Evaluation of Portland Transit Mall

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A transit mall combines transit preferential treatment with pedestrian-oriented approaches. Pedestrian and transit uses are believed to complement each other. By combining the two, a special focus can be created in the downtown area that helps business, brings people together, improves bus services, creates an attraction that stimulates bus ridership by increasing the efficiency and capacity of moving buses through downtown, and possibly contributes to stimulating downtown development in a transit-supportive pattern. The Portland, Oregon, experience with a transit mall is described, user and provider impacts are assessed, and interactions between transportation and land use that can be achieved through investment in transit are examined. The results of the evaluation are summarized in a cost-benefit framework, and the benefit/cost ratio is found to be 2.29. The largest benefits with the mall, as compared with the anticipated situation had the mall not been built, accrue from savings in bus operating costs and modal shifts.

Transit malls are a relatively new form of public project aimed at revitalizing downtowns and promoting transit. Concern about deteriorating downtown business conditions and increased concern about traffic congestion and environmental problems have renewed interest in transit improvements. Recognizing that fixed-guideway systems are expensive, most cities began to focus attention in the late 1970s on improving bus service by means of operational measures. Examples of such measures are priority signalization, preferential lanes, improved loading facilities, route rationalization, and improved scheduling. In particular, there is a trend toward consolidation of routes onto fewer streets in order to make more efficient use of preferential treatment while also simplifying the transit system and making transfers easier. In addition, under the general heading of transportation system management (TSM), public officials are encouraging carpools, transit use, shorter trips, and walking to mitigate the growth of automobile congestion.

Transit malls represent a combination of pedestrian malls and preferential treatment for buses on city streets. This combination consists of creating automobile-free areas while retaining a roadway reserved for transit vehicles. Automobile access is denied or limited strictly to local and cross-street traffic. Typically, sidewalks are widened and other pedestrian amenities are added. By addressing the needs of pedestrians and facilitating transit operations, the mall becomes an important part of the collection-distribution process of a citywide or regional transit system.

A transit mall can be viewed as a compromise shopping mall designed to satisfy merchants who may feel that some vehicle access is essential to their businesses. This compromise view is based on the notion that neither pedestrian needs nor transit volumes by themselves are sufficient to justify removing entire streets from automobile use, but together they are. Furthermore, pedestrian and transit uses are considered complementary. By combining the two, a special focus can be created in the downtown area that brings people together, stimulates business, encourages bus ridership, improves transit service, enhances environmental quality, and stimulates development in a pattern that can be better served by transit.

HISTORICAL DEVELOPMENT OF PORTLAND TRANSIT MALL

The concept of segregating transit from automobile traffic on downtown streets in Portland, Oregon, was advanced as a solution to downtown traffic problems as early as the 1950s. The idea of a transit mall for Portland was initiated in 1970 by a coalition of downtown business leaders and property owners. A downtown plan study group was formed. After 15 months of discussion and study, a report was published that included a transit mall concept for Southwest Fifth and Sixth Avenues.

The transit mall concept was identified as an integral element in the downtown plan and reiterated in the city's transportation control strategy for federal air quality standards in 1972. Therefore, the transit mall concept should not be viewed as an independent project but as part of a much broader public and private investment plan.

Through a program funded by UMTA, the Tri-County Metropolitan Transportation District of Oregon (Tri-Met) initiated a feasibility study for a transit mall in January 1973. The results of the study were favorable. This effort was followed by a design, completed in December 1975. The financing of the mall was federally assisted under the Urban Mass Transportation Act of 1964, as amended. This act authorized the Secretary of Transportation to provide additional assistance for the development of comprehensive and coordinated mass transportation systems, both public and private, in metropolitan and other urban areas and for other purposes. The cost of the construction project was $15 million, funded 80 percent by UMTA and 20 percent by Tri-Met. Construction began in February 1976, and partial operation started in December 1977. The mall was completed early in 1978.

PROJECT DESCRIPTION

The mall project involved the reconstruction of Fifth and Sixth Avenues between Burnside Street on the north and Madison Street on the south--approximately 11 blocks on each avenue or a total of 22 blocks through the heart of downtown Portland. In dimension, the mall was an ambitious project to eliminate the private automobile from a major segment of a central business district (CBD) street system and to dedicate those streets to transit use.

Physically, the project involved reconstructing all improvements within the street rights-of-way of Fifth and Sixth Avenues. This included reconstructing roadway pavements and widening existing 15-ft sidewalks to 26 ft along the right lane of each avenue where buses load. Sidewalks on the opposite side of the street were widened from 15 to 18 ft where there is an automobile access lane and to 30 ft in other blocks. Sidewalks and pedestrian walking areas at each intersection were reconstructed with brick paving and granite feature strips. London plane trees, spaced approximately 25 ft apart, line the two avenues. The design treatment of the two streets is enhanced by refurbished historic street light standards and other elements of street furniture. Most significant among the items of street furniture are the 32 bronze-clad, glass-roofed bus shelters located at the bus stops. The project also included more than one-hundred 4- and 6-ft-diameter flower pots, planted seasonally by the city Parks and Memorials Bureau, and five decorative fountains that range from a quiet pool with sculpture to a roaring cascade. The project also in-

cludes 11 individual sculptures, display kiosks, and special signing and graphics.

Fifth and Sixth Avenues have an 80-ft right-of-way with widened sidewalks. Two continuous 12-ft bus lanes extend the length of these two avenues. An intermittent automobile lane on the left side of each avenue is situated to provide automobile access in three-block segments. The mall operates southbound on Fifth Avenue and northbound on Sixth Avenue, consistent with the downtown one-way grid pattern. Each block of the mall has two bus loading areas. One stop is located on the north 80 ft and another on the south 80 ft of each block, and there is a 40-ft reserved area at the center of each 200-ft block. Each bus line has a stop every fourth loading area so that each bus stops every other block.

Lines are assigned to stops along Fifth and Sixth Avenues according to destination. The regional bus system is divided into seven service areas. Each service area is assigned to one of four bus stops on Fifth Avenue and three along Sixth Avenue. A fourth bus stop on Sixth Avenue is reserved for unloading only for bus lines serving the southern service areas, which loop in the downtown, unload on Sixth Avenue, and stop for boarding riders on Fifth Avenue. There are five bus stops on the mall for each service area.

The allocation of bus stops according to service areas makes it easy for the bus patron destined for a specific location in the region to identify the correct bus stop. In addition, this method allows patrons destined for close-in locations that are served by several bus lines to access any one of those lines at a single bus stop. This includes people who are enjoying the convenience of free bus service to destinations within the downtown Tri-Met fareless square area, which is the full downtown area.

Bus shelters designed to provide rain protection for as many as 60 persons are located at most bus stops. The bus shelters are an important feature of the mall, particularly because of Portland's rainy climate. But the bus shelters are also important for their display and transit information function. Each contains maps and descriptions of the overall transit system and specific information about the individual service area, including video equipment that displays departure times for each bus that serves that bus stop.

OBJECTIVES OF THE MALL

Several objectives influenced the design of the Portland Transit Mall. An important objective was to provide a more efficient, convenient transportation alternative for commuters and shoppers. Transit improvements were expected to increase transit use. This, in turn, was expected to promote more efficient land use and reduce energy consumption and pollution. The mall is designed to carry a maximum of 200 buses/hr in the exclusive bus lanes on each avenue or as many as 260 buses/hr if, in the future, the present downtown progressive signal system is abandoned in favor of a simultaneous signal system.

Another objective was to revitalize the downtown area. The completed mall was to stimulate growth in the downtown area through stabilization or growth in the number of retail firms, lower vacancy rates and turnover rates, increased retail sales and other business activity, greater private and public investment, and more jobs.

PORTLAND MALL IMPACT STUDY

The Portland Mall Impact Study was funded by UMTA to analyze a wide range of impacts related to the Portland Transit Mall. The study was a joint project involving the Metropolitan Service District, the Portland Bureau of Planning, Tri-Met, and the Center for Urban Studies, Portland State University.

The purpose of the study was to provide useful information for public and private organizations at both the national and local levels. At the national level, the results of the study will help to answer questions that are asked of Portland by other local government agencies. Such agencies have expressed interest in Portland's experience with a transit mall and possible applications to their communities. They are also interested in the interactions between transportation and land use that can be achieved through investments in transit. At the local level, information will be used in assessing impacts related to the operation, maintenance, and possible extension of the mall.

The Portland Mall Impact Study: Final Report (1) summarizes the analytic results of all of the technical studies done on the impacts of the mall. The results of the economic analysis and the conclusions from the overall study are reported in detail in this study.

ECONOMIC ANALYSIS

Cost-Benefit Framework

The impacts of the Portland Transit Mall are discussed in this paper in a comparative cost-benefit format. The cost of constructing and maintaining the mall and its impacts are displayed in an annual benefit format.

Capital costs are approximately $16 million and the annual maintenance cost is $0.2 million. The construction costs were shared by UMTA (80 percent) and Tri-Met (20 percent). The total length of the two mall streets is 1.6 miles; this yields an average capital cost of $10 million/mile and a maintenance cost of $125,000/mile.

The question is whether the benefits exceed the costs. The various user impacts of the mall are converted to dollar estimates of benefit. User benefits are defined as dollar savings in vehicle operating costs, travel-time value, and accident costs for users of the downtown transportation system. The mall reduced travel time for transit users and increased patronage above what it would have been without the improvement. This with-and-without comparison becomes the basis for the benefit estimation.

Estimation of User Benefit

The user benefit of the mall improvement is the reduction in transit user costs and highway user costs, both calculated according to the consumer's surplus concept of benefits (2):

$$\text{User benefit} = N(\Delta TU) + V(\Delta HU) \quad (1)$$

where

- N = average number of person trips via transit with the mall (N_W) and without the mall (N_{WO}), or $(N_W + N_{WO})/2$;
- V = average vehicle traffic level $[(V_W + V_{WO})/2]$ in the downtown;
- ΔTU = reduction in transit user costs per person trip with the mall versus without the mall $(TU_W - TU_{WO})$; and
- ΔHU = reduction in highway user costs per vehicle due to changes in transit service $(HU_W - HU_{WO})$.

Transit user costs (TU) consist of the travel-time

value and money costs of a trip made by transit. The reduction in transit costs per person trip is

$$\Delta TU = v(\Delta VT + w\Delta WT) + \Delta F \quad (2)$$

where

- v = value of in-vehicle travel time;
- w = value of time for waiting, walking, and transferring relative to in-vehicle time, a factor to equate excess time with travel time;
- ΔVT = reduction in time spent in vehicles per person trip;
- ΔWT = reduction in time spent walking, waiting, and transferring per person trip; and
- ΔF = reduction in money costs per person trip (e.g., difference in bus fare).

In their with-and-without traffic assignment analysis of the mall, Wilsey and Hamm (3) found that ΔVT = 1.5 min/transit trip and ΔWT = 45 sec or 0.75 min/transit trip. The ΔVT stems from a nearly 4-min savings in run time through the mall in comparison with the situation without the mall. Similarly, the ΔWT results from a shorter average walk time to transit for users of the mall. ΔF = 0--i.e., there is no reduction in the user cost of riding transit.

The value of travel time (v) for small increments of time savings (less than 5 min/trip) recommended by AASHTO (2) in 1977 was 6.4 percent of average hourly family income. Applying the 6.4 percent to the average family income from the downtown employee survey of \$17,400 ÷ (50 weeks x 40 hr) equals \$0.55/hr. Another frequently used value for travel time saved is one-third of wage income. The average family income is factored by two wage-earner households (60 percent), secondary wage income as a percentage of primary wage income (90 percent), and percentage of two wage-earner households in the sample (65 percent). This yields an estimate of \$1.75/hr.

A value of time for waiting and walking relative to in-vehicle time (w) of 1.5 to 2.5 is normally applied to reflect the more onerous effect of delays. Using w values of 1.5 and 2.5, v-values of \$0.55 and \$1.75, ΔVT = 1.5 min/(60 min/hr), and ΔWT = 0.75/60 yields a reduction in transit costs per person trip (ΔTU) as given below:

	ΔTU (\$)	
v (\$)	w = 1.5	w = 2.5
0.55	0.0238	0.0309
1.75	0.0757	0.0984

Clearly, the estimate of reduction in transit costs per person trip is quite sensitive to the value of time and to a lesser extent to the factor for excess or waiting time. An average of the four values given in the preceding table, \$0.0572, is used to estimate the benefit to transit users:

$$\text{Annual transit user benefit} = \$0.0572\,[(107{,}700 + 101{,}500)/2] \times (330) = \$1.97 \text{ million} \quad (3)$$

where 330 weekday equivalents is used to annualize daily traffic.

The transit user benefit can be as low as \$0.82 million if one uses the lower value of time and the lower factor for waiting and walking time or as high as \$3.38 million if the high values from the preceding table are used.

Highway user costs (HU) consist of the travel-time value and money costs of a vehicle trip. The reduction in highway costs per vehicle trip is

$$\Delta HU = v(\Delta VT + w\Delta WT) + \Delta AC \quad (4)$$

where ΔVT and ΔWT refer to vehicle trips rather than person trips and ΔAC is the reduction in automobile operating cost.

The Traffic Effects Analysis (3) and the Downtown Employee Survey (4) show no change in walk time to transit ($\Delta WT = 0$). ΔVT is derived from vehicle miles of travel (VMT) and volume estimates from the Traffic Effects Analysis (3):

$$\Delta VT = VMT_w/V_w - VMT_{wo}/V_{wo} \quad (5)$$

where

- VMT = vehicle miles of travel in CBD with (VMT_w) and without (VMT_{wo}) the mall;
- V = total CBD cordon traffic volumes with (V_w) and without (V_{wo}) the mall;
- ΔVT = 153,611/396,664 - 161,179/405,069 = -0.01 mile = -0.04 min at 15 mph (average CBD speed);
- ΔAC = (ΔVT) (AC) = (-0.01) (\$0.20/vehicle mile); and
- ΔHU = [v (ΔVT + wΔWT) + ΔAC] (average vehicle occupancy of 1.3) = -0.00308 if v = \$0.55 and -0.00310 if v = \$1.75.

The negative benefit results from slightly longer trips in the CBD due to closure of Fifth and Sixth Avenues to vehicle traffic and increasing circularity for some vehicle trips. By using the average of the two estimates of ΔHU,

$$\text{Annual automobile user benefit} = -0.00309\,[(396{,}664 + 405{,}069)/2] \times (330) = \$-409{,}000 \quad (6)$$

Thus, the estimate of user benefit is the reduction in transit costs less the increase in automobile costs due to greater circuity in the street system with the mall:

$$\begin{aligned}\text{Annual user benefit} &= N(\Delta TU) + V(\Delta HU)\\ &= 1{,}970{,}000 - 409{,}000\\ &= \$1.561 \text{ million}\end{aligned} \quad (7)$$

Transit System Operating Cost Savings

The impacts of transit improvements on the cost of implementing and operating a transit system are treated in two categories: capital costs and operating costs. The capital cost of the mall itself was treated separately above, and no bus capital cost is attributable to the mall.

The operating cost savings associated with the mall in comparison to the situation without the mall are calculated from the reduction in transit travel time because of the mall times the marginal cost of transit per hour times the number of buses:

$$OC = (\Delta TT)(MCT)(B) \quad (8)$$

where

- OC = transit operating cost savings,
- ΔTT = reduction in transit travel time due to the mall,
- MCT = marginal cost of transit per hour, and
- B = average number of buses ($B_w + B_{wo}$)/2.

In the Traffic Effects Analysis (3), it was found that there was a time saving of 4 min/bus for the situation with the mall in comparison to the situation without the mall. This efficiency gain was not confirmed by the Tri-Met mall versus cross-mall comparison, but the 4-min estimate is used. The

large volume of north-south buses would be difficult to accommodate in mixed traffic. In effect, the mall may not have increased bus speeds downtown, but it has maintained speeds that would have deteriorated with large increases in bus volumes.

The 1977 operating cost factor estimated by Tri-Met was $18.23/hr. This does not include capital or allocated administrative costs and therefore better approximates the marginal cost:

$$OC = (4/60)\ (\$18.23)\ [(4300 - 4000)/2]\ (330) \quad (9)$$

Annual transit operating cost savings = $1.664 million.

Accident Costs

The costs of traffic accidents are estimated as a product of the unit cost of accidents, by degree of severity, and the accident rates for each accident type with and without the mall. The unit cost of accidents is taken from the AASHTO report (2, p. 64), which uses California Department of Transportation estimates for urban accidents: $3,500 for injury accidents and $1,000 for property damage accidents (in 1975 dollars).

The accident rates were calculated and applied to with- and without-mall volumes on the affected streets to determine the expected number of accidents (1, p. 136). With the mall, there is a reduction of 54.30 property damage accidents and 29.06 injury accidents annually. Thus,

$$\text{Annual accident cost savings} = 54.30\ (1{,}000) + 29.06\ (3{,}500)$$
$$= \$156{,}000 \quad (10)$$

Other Impacts of the Mall

Air

Environmentally, the Portland Transit Mall has a redistribution effect. The impact on total air quality of a slight reduction in VMT in the CBD is imperceptible. The shift in vehicle traffic from the mall to other streets does not affect total air quality.

There were estimated reductions in vehicle emissions on the mall because of fewer automobiles. This should be an important benefit to the large numbers of pedestrians on the mall. But, because a perceived increase in bus fumes negated the reduced emissions on the mall, a benefit for reduced air pollution is not claimed.

Noise

A perceived increase in bus noise negated a reduction in background noise produced by a steady flow of vehicle traffic. Although the noise measurements before and after the construction of the mall were not appreciably different, more irregular bus movements created an impression of greater noise. Consequently, a benefit for reduced noise pollution is not claimed (1).

Land Use

No quantifiable benefits of the mall were found capitalized in land values, which indicates that the mall has not resulted in a redistribution of values within the downtown area. Neither has the mall caused the downtown area to grow faster than comparable downtown areas. The professional appraisers who examined downtown land values and office rental rates claim that the mall and related public policies have stemmed a suburbanization of offices for several years. They claim that without the mall the equivalent of one major office building (500,000 ft²) that was built downtown would have been built outside of the downtown area (1).

The transit mall represented a public commitment that was instrumental in strengthening downtown retailing. Based on the public commitment represented by the mall and associated parking ramps, two department stores relocated downtown instead of fleeing to suburban centers. As a result, downtown retailing made modest gains in comparison with potential deterioration.

The two department stores, Nordstroms and Penney's (with a total of 200,000 ft²), both relocated downtown, where both employees and shoppers use transit intensively. For example, 49.6 percent of home-based work trips attracted to the Portland CBD use transit, whereas the comparable rate of transit use for a large suburban shopping center, Washington Square, is 2.9 percent. Even a large in-town shopping center, Lloyd Center, has a transit use rate of only 5.9 percent for employees.

Clearly, maintaining and strengthening the CBD produce greater transit ridership than if development were to go elsewhere in the urban area. This benefits the transit provider, Tri-Met, and, to the extent that transit is more efficient than the automobile, it also benefits society. However, this is only partly true because the total transportation cost to serve downtown space is more, not less, in spite of higher rates of transit use (1, Appendix B).

The conventional wisdom that transit-dependent downtown development is more transportation-efficient than similar development in outlying centers is highly dependent on the average trip length. Trip-length data were obtained from the Metropolitan Service District (Metro) transportation planning models, and estimates of transportation costs for comparable retail centers were developed. Data on long-run average cost per passenger mile were calculated by mode for downtown versus outlying centers. The analysis dispels claims of large benefits for downtown versus suburban centers. The total transportation cost for downtown retail centers proved to be more expensive than that for outlying areas.

This difference in total transportation cost between downtown and outlying areas cannot be incorporated into the cost-benefit analysis. The effects of private transportation cost are already accounted for in the calculation of user benefit. However, the calculation of the external transportation operating cost identifies the externality effect as negative; that is, the development in downtown has a higher social transportation cost than similar development in outlying areas. Again, the effect of longer trip lengths for downtown travel overwhelms the greater transit use in downtown. Consequently, a negative present value benefit of $4,076,000 (in 1976-1977 dollars) is estimated (1, Appendix B).

Cost-Benefit Comparison

Comparison requires that a discount rate be established to deflate or inflate costs and benefits to a common point in time. In an inflationary period, great care must be exercised in the analysis. A choice exists of inflating annual costs and benefits and using nominal interest rates or using constant dollar estimates and a real rate of interest, one that reduces the nominal rate by the expected rate of inflation at that time.

Table 1 gives the quantifiable costs and benefits of the mall. Annual cost and benefit items are converted to a present value in 1976-1977 dollars by using a discount rate of 3.0 percent. In 1976 and 1977, when resources were being diverted from the

Table 1. Present value of costs and benefits.

Item	Current Dollars	Current Year	1976-1977 Constant Dollars: Annual	1976-1977 Constant Dollars: Present Value[a]
Cost				
Construction	15,866,000	1976-1977		15,866,000
Maintenance	190,000	1981	134,000	1,994,000
Total				17,860,000
Benefit				
User benefits	1,561,000	1980	1,192,000	17,734,000
Transit operating cost savings	1,664,000	1977	1,664,000	24,756,000
Accident cost savings	156,000	1975	168,000	2,499,000
Transportation cost saving (increase) to serve retained and new development downtown	(403,000)	1982	(274,000)	(4,076,000)
			2,750,000	40,913,000

Note: B/C ratio = 2.29. [a] i = 3 percent; N = 20 years.

Table 2. Interest rate sensitivity analysis.

Real Interest Rate (%)	Present Value ($): $1 Million Benefit	Present Value ($): $134,000 Maintenance Cost	Cost ($)	Benefits ($)	B/C Ratio for Mall
5.0	12,460,000	1,670,000	17,536,000	34,265,000	1.95
8	9,818,000	1,316,000	17,182,000	27,000,000	1.57

Note: N = 20 years.

economy to build the mall, the nominal interest rate was 8.6 percent (Moody's Corporate Industrial Bond average) and the expected future rate of inflation was 5.8 percent. Thus, the real rate of interest is the nominal rate minus the expected rate of inflation, which produces a 2.8 percent real rate of interest (5). A rate of 3 percent is used in the analysis given in Table 1.

Both benefits and costs were converted to present value in 1976-1977 dollars by using the personal consumption expenditures implicit price deflator (6).

The estimated benefit/cost (B/C) ratio of 2.29 shows the project to be viable. Given the difficulty and uncertainty involved in selecting a value of time, this estimate should not be considered precise. Instead, the B/C ratio lies within the range of 1.80 to 2.80, which reflects a variation of approximately ±20 percent. The B/C ratio is also highly sensitive to the interest rate selected. The real rate of interest was systematically varied, and the results are given in Table 2. This variation does not affect project feasibility.

This analysis shows the Portland Transit Mall to be an economic success. The benefits largely accrue to the users of the transit system and to the transit operator. Other benefits are small or negative.

CONCLUSIONS

The Portland Transit Mall has had a significant impact on the downtown area. It has demonstrated a public commitment to downtown, an important signal to private investors in the area. It has generated benefits that justify the public investment. However, transit users and Tri-Met are the major beneficiaries of the mall; the analysis of land values and office rental rates does not indicate that benefits have been capitalized into land values of properties adjacent to the mall. Finally, downtown daytime user groups have an overall favorable impression on the mall. Thus, the mall has achieved its purpose of protecting and stimulating downtown investment, making transit more efficient, and providing a focal point for users of downtown.

Commitment to Downtown

The major issue, tangible or intangible, concerning public investment in downtowns, is the perceived need for public commitments to the maintenance of the downtown area as the premier economic location within the metropolitan area. The private sector seems to need constant assurances and public commitment to the maintenance of downtown's competitive position.

The leveraging effect of the mall is often identified in terms of decisions of businesses to stay, expand, or move downtown.

It was not possible to isolate the effect of the mall from the other features of the downtown plan or from the integrity of the whole plan. Yet, according to interviews with business leaders (7), revitalization of retailing in downtown Portland would not have occurred had it not been for the downtown plan. The mall is an integral element of the plan, and it provided a signal to major retailers that the city was committed to improving the vitality of the downtown area. This has helped to retain retailing and make downtown Portland more than an office center.

During the planning and construction of the mall, there was considerable opposition to it, stemming largely from a decrease in automobile access. Now the protracted debates about how many lanes should be reserved for buses and how many for automobiles have been forgotten and the mall has been accepted. It is viewed generally as a benefit to downtown Portland and the larger metropolitan community.

Perceptions of Downtown Population

The mall serves to concentrate a wide variety of people. Some see this diversity as a positive feature of the mall whereas others see it as threatening. Despite a mix of perceptions, the majority of downtown users view the mall positively and find it to be an attractive element of downtown Portland. Some specific aspects of the mall, such as bus fumes, bus noise, personal security, and seating in

bus shelters, are viewed less positively. Nevertheless, these specifics do not detract from the overall favorable impression.

Benefits of Mall

An economic analysis was performed to evaluate the feasibility of the mall. The analysis identified and measured the direct benefits to transit users as well as transit operating cost and safety savings, issues important to economists and planners, to assess project feasibility. However, local decision makers and citizens are not particularly concerned with the aggregation of small savings of time, costs, or accidents. Rather, they are concerned with using transportation investments to maintain and strengthen the downtown area. Investing in transportation is often an expensive way to provide a competitive advantage. However, the Portland Transit Mall has met economic expectations well and is also extremely popular with citizens and politicians.

The benefits of the mall are based on estimates of conditions that could be expected without the mall. This is preferable to a before-and-after comparison. There were significant increases in transit service during construction of the mall, which makes the before-and-after comparison less useful.

The primary beneficiaries of the Portland Transit Mall have been downtown transit users and the transit provider, Tri-Met. The persons most affected are relatively new employees who work near the mall. This group constitutes a high-priority market segment for Tri-Met. Similarly, the blocks adjacent to the mall constitute an area where the city should continue to encourage high-density development and concentrate downtown employment and where transit has a high market penetration.

The development impacts of the mall are not confined to adjacent properties but extend to the whole downtown. Increases in land values and rental rates are not attributable to the mall. They occurred throughout the downtown. Yet, these development impacts are small in comparison with user benefits.

Implications for Value Capture and Joint Development

The analysis of land values and office rental rates does not lend support to the application of the value capture concept. There was no increase in adjacent property values attributable to the mall to capture. Even without measurable benefits to properties adjacent to the mall, there is justification for joint development of land and transit improvements. That is, transit use is high for employees who work near the mall but declines rapidly as the walking distance from the mall increases. Hence, joint development would permit integration of appurtenant facilities and office and retail activities into an effective transit system to maximize time savings and ridership. However, this analysis indicates that public participation should be funded from direct transit beneficiaries. If property assessments are to defray some of the costs, the benefit district should encompass the whole downtown, not just abutting properties.

Implications for the Future

The economic analysis was based on a 20-year project life. The actual life of the mall is conditioned by the growth of transit as the mall nears capacity. Articulated buses are relieving the pressure to add more buses to the mall, as will the Banfield light rail transit (LRT) cross-mall alignment. This will permit the mall to function efficiently and also handle growth in bus traffic from other corridors. However, if LRT vehicles from the other major transit corridors are added to the mall, the 20-year life span may be shortened.

The mall is a functioning short-term solution to transit capacity problems in the downtown area. Decisions made in the design of the mall limit its capacity. Capacity was traded off with pedestrian and shopping livability, and the expandability of the mall to absorb new demand was compromised. This compromise now threatens the north-south transit spine concept. The mall has limited options for planning LRT. This has resulted in a cross-mall alignment, which modifies the transit spine element of the downtown plan.

SUMMARY

The Portland Transit Mall has been well received and has allowed the downtown area to develop with less congestion. It has better served and increased transit patronage. The mall has proved to be a good public investment, whose benefits exceed costs. Perhaps more significant, however, the mall has become a symbol for the continued revitalization of downtown Portland.

In terms of the achievement of objectives, the mall has met expectations of increased transit efficiency. Whether it meets other objectives--promoting efficient land use, reducing energy consumption, and reducing pollution--is less clear. This analysis has not shown measurable impacts in those areas. The mall has largely benefited transit users and the transit service provider.

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