td>
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<td>Providence, R.I.</td>
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<td>N-Pulse.</td>
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</tr>
</tbody>
</table>

Pulse = Pulsating Schedule
N-Pulse = Non-Pulsating Schedule

An attitude survey was sent to 21 transit operators in New England to determine their attitudes toward passenger transfers. Following are some major points made by those replying:

1. Seventy percent believed it was important to encourage transfers.
2. All agreed that transfer time should be minimized.
3. Seventy percent believed it was important to locate the transfer facility with other transportation services.
4. All agreed that a downtown facility should be sheltered from the elements.
5. Thirty percent felt that the facility should be off the street.
6. A number of operators did not know how many transfers were being made. The Brockton and Westport systems, both pulsating, each have about 27 percent transfers; the non-pulsating systems generally have below six percent.

Considerations for Future Improvements

Throughout the transfer facility planning process, it is important that the city planner or development agency and transit planner coordinate their efforts to assure that the facility serves the needs of the urban area and the transit system. City planners should understand that a transfer facility serves an important function and should consider that function in the planning process. The transit planner must realize that the logical area for implementation of a facility may have other demands placed upon it, some of which result in increased revenue for the community. Following are objectives to be considered in the planning process. They are neither in priority order nor are they inclusive.

1. Provide convenient, efficient, safe facilities for passenger transfers.
2. Locate the facility in an area providing quick, uncongested access to and from the facility. The facility serving local transit should be located on as many bus routes as possible.
3. Minimize conflicts with auto traffic movements in the area of the facility.
4. Provide an attractive facility which will aid promotion of local ridership, encouraging usage.
5. Costs of operation and maintenance should be reasonable.

If transferring is made as appealing as possible, with minimum transfer times, free transfers, and effective promotion, ridership can be increased. Bus system administrators and local officials must decide if the location of a transit facility is merely a sidewalk/curbside facility or a well-identified, marketable facility.

Often the biggest problems to overcome in developing a transit facility are the institutional problems generated by political and public policy machinery. In some cases, public agencies find themselves in a competitive, rather than cooperative situation when faced with prospects of consolidating or integrating various modal systems.

In recommending the development of a facility, it is important to encourage the support of businesses, elected officials, and the public. Too often local officials take a rather passive view, in part because the public has not campaigned for improvements. They see only that improvements to the system will cost money, possibly increasing taxes.

At present, no set standards, suggested policies or guidelines exist to support the need for transfer facilities. Planners and designers are without the materials needed to develop the layout, signing, and information systems. Standards and guidelines must be available to assure adequate facilities.