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**Streets for Pedestrians and Transit:
Examples of Transit Malls
in the United States**

**Final Report
August 1977**

Service and Methods Demonstration Program



**U.S. DEPARTMENT OF TRANSPORTATION
Urban Mass Transportation Administration
and Transportation Systems Center**

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16. Abstract <p>This Transit Malls Site Report is intended to acquaint the planning community with the concept of transit malls and to provide information about several of the most important and interesting transit mall projects to a wider audience. Details of six transit malls are presented, based on interviews, site inspections, and available written data.</p> <p>This report contains the following elements: site descriptions including general geographic and demographic conditions; general traffic/transit characteristics; description of project streets before and after the malls including design characteristics, traffic/transit/pedestrian use, and funding; and project histories. Where available, results such as indicators of transportation service and economic impact are presented.</p> <p>A second report that is more analytical in nature is being prepared. It seeks to quantify the potential benefits and disbenefits of transit malls and identify the circumstances which justify their construction.</p>					
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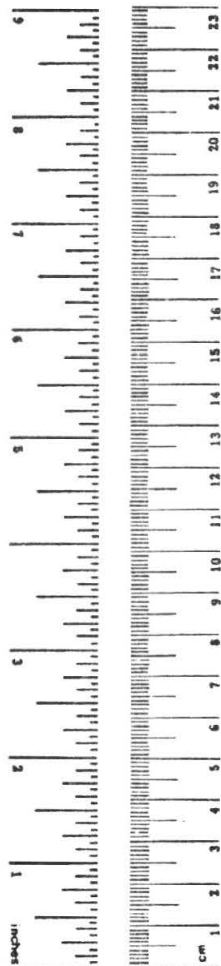
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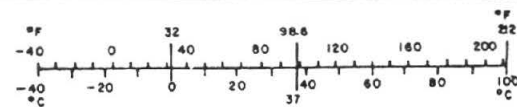
Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000 m ²)	2.5	acres	
MASS (weight)				
g	grams	0.036	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
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TEMPERATURE (exact)				
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STREETS FOR PEDESTRIANS AND TRANSIT:
A SITE REPORT ON TRANSIT MALLS IN
THE UNITED STATES

Final Report

Prepared for:

DOT/Transportation Systems Center
Cambridge, Massachusetts

DOT-TSC-1081-19

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Menlo Park, California

August 1977

PREFACE

This Transit Malls Site Report is intended to acquaint the planning community with the concept of transit malls and to provide information about several of the most important and interesting transit mall projects to a wider audience.

The Site Report is the first phase of a two-phase project, sponsored by the U.S. Department of Transportation (DOT), Transportation Systems Center (TSC) in Cambridge, MA, in its role as evaluating agency for the Service and Methods Demonstration (SMD) program of the Urban Mass Transportation Administration (UMTA). The second phase will be more analytical in nature, and will seek to quantify the potential benefits and disbenefits of transit malls and identify the circumstances which justify their construction.

The work was performed by Crain & Associates of Menlo Park, CA, for whom David Koffman was project manager and principal investigator; Richard Edminster of Crain & Associates edited the report and wrote Chapters 3 and 10. Howard Simkowitz was the technical monitor at TSC. Joseph Goodman was project manager at UMTA. Data for the report were gathered on personal visits to the six major sites. Information not formally referenced in the report was obtained from people interviewed on these visits, verbally or in unpublished material. Individuals who were especially helpful include: in Minneapolis, David Koski, Greg Finstad, Scott Dickson and Thomas Duffee; in Philadelphia, Richard Faris, John Ficarra, John Tucker, John Scruggs, Michael Griffin, Craige Shelter, Jack Pearson, and Inspector Lawless; in Portland, Douglas Wright, Roger Shiels, David Kuehn, Don Bergstrom, and Abby Ray; in Madison, Warren Sommerfeld, James McLary, John Urich, Frank Metone, Thomas Favour, Howard Landsman, and Mike Duffy; in New York, Robert Flahive; in Denver, Douglas Goedert, Philip Milstein, George Allen, Paul Wichman and Joe Grindon.

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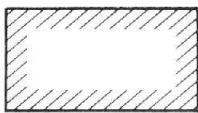
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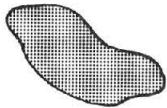
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URBAN VICINITY MAPS LEGEND



CITY BOUNDARY



WATER



FREEWAYS — GRADE SEPARATED DIVIDED HIGHWAYS
WITH ACCESS AT INTERCHANGES ONLY



OTHER MAJOR ROADS



U.S. PRIMARY OR INTERSTATE ROUTE NUMBER



OTHER ROUTE NUMBERS



CENTRAL BUSINESS DISTRICT (CBD)



AIRPORT

1. SUMMARY

A transit mall is a street which has been improved for pedestrian use, but retains a roadway reserved for transit vehicles integrated with the city-wide or regional transit system. Excluded from this definition are services designed only to ferry shoppers between points on a mall. Access for automobiles is denied or strictly limited. Transit malls represent a combining of two trends: traditional pedestrian malls and preferential treatments for buses on city streets. Although the two functions may conflict, there are also ways in which they may reinforce each other. Generally one function or the other predominates in a given project. Transit malls are increasingly popular in the United States and Canada; at least three (depending on definition) are operational in major downtowns and many more are planned or under construction. Projects and plans in six U.S. cities are described in detail. These are arranged in order of completion date, or probable completion date:

1. Minneapolis MN. . . .Nicollet Mall (1967)
2. Philadelphia PA. . . .Chestnut Street Transitway (1976)
3. Portland OR. . . .Portland Mall (1978)
4. Madison WI. . . .State St. Mall -
Capitol Concourse (1979)
5. New York NY. . . .Broadway Plaza (1979)
6. Denver CO. . . .Sixteenth Street Mall (1979?)

2. INTRODUCTION

2.1 DEFINITION

Transit malls belong to a range of concepts, including auto restricted zones (ARZ's), designed to deemphasize or discourage automobile use in downtown areas for the sake of environmental and aesthetic improvement, to promote economic growth, to rationalize traffic and pedestrian circulation, or to improve transit service. Depending on the proposal, various objectives may predominate. Transit malls are generally linear, focusing on one or two streets from which automobile and truck traffic is completely or mostly banned. Sidewalks are widened, amenities added, and a narrowed roadway is usually designed for efficient bus operation within the mall, although a rail line may be placed on the right-of-way. Parts of the mall may be reserved for pedestrian use only. Cross traffic is usually permitted.

Transit malls are generally planned as part of a scheme of downtown redevelopment. This often includes transit improvements focusing on the mall, auto restricted zones, and in some cases, parking and highway construction. This study will focus on transit malls that carry regular metropolitan transit routes, and not on primarily pedestrian malls which use shuttle buses or trams. Transit mall proposals have become increasingly popular in cities throughout the U.S. since the late 1960's. Two are in major cities - Minneapolis and Philadelphia. A transit mall is also in operation in Vancouver, B.C. Portland, OR has a transit mall under construction. Transit malls are in various stages of planning and design in Chicago, IL; Madison, WI; Buffalo, NY; St. Louis, MO; Cleveland, OH; Brooklyn, NY and Denver, CO. Smaller cities have also built transit malls or similar projects: Erie, PA; Allentown, PA and Elgin, IL are examples.

2.2 WHY BUILD A TRANSIT MALL?

The trend to build and propose transit malls is a merger of two other trends; namely, the creation of pedestrian shopping malls, and various types of preferential treatment given buses on city streets. Neither is new. Proposals for pedestrian malls have been popular throughout the U.S. and Europe for the last 20 years. Until recently most of these mall proposals have been efforts to make downtown shopping areas competitive with the newer suburban shopping centers by offering similar physical conveniences and amenities: ample parking; pedestrian access to a variety of businesses, unobstructed by traffic; and clean, modern surroundings. Such proposals have often been promoted by downtown business people and civic promoters, with objectives focusing on economics and aesthetics. Thus it is appropriate that U.S. mall projects are often financed by some form of special assessment district or benefit assessment formula.

In the 1970's, an upsurge of concern over business conditions in downtown combined with increased concern over traffic congestion and environmental improvement to fuel an explosion in pedestrian mall building. By 1975 there were malls with permanent, total exclusion of vehicles in 64 U.S. cities of every size, an increase of 30 malls in two years (Ref. 2-2). In Europe, over a hundred cities had complete or selective automobile bans in downtown streets or areas (Ref. 2-4).

For similar reasons, this period has brought renewed interest in better transit service. Recognizing that fixed guideway systems are too expensive, or else only very long-range prospects, most cities have focused attention on improving bus service by means of operational measures. Examples are priority signalization, preferential lanes, improved loading facilities,

route rationalization, and improved scheduling. In particular there has been a trend to consolidate routes onto fewer streets in order to make efficient use of preferential treatments, while also simplifying the transit system and making transfers easier. While it might appear that one impact of these measures would be an overall reduction in coverage, this is not always the case. Analysis of each individual route and service frequency is needed to reach any firm conclusions.

A transit mall combines both the transit and pedestrian-oriented approaches. Motivations vary widely, as does the degree of emphasis on the transit or pedestrian functions of the project. In many cases a transit mall is a compromise shopping mall, designed to satisfy merchants who feel that some vehicular activity is essential to their business. Others feel that neither pedestrian needs nor transit volumes alone are sufficient to justify removing an entire street from automobile use, but that together they do. Further, they feel that pedestrian and transit uses complement each other by focusing activity on a visually symbolic place in downtown. In some cities, with a single main shopping street, there may be no other sensible route through downtown for buses (e.g., Madison). In some cases, the transit mall is designed primarily as a transportation facility. The decision then to build a mall, rather than to simply exclude non-transit traffic from the street, may be based on a desire to provide a visual focus for the transit system; to improve waiting, boarding and alighting conditions; and to make the change definite and not easily reversible. It is designed only secondarily to improve the shopping environment. This is clearly the case in Portland, OR, where the mall intersects the shopping district but also includes the bulk of the downtown office core.

There are ways in which transit improvement may be incompatible with retail or pedestrian improvements on the same street.

Fumes, noise, difficulty in crossing the street, and reduction of pedestrian space and amenities due to transit service may seriously degrade an environment meant to encourage walking, browsing, relaxing and shopping. Conversely, it is possible that heavy shopping crowds and illegal street-crossing by pedestrians may impede transit operations to the point where benefits from removal of general traffic are cancelled. However, a transit mall may still be a good compromise, given the constraints of the available street system and prevailing land use, if the pedestrian and transit functions do not excessively interfere with each other.

On the other hand, there may be cases where a transit mall combines the two functions to produce a result that is better than a pedestrian mall alone, a bus-only street alone, or even both existing on separate nearby streets. Purely operational objectives might be met by merely banning cars, marking exclusive lanes with paint, or even by simply scheduling all the buses onto a particular street so that at peak hours they leave no room for cars in the curb lanes. Likewise, many successful pedestrian areas have been created without transit. By combining the two, however, a special focus may be created in downtown, that helps business, brings people together, improves bus service, creates an attraction that stimulates bus ridership and, possibly, contributes to stimulating development in a pattern that can be served by transit.

Whether or not a transit mall makes sense in a particular setting will depend on the extent to which the conflicting or reinforcing aspects of transit and pedestrian use predominate, on the practicality of providing separate solutions to transit and pedestrian problems, and on the extent to which one objective or the other is considered more important. In a particular locality, the best project might be a pedestrian mall, a "semi-mall,"

a transit mall, street beautification, bus streets or lanes, other forms of traffic restraint and bus priority, any combination of measures, or no action at all. Deciding factors will include local objectives and attitudes, street pattern, street dimensions, density and spread of land use, the economic condition of retail uses, the facilities available for goods delivery and pick-up, transit volumes, and the intensity of pedestrian activity.

Of the six projects discussed in this report, only four involve a firm commitment to build a transit mall. Of the other two, Broadway Plaza, in midtown Manhattan, is an example of a "combination of measures" which is not easily categorized. In Denver, a transit mall was planned until recently. Now a pedestrian mall with electric shuttle vehicles is in the design stage. The reader should note that the plan for any mall still in the design stage is subject to rapid change.

The six projects presented here in detail were chosen from among those which were closest to completion and which best illustrate the transit mall concept by combining significant levels of transit service with a pedestrian environment. Peak-hour two-way transit volumes range from 60 in Madison, to just over 200 planned for each of Portland's two one-way streets.

2.3 PROJECTS NOT REPORTED IN DETAIL

There are several noteworthy projects which are not included in this report. In Vancouver, British Columbia, 6 blocks (about 3000 feet) of Granville Street, which has a 100-foot right-of-way and had three lanes of traffic in each direction, was converted to a transit mall in 1973, with a 24-foot serpentine transitway. Granville was a secondary auto route, with two one-way streets paralleling it; it was a major bus route and now carries 70 to 80 buses per hour at peak periods. Travel time for buses on the mall has been cut in half. The street is only partly a retail

street; it intersects both the retail and office cores of Vancouver. Architecturally, the treatment is simpler than the Nicollet Mall in Minneapolis, which it otherwise resembles. The Granville Mall cost \$2.9 million, of which property owners paid \$900,000; the transit authority \$180,000; the Federal Government \$550,000 (under an employment relief program); and the City \$1.3 million. (Ref. 2-3)

In Chicago there are two notable projects. In 1967, the Englewood shopping area at 63rd and Halsted Streets, the second largest shopping area in Chicago, was rebuilt according to the Englewood Conservation Plan. For 900 feet on 63rd Street and 1320 feet on Halsted Streets, cars were prohibited and the street developed for pedestrians and a 22-foot busway. A bypass route around the shopping area was constructed for autos, and extensive parking was provided. Housing for several hundred families was removed from the area. The redevelopment was financed by an \$18 million Urban Renewal project. The one-third local share was paid, for the most part, by assessments on benefiting property owners. Two-way peak-hour bus volume on each of the two streets is about 40. The Englewood Shopping Concourse is managed by a commission appointed by the Cook County Circuit Court. Maintenance costs are shared by the City and property owners. (Ref. 2-3)

State Street is the major shopping street in the Chicago Central Business District (CBD). An UMTA capital grant has been approved to build a transit mall on 9 blocks (3/4 of a mile) of State Street. In 1975, the project was estimated to cost \$12.5 million, of which 80 percent was to be paid by UMTA and 20 percent by a State Street Taxing District. State Street is a major transit carrier with over 2600 buses daily and about 120 buses in each direction during the peak hour. In addition, up to 24,000 vehicles per day travel on State Street's six traffic lanes (three in each direction). Only buses and emergency

vehicles will be allowed on the State Street Transit Mall, with possible exceptions for delivery vehicles in unusual circumstances. The 100- to 120-foot right-of-way will have two continuous 12-foot bus lanes, plus 12-foot-wide loading bays long enough for three buses. These will be placed one per block on each side of the street on the near side of each intersection. A subway line also passes under eight blocks of the project and the existing subway entrances will be remodeled. (Ref. 2-1)

In St. Louis a transit mall has been proposed on 8 blocks (2700 feet) of Locust Street in the downtown office core. The transitway would be one-way with two lanes open only to buses. Two center loading platforms per block would permit bus loading from the left lane. Sidewalk widths would be approximately doubled, to about 16 feet. The one-way operation was chosen to maximize the transit capacity of the mall, which is eventually planned to carry 177 buses in the evening peak hour. Many buses that now use other streets will be rerouted to Locust Street, which now carries 90 buses in peak-hour. The project is expected to cost \$4 million. Since April 1972, six blocks of Locust Street have been reserved mainly for bus use, between 4:00 PM and 6:00 PM, Monday through Friday. Of four lanes on the westbound street, three are used by buses only, and one is open to emergency vehicles and taxis. All buses on neighboring Pine Street were moved to Locust, increasing peak-period bus volumes on Locust from 88 to 130 in two hours. A postcard survey of patrons of the rerouted lines indicated that most of them favored the change. The temporary city ordinance which created this arrangement was made permanent in December 1973. (Ref. 2-5)

In Brooklyn, New York, an eight-block, two-way bus mall is nearing construction. The mall will be built on Fulton Street, the main downtown shopping street. The existing 42-foot-wide roadway includes four lanes, only two of which are used for traffic. With the mall, the roadway will be narrowed to 24 feet

and two lanes. No rerouting of bus lines is planned. Five bus lines, out of 18 serving the downtown area, operate on Fulton Street. At peak-hour, Fulton Street now carries 900 vehicles, including 100 buses. Most streets in the vicinity operate under traffic capacity. Fulton Street is also served by seven subway stations. Two hundred thousand persons shop in downtown Brooklyn each day, of whom 52 percent come by subway, 24 percent by bus, and 16 percent by automobile. The project has gone through several designs, recently changing from a covered "arcade" to a simpler mall. The original plans, from an UMTA-funded study, called for all inbound buses to be routed onto a one-way mall. This was changed to the current two-way mall. Improvement of transit service is a subsidiary goal to strengthening the retail core and encouraging more intensive use of downtown. The project is part of an overall redevelopment scheme for the downtown area. To conform to technical and funding constraints, work will proceed in two phases. First-phase work on the middle four blocks will begin in June 1977, with completion scheduled for mid-1978. Second-phase work will be completed in late 1979. Costs are currently estimated at \$9 million, with \$7.5 million in roadwork costs from UMTA and \$1.5 million in sewer costs from the city capital budget (using federal community development funds).

Longer-range plans exist for transit malls in Cleveland OH (Euclid Avenue) and Buffalo NY (Main Street). The Buffalo plan is unique in that the mall is intended as a visual focus for a light-rail system which is to run at-grade on the mall.

3. COMPARATIVE OVERVIEW

3.1 INTRODUCTION

This chapter will present a comparative overview of five transit malls. As evidenced by Figure 3-1, transit malls may be described and compared on a number of dimensions. This figure presents 14 factors which together describe the mall and its background: project cost and funding, surrounding land use, pedestrian volumes, expected benefits, and the like. Figures 3-2 and 3-3 display, in diagrammatic form, the physical elements of the mall itself: pedestrian areas, bus stops, lane usage, and project dimensions. Together, these background and physical elements provide a convenient and useful basis for comparison.

3.2 PROJECT STATUS, COST AND FUNDING

Two of the malls examined in this Site Report have already been completed -- Minneapolis' Nicollet Mall (1967) and Philadelphia's Chestnut Street Transitway (1976). Two others, Portland OR and Madison WI, are currently beginning or under construction. One, Manhattan's Broadway Plaza, is still in the final design phase, but construction is expected to begin by 1978.

Project cost figures range from \$3.8 million (\$15/sq.ft.) in Minneapolis to \$15.0 million (\$33/sq.ft.) in Portland. Since Minneapolis' project is now 10 inflation years old, the best example of a "low-cost" mall is probably Madison's \$7.8 million (\$16/sq.ft.) project. In comparing project cost figures, allowance must be made for local differences in material and labor costs, differences in design, and uncertainty in future costs.

In many cities, the question of who pays for the mall is as important as that of how much it costs. This varies widely.

SITE	PROJECT STATUS	PROJECT COST	FUNDING SOURCES	PRIMARY PROJECT BACKERS	AREA LAND USE	EXPECTED BENEFITS	TRANSIT TYPE
MINNEAPOLIS – Nicollet Mall	Completed 1967	\$3,800,000 \$1,170 per ft. \$15 per sq. ft.	74% Assessment district 13% UMTA demonstration grant 13% Urban Beautification grant	Downtown business	Retail core Offices	Retail improvement. Improve bus service/ operations.	Standard transit buses. Shuttle minibuses. Re-routing onto mall.
PHILADELPHIA – Chestnut Street Transitway	Completed 1976	\$7,000,000 \$1,300 per ft. \$22 per sq. ft.	80% UMTA capital grant 16.7% State DOT 3.3% City capital funds	City govt./ planners Downtown business	Retail core Offices	Improve retail environment. Transit for Bicentennial crowds. Upgrade transit.	Standard transit buses. Tourist buses. Minor re-routing
PORTLAND – Fifth & Sixth Streets Malls	Under construction; expected completion by mid-1978	\$15,000,000 \$2,700 per ft. \$33 per sq. ft. Plus \$1– 1.5 million added utility costs	80% UMTA capital grant 20% Tri-Met Plus utility costs by city depts./utility companies	City govt./ planners Downtown business	Office core Intersects retail core	Increase transit use & operational efficiency Retail/pedestrian environment Reduce suburban sprawl.	Standard transit buses Re-routing onto mall
MADISON – State Street Mall/ Capitol Concourse	Pedestrian mall complete 1975 Capitol Concourse construction scheduled 1977-78. State St. in design phase, completion 1979.	\$7,800,000 \$1,150 per ft. \$16 per sq. ft.	Mix of City, University, UMTA Sec. 3, & assessment district (varies by phase – see text)	City govt./ planners	Retail Government	Improve pedestrian environment Upgrade retail area Upgrade transit	Standard transit buses Shuttle buses
NEW YORK – Broadway Plaza	Under design, construction to begin 1978	Estimated \$4,500,000 \$2,370 per ft. \$23 per sq. ft.	City capital budget plus federal funds (UMTA capital, FAUS, community dev.)	City govt./ planners	Mixed retail, office, theatres	Improve pedestrian environment Upgrade economic conditions Symbolize city commitment to area.	Standard buses, special loop, tour, & airport buses.

FIGURE 3-1. SUMMARY MATRIX

SITE	NON-TRANSIT USES	BUS VOLUME	PEDESTRIAN VOLUME	TRAFFIC SIGNAL TREATMENT	MOVEMENT OF GOODS	AMENITIES
MINNEAPOLIS — Nicollet Mall	Taxis Emergency vehicles Bicycles	Peak hr.: Before: 20/ea. way After: 60/ea. way	Before: 1,068/block side/hr., 12-hour period After: 1,114/block side/hr., 12-hour period	Re-set for cross traffic flow (computerized traffic control system scheduled).	Alley loading; mall loading by special permit.	Extensive, including electric snow-melting mats, sign ordinance, bus shelters
PHILADELPHIA — Chestnut Street Transitway	Taxis at night, one block only day Emergency vehicles General traffic (1 block only)	Peak hr.: Before: 43 (one way) After: 41/eastbound 11/westbound	After: 3,016/block side/hr., peak periods on major blocks	Bus-triggered mid-block warning light. Signal timings set for expected bus speed. Timings on nearby street reset.	Cross st. loading; on mall by special permit in off-hours	Typical, with mid-block crossing area.
PORTLAND — Fifth & Sixth Streets Mall	General traffic on one lane for 3/4ths of blocks	Peak hr.: Before: 32 6th Ave. 85 5th Ave. Expected After: 207 6th Ave. 211 5th Ave.	Before: 444 6th Ave./ 686 5th Ave./ block side/hr., off-peak periods.	Computer controlled with progression to be adjusted for buses.	Cross st. loading; on mall by special permit in off-hours	Extensive, including bus shelters and concession booths, CRT information display.
MADISON — State Street Mall/Capitol Concourse	General traffic on Capitol Concourse	Peak hr.: Before: 60 (2-way on State St., 1-way on Capitol Square)		On Capitol Square set to make leaving concourse difficult.	Loading on alleys, cross streets, some curbside during restricted hours.	Typical
NEW YORK — Broadway Plaza	General traffic on 5 blocks Taxis on 1 block, plus special loading area.	Peak hr.: Before: 60-76 (1-way) Expected After: No Change	Before: 7,500/block side/hr., peak hr. on major block	Possible regressive signalization to discourage use on Broadway, Seventh Ave. signals re-set.	On pedestrian mall: loading during morning hours in emergency r-o-w.	Typical, including ticket booth and information center/performing platform.

FIGURE 3-1. (cont.) SUMMARY MATRIX

The local share of New York's Broadway Plaza is financed by the city capital budget, while in Minneapolis the 74 percent local share is financed by a special assessment district on nearby property owners. Madison splits the local share about 60-40 between the city property tax and a similar assessment district. Of special note, both the Minneapolis and Madison assessment districts are based on a per square footage of land basis, plus modifications such as distance from mall. While Denver's 16th Street Mall is not included in this overview, it is interesting that one proposal would have created a special assessment district there based on assessed value of property. Possibly for this, as well as other reasons, the proposal was defeated by property owners, whose voting power was weighted by assessed value. While both Madison and Minneapolis receive some federal and/or state assistance, outside funding is most significant in Portland and Philadelphia. In Portland, about 60 percent of total costs (80 percent of eligible costs) is funded through an UMTA capital grant. The local share is largely funded by the regional transit authority. In Philadelphia, the Chestnut Street Transitway is 80 percent funded by an UMTA capital grant and 17 percent funded by the Pennsylvania Department of Transportation. Only 3.3 percent of development costs will come from the city capital budget. Maintenance, however, will come from the regular operating budgets of city departments.

3.3 PROJECT BACKERS AND OBJECTIVES

In Minneapolis, Denver, and to a lesser extent, in Portland, the primary backers of the transit malls were downtown business leaders. In the remaining cities, planners or politicians were the major mall supporters, although local property owners had a role in each city. These differences relate to differences in the downtown investment climate, organization of business interests, and local politics. In Minneapolis, Philadelphia

and Portland, the transit malls pass through the major downtown retail or office cores. In Philadelphia and Madison, land uses surrounding the malls include substantial government facilities and land. In Manhattan, the area adjoining Broadway contains mixed retail, office, and entertainment uses. All of the malls include large numbers of abutting small retail stores. To a varying degree, all of the malls are also part of an areawide scheme for redevelopment/upgrading land use.

The benefits expected from the transit malls do not, however, appear to correlate strongly with either the major project backers or the land use in the area. Portland is the only city which expects the major benefit to be improved transit operation, service, and usage. Indeed, the transit mall is an integral part of a re-designed regional transportation system. Broadway Plaza, on the other hand, is primarily oriented toward improving the economic atmosphere and providing more pedestrian space in the area. Transit service will be re-routed to the side of the pedestrians-only plaza, with preferential signal timing leaving the overall trip times unaffected. It is hoped that ridership will increase, however, due to the increased attractiveness of the area for shoppers, tourists, and others. The remaining sites vary in the weight given to transit versus economic/environmental objectives, although the economic impact tends to dominate local expectations. Certainly in the case of Minneapolis, and perhaps other cities as well, this may be related to ongoing redevelopment projects in the vicinity of the mall. In all the cities examined, however, both impacts were considered in the decision-making process, and the transit mall concept appears to have been an attempt to "balance" these different objectives.

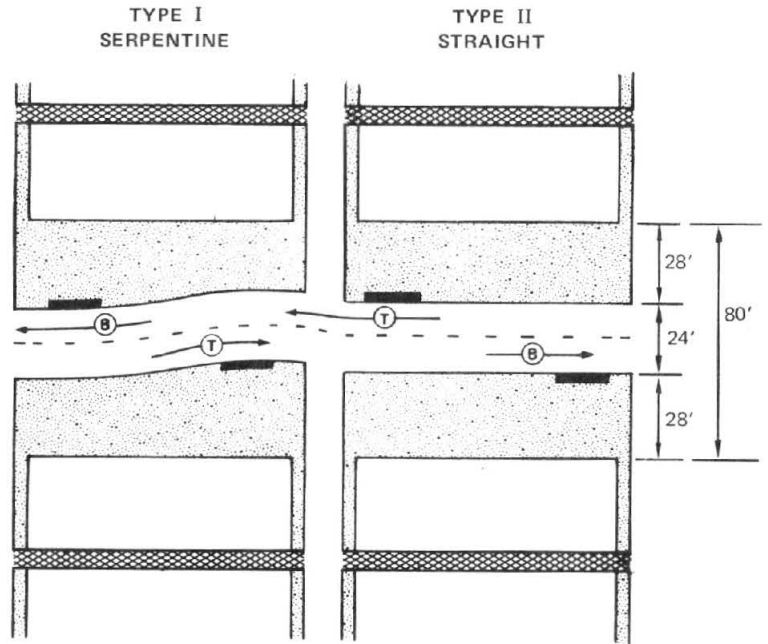
3.4 PROJECT DESIGN AND USE

The transit malls studied also vary widely in their design and allowed uses. All of the malls employ standard transit buses, with Minneapolis and Portland re-routing some lines

-  Pedestrian Areas
-  Special Pedestrian Crossings
-  Loading Areas
-  Bus Stops
-  Buses
-  Taxis
-  General Traffic

Scale varies due to space limitations

NICOLLET MALL
MINNEAPOLIS



CHESTNUT
STREET
TRANSITWAY
PHILADELPHIA

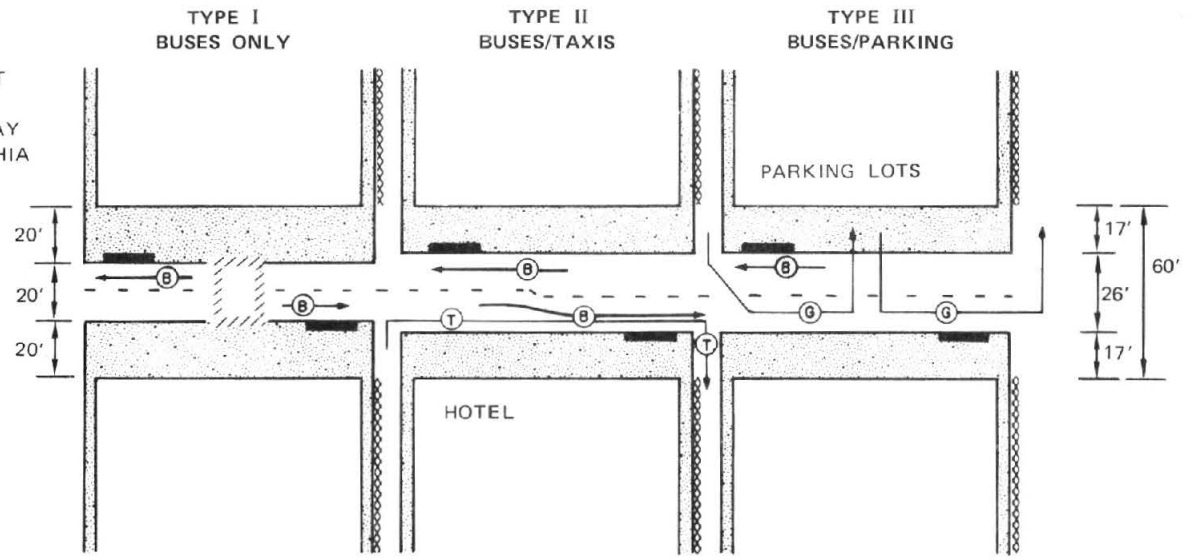
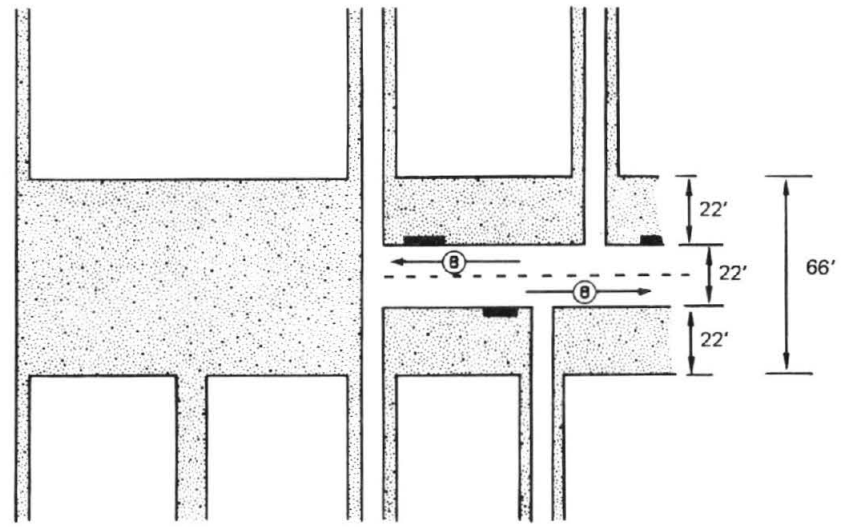


FIGURE 3-2. TYPICAL MALL BLOCK DESIGNS

STATE STREET
MALL/CAPITOL CONCOURSE
MADISON

TYPE I
STATE STREET
PEDESTRIANS ONLY

TYPE II
STATE STREET
BUSES ONLY



TYPE III
CAPITOL CONCOURSE
BUSES/GENERAL TRAFFIC

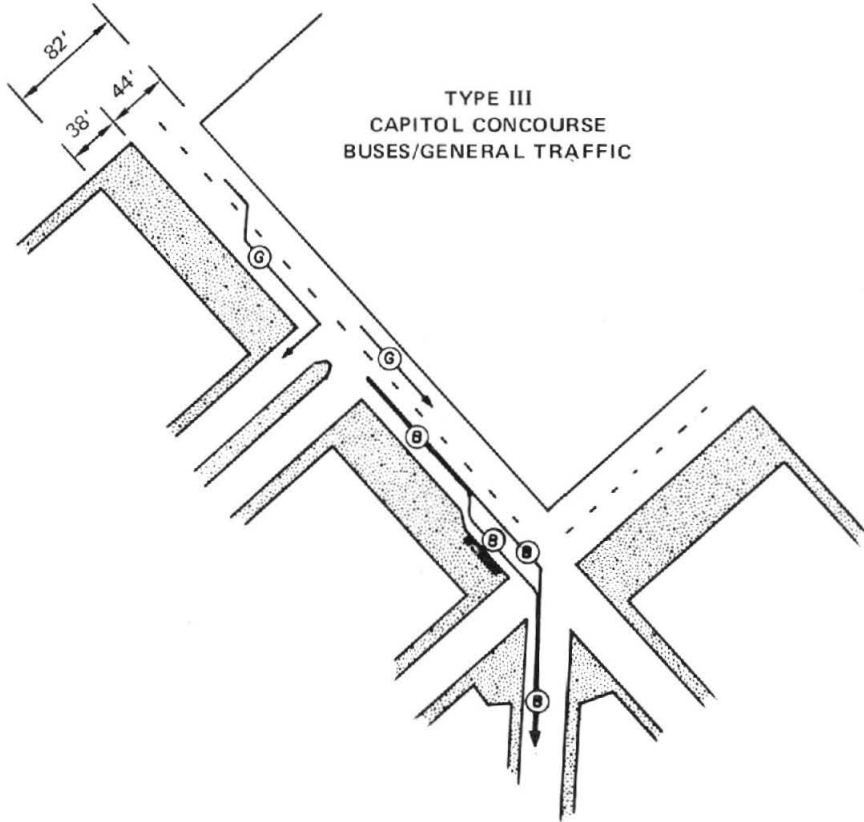


FIGURE 3-2. (cont.) TYPICAL MALL BLOCK DESIGNS

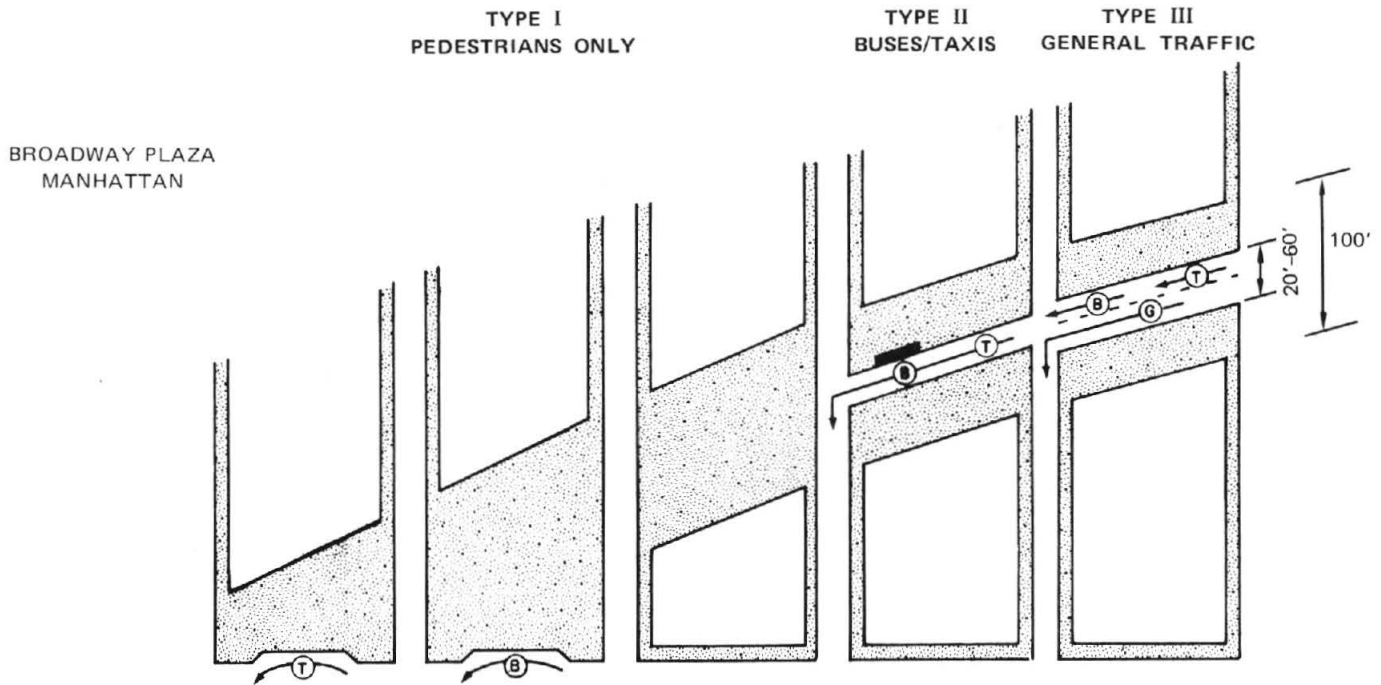
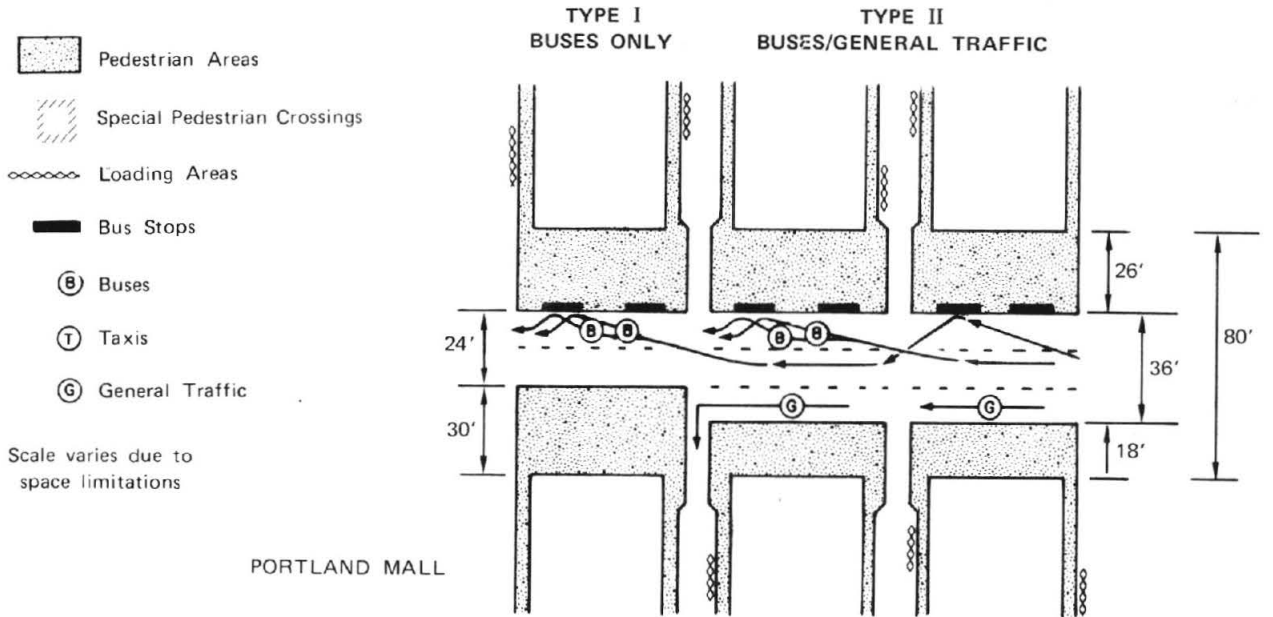
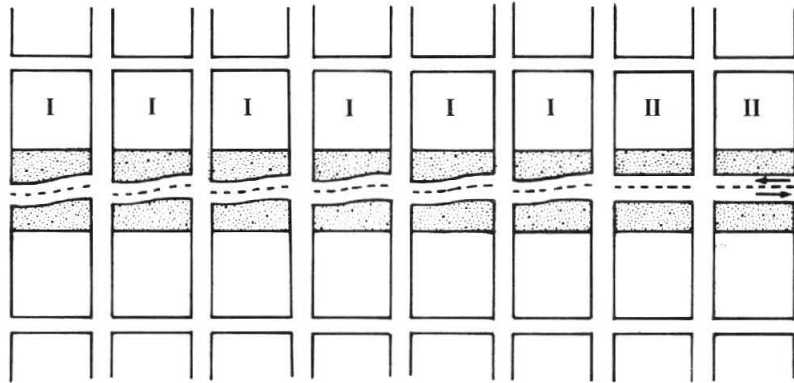


FIGURE 3-2. (cont.) TYPICAL MALL BLOCK DESIGNS

■ Pedestrian Areas

I, II, III = Mall Block Design Types (See Figure 3-2)

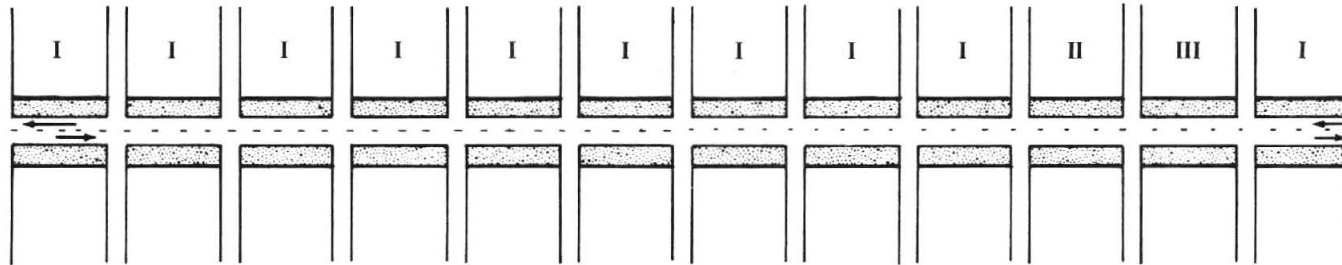
Horizontal Scale 1" = Approx. 725'; Vertical Scale Varies



NICOLLET MALL
MINNEAPOLIS

8 Blocks (3,200')

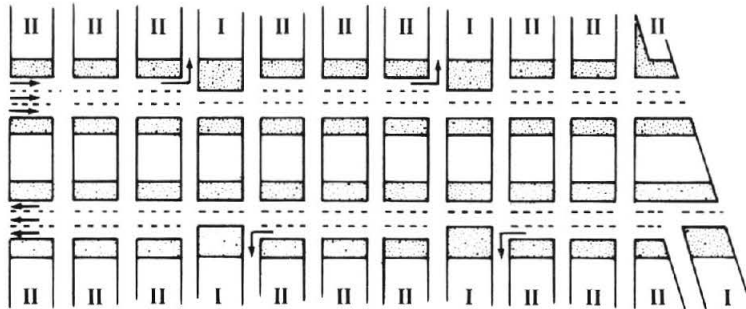
80' Right-of-Way



CHESTNUT STREET
TRANSITWAY
PHILADELPHIA

12 Blocks (5,300')

60' Right-of-Way



PORTLAND MALL

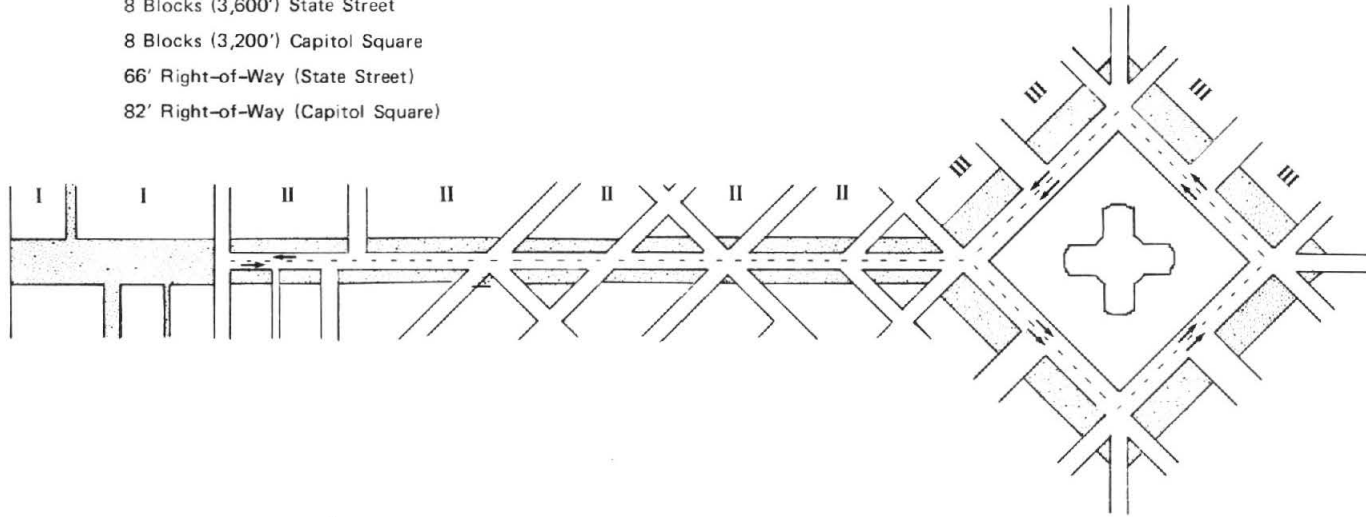
11 Blocks (2,800') Each Street

80' Right-of-Way

FIGURE 3-3. TRANSIT MALL DIMENSIONS

STATE STREET MALL/CAPITOL CONCOURSE
MADISON

8 Blocks (3,600') State Street
8 Blocks (3,200') Capitol Square
66' Right-of-Way (State Street)
82' Right-of-Way (Capitol Square)



20

BROADWAY PLAZA
MANHATTAN

9 Blocks (2,000')
100' Right-of-Way

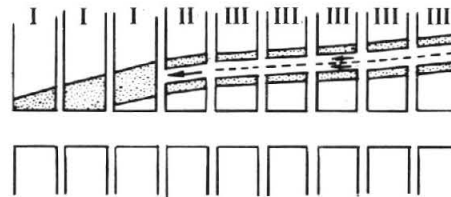


FIGURE 3-3. (cont.) TRANSIT MALL DIMENSIONS

onto the mall. In Minneapolis, Philadelphia, and New York, "special" bus lines, such as downtown shuttle service and tour buses, are also used. Emergency vehicles are allowed on all malls, including pedestrian areas. In addition to bus service, taxis are sometimes permitted on a restricted basis. In New York, one block is reserved for taxis and buses only, and a taxi stop is provided next to the pedestrian-only area. In Philadelphia, taxis are permitted access on one bus-only block in order to provide service to a major hotel. At night, the entire transitway is opened to taxis. In Minneapolis, taxis are allowed on the entire length of the mall, but must enter and exit only at the far ends, and only enter in response to a telephone call for service. In several cities, taxis also share restricted access as part of general traffic. General traffic is allowed, though discouraged, on the Capitol Square portion of the Madison mall, and on five blocks of the Broadway Plaza project. General traffic is allowed on one block of Philadelphia's Chestnut Street Transitway, in order to provide access to available parking lots. Portland provides the greatest access to general traffic, with one lane on each one-way street. This lane is interrupted every fourth block, however, and general traffic must divert to cross streets. This discourages use of the lane for through traffic. In at least three cities, special consideration was also given to mall use by bicycle. In Madison, bicycles were banned from the mall, although a bike parking area is to be provided, and a bike route will be added on nearby streets. Philadelphia once banned bicycles, but found the policy unenforceable. It then permitted their use, pending UMTA approval. UMTA rejected this change. Minneapolis allows bicycles on the roadway.

Data are relatively scarce on bus and pedestrian volumes on transit malls. Bus volumes range from 20/hr. in each direction on Nicollet Avenue prior to the Minneapolis mall, and 60/hr. in each direction after the mall; to 117 buses in both directions (on two streets) in Portland before the mall,

and 418 in both directions planned for the completed mall. There are as yet unconfirmed suggestions that currently in Minneapolis, and in Portland upon project completion, the malls are or will be operating at "capacity" for buses. In Portland, heavy existing bus use is a factor in the importance placed on improving transit service by means of the mall. In Minneapolis, on the other hand, the value attached to improving the environment for shoppers appears to be the basis for defining mall capacity for buses at a relatively low level of use. Pedestrian volumes range from heavy use of New York's Broadway (as high as 7,500/side/hr.), to moderate use in Minneapolis (1,068/block side/hr.) which rose to 1,114 after completion of the mall). There appears to be substantial evidence that bus volumes increase after mall construction. This is due to conscious decisions by local officials. There is much less evidence of mall impact on pedestrian use. The Minneapolis figures suggest an overall increase, although block-by-block analysis indicates that this could be the result of land development on and near the mall.

In terms of roadway design (see Figure 3-3), each mall includes at least one unique feature. In Minneapolis, the two-way, 24' wide roadway has a gentle serpentine curve to add visual interest. The Portland mall encompasses two one-way streets, with two to three 12' lanes on each street. The mall in Madison is unusual in that it begins as a two block pedestrian-only mall, continues as a two-way transit-mall, with a 24' roadway and 66' right-of-way, and ends as a one-way street encircling the state capitol grounds, with a 44' roadway on 82' of right-of-way. Philadelphia's Chestnut Street Transitway is a relatively simple two-way, two-lane mall (except for a third lane on two blocks), but is unique in that it has a very narrow right-of-way (60'). This forces

the two-lane roadway to be only 20' wide (versus 24' for three other malls), and the three-lane roadway to be a slim 26' across (versus 36' for Portland's three-lane sections). However, at one mile in length, the Chestnut Street Transitway is among the longest malls (the State Street portion of the Madison Mall is 3600', while the Capitol Concourse adds another 3200'; the two Portland streets average about 2800' each; the malls in Manhattan (2,000') and Minneapolis (3,300') are considerably shorter). New York's Broadway Plaza contains several interesting design features. With a 100' right-of-way, and roadways between 20' and 60', it is the widest of the transit malls. Like Madison, it contains a three block pedestrian mall. In addition, the upper five blocks of the one-way mall incorporate a policy of gradual narrowing of the roadway, in order to meter diverted traffic flows.

Use of the malls for buses is regulated, to some extent, by the location of bus stops and the treatment given traffic signals. On New York's Broadway, bus stops are located on every second block. This is generally true throughout the city. In Minneapolis, Philadelphia, and Madison, buses will stop once per block, at loading areas at the "downstream" or far end of each block. On the Capitol Concourse portion of the Madison Mall, special cut-outs are provided at three corners where only some of the buses will be stopping. The cut-outs will allow the non-stopping buses to pass by unhindered. The Portland Mall has a unique design. About 31 bus lines will use the mall, and these will be designated by the letters A through D. There will be only two loading areas per block, for either A and B or C and D type buses, and each bus will therefore stop only once every two blocks, at its designated loading area. Because Portland plans to "platoon" its buses (6 or 8 in a "pack"), each loading area will be large enough to handle two of its letter-type buses at the same time. In Philadelphia and Portland, traffic

signals have been or will be set for expected bus speed. In Minneapolis the setting is for cross traffic flow. New York may employ regressive signalization to discourage use of Broadway. Both Portland and Minneapolis are installing a computerized control system. Philadelphia has installed a special WALK/DON'T WALK signal for mid-block pedestrian crossing. The signal goes to "DON'T WALK" when a bus passes over detectors at the beginning of the block. A similar device in Minneapolis has been discontinued, since it was ignored by pedestrians. Madison will use special timing to make it difficult for general traffic to leave the Capitol Concourse except at certain streets.

One issue universal to all transit malls is the problem of providing loading areas for businesses abutting the mall. In Minneapolis, nearly all loading takes place from rear alleys. Philadelphia and Portland have or will use expanded loading zones on side streets. Madison is expanding and upgrading its network of alleys. All the malls will allow loading from the mall during certain hours, usually with special permission needed. Madison is still at work on the problem of establishing loading regulations on the Capitol Concourse, and will probably allow loading during restricted hours but without special permission required.

In terms of pedestrian amenities, there appears to be a "standard kit" which includes trees/planters, benches and bus shelters, trash containers, information kiosks, new street lights, and distinctive paving. In Minneapolis, where the mall was partially funded with a federal Urban Beautification grant, a number of additions were made to the standard kit, including electric snow-melting mats, fountains, sign controls, drinking fountains, and bus shelters with telephones and piped music. Several of Portland's special amenities, including concession booths, drinking fountains, vending machines, and telephones and coin change machines in bus shelters, appear

designed to encourage use for purposes other than just passing through or waiting for a bus. Portland is also experimenting with electronic displays showing departure time, with hook-ups to an information center. Other amenities include, in Madison, a chessboard set into the pavement of the pedestrian mall; in Philadelphia, a mid-block rest area with a curbsless crossing zone; and in New York, a ticket booth and an information center which can be converted to use for stage performances.

More detailed site descriptions are provided in the following site reports. However, in order to gain the most from the full-length descriptions, the reader is encouraged to keep the comparative overview presented here in mind. It should be noted, however, that only two of the projects are actually completed, and even these may undergo changes over time. For instance, Minneapolis has dropped its bus-detector system and is expanding the mall by four blocks. In addition, the reader is advised against reaching hasty conclusions about the malls. It is clear that these projects differ in a large number of dimensions, and that we must await a full evaluation to suggest possible cause-and-effect relationships.

MINNEAPOLIS DATA

<u>GENERAL</u>	<u>CITY</u>	<u>SMSA</u>
1970 population:	434,000	1,814,000
1970 employment:	196,000	760,000
Area:	55.1 sq. mi.	2107 sq. mi.
Population density:	7877 per sq. mi.	861 per sq. mi.
Employment density:	3557 per sq. mi.	361 per sq. mi.
Service area mode split to downtown:	24 percent	

PROJECT

Name: Nicollet Mall

Status: Completed November 1967; extension planned for 1977

Cost: \$3.8 million

Funding: 74 percent local, 13 percent UMTA Demonstration grant, 13 percent Urban Beautification grant

Financing of local share: Bonds paid by special assessment district with assessment by sq. ft. of property plus modifications

Primary backers: Downtown business leaders

Type of transit: Standard transit buses; downtown shuttle minibuses

Pedestrian volume: 12,800 before mall; 13,600 after mall
(average per side, per block, 12 hours)

Pre-mall traffic volume: 6,800 (per side, per block, 12 hours)

Bus volume at peak hour: Estimated 20 per hour in each direction before mall, 60 per hour in each direction after mall

Dimensions: 8 blocks (3300 ft. by 80 ft.)

Dimensions of transitway: 24 ft., serpentine

Cost per ft.: \$1170

Cost per sq. ft.: \$15

4. MINNEAPOLIS

4.1 INTRODUCTION

Nicollet Mall, in downtown Minneapolis, is an eight-block section of Nicollet Avenue that includes the downtown retail core. The avenue has been reconstructed with wider sidewalks, improved aesthetics, amenities for pedestrians and transit passengers, and a two-lane serpentine roadway open only to buses and taxicabs. The project was built between July 1966 and November 1967 at a cost of \$3.8 million. The project has been favorably reviewed in national planning journals and retains enthusiastic local support within the business community, where it is viewed as an impetus for economic revival in the area.

4.2 SITE DESCRIPTION

Minneapolis is located near St. Anthony's Falls of the Mississippi River in Hennepin County in southeastern Minnesota. It is the largest city in Minnesota (1970 population: 434,000). The metropolitan area includes its twin city, the state capitol, St. Paul (1970 population : 310,000). The metropolitan area had a 1970 population of about 1.8 million.

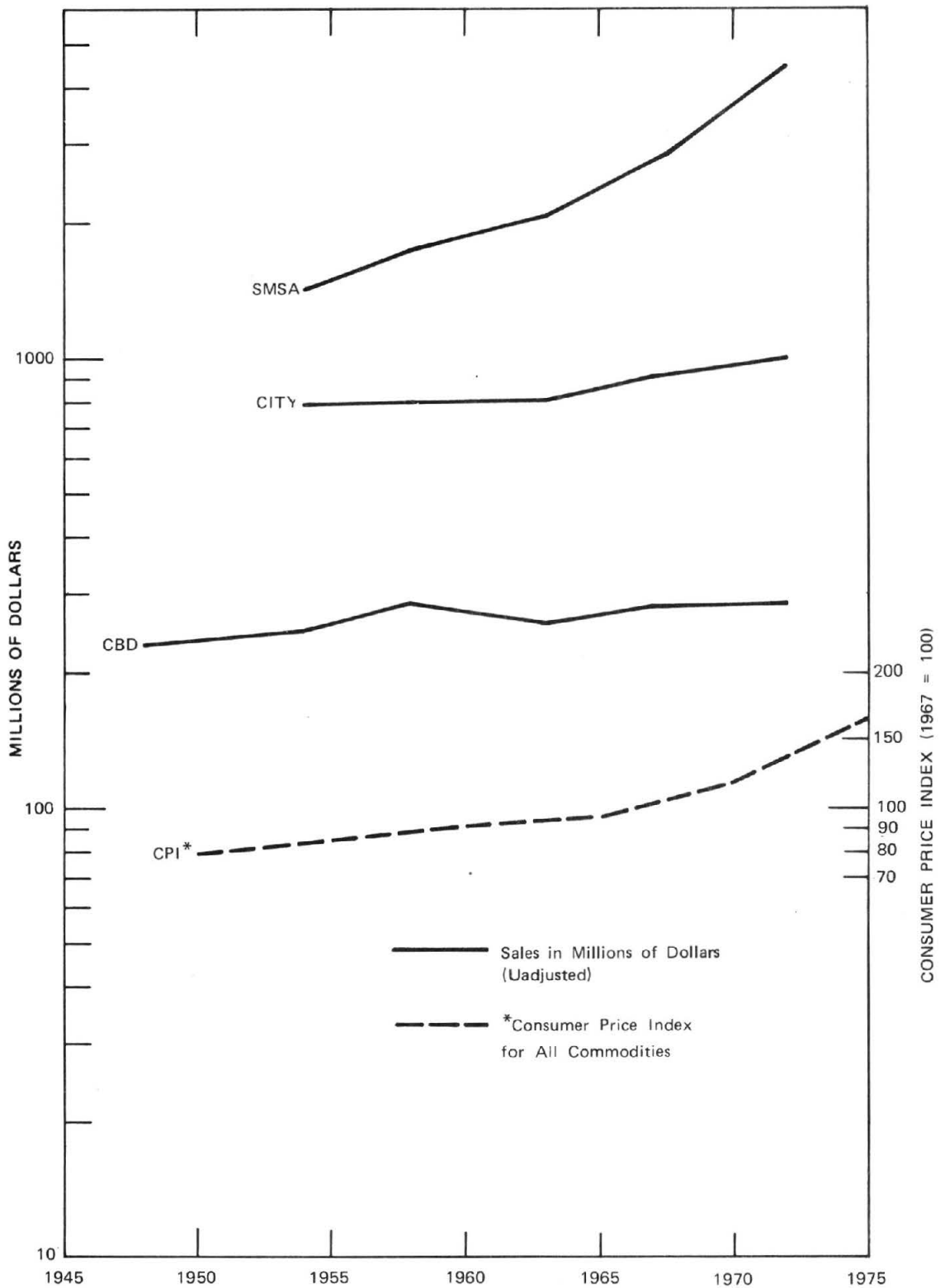
Downtown Minneapolis is set off from the rest of the city by the angle of its grid-pattern street system, which is largely determined by the orientation of the Mississippi River. Outside of downtown, most streets run north-south or east-west.

Nicollet Avenue enters downtown from the south. Shortly after bending to meet the angle of the downtown grid system, it becomes the Nicollet Mall, beginning at Tenth Street and running eight blocks (0.6 mile) to the end of Nicollet Avenue at Washington Avenue. Businesses on either side of Nicollet Mall

include a concentration of shops and department stores that comprise the retail core of Minneapolis. A major feature of the mall is the new office tower of Investor's Diversified Services (IDS), which has an extensive commercial complex on the bottom two floors. Hennepin Avenue, one block to the west and north, is the center of the entertainment district. One or two blocks to the east and south, along Marquette Avenue and Second Avenue, is the greatest concentration of private office buildings. Farther to the east and south are most of the public office buildings, including the new Hennepin County Government Center.

The Downtown Council of Minneapolis, an influential association of downtown business people and property owners, claims that downtown Minneapolis has a "lack of typical central city ills." The downtown does project a relatively "clean-cut" image compared to many other downtowns. There are extensive redevelopment projects underway. Between 1963 and 1972, more than 25 new buildings valued at over \$500 million were completed in downtown Minneapolis. (Ref. 3-5)

Nevertheless, Minneapolis is not immune to urban problems. The decision of General Mills to leave downtown in 1955 stimulated the formation of the Downtown Council. Between 1962 and 1970, 176 industries, employing 4 percent of the city's workforce, left Minneapolis for the suburbs. (Ref. 3-6) Although downtown retail sales sustained a moderate rate of growth through most of the 1960's (following a sharp decline from 1957 to 1963) the downtown still lost ground compared to suburban shopping centers. Between 1965 and 1971, the percentage of people in the Minneapolis area shopping downtown at least once in the last year declined from 73 percent to 58 percent. (Ref. 3-5) This trend appears to have reversed itself since 1971. These retail trends are summarized in Figure 4-1.



SOURCE: U.S. Department of Commerce, Census of Retail Trade

FIGURE 4-1. MINNEAPOLIS RETAIL SALES

CBD employment is about 95,100, with 60,000 people working within three blocks of the IDS tower. (Ref. 4-5) There were approximately 3700 CBD residents in 1970, down 42 percent since 1960, according to census figures compiled by the Twin Cities Metropolitan Council. About 25,000 people live in the general downtown area. (Ref. 4-5)

4.3 TRAFFIC AND TRANSIT - GENERAL

Minneapolis has extensive and frequent bus service, including several crosstown routes, freeway express service during peak periods, and a ten-cent downtown Dime Zone supplemented by minibus shuttles on a fixed route serving the mall. There were two shuttle routes on six-minute headways until August 1975, when the crosstown route was discontinued and the downtown Dime Zone instituted (regular fare is 30 cents). Peak-hour headways under ten minutes are common. The downtown shuttle now runs on nine-minute headways. Public acquisition in 1970 brought expanded service and an aggressive marketing program. Since then, ridership has grown, as has the percentage of person trips to downtown by bus (see Figure 4-2). In 1975, 24 percent of person trips to and from downtown were by bus (up from a low of 17 percent in 1970) and 40 percent of people leaving downtown in the peak hour (4:30 PM to 5:30 PM) did so by bus, according to the City's annual cordon count. Bus volumes leaving and entering downtown have grown from a 1964 low of 4,600 in twelve hours to 6,500 in 1975. (Ref. 4-7) The system carried 63 million revenue passengers in 1975. (Ref. 4-6)

Generally, there is no severe congestion problem in downtown Minneapolis. Conditions have improved somewhat in recent years due to diversion of through traffic to recently completed freeway segments. Figure 4-2 shows the trend in total automobile trips to and from downtown. Figure 4-3 shows the one-way street

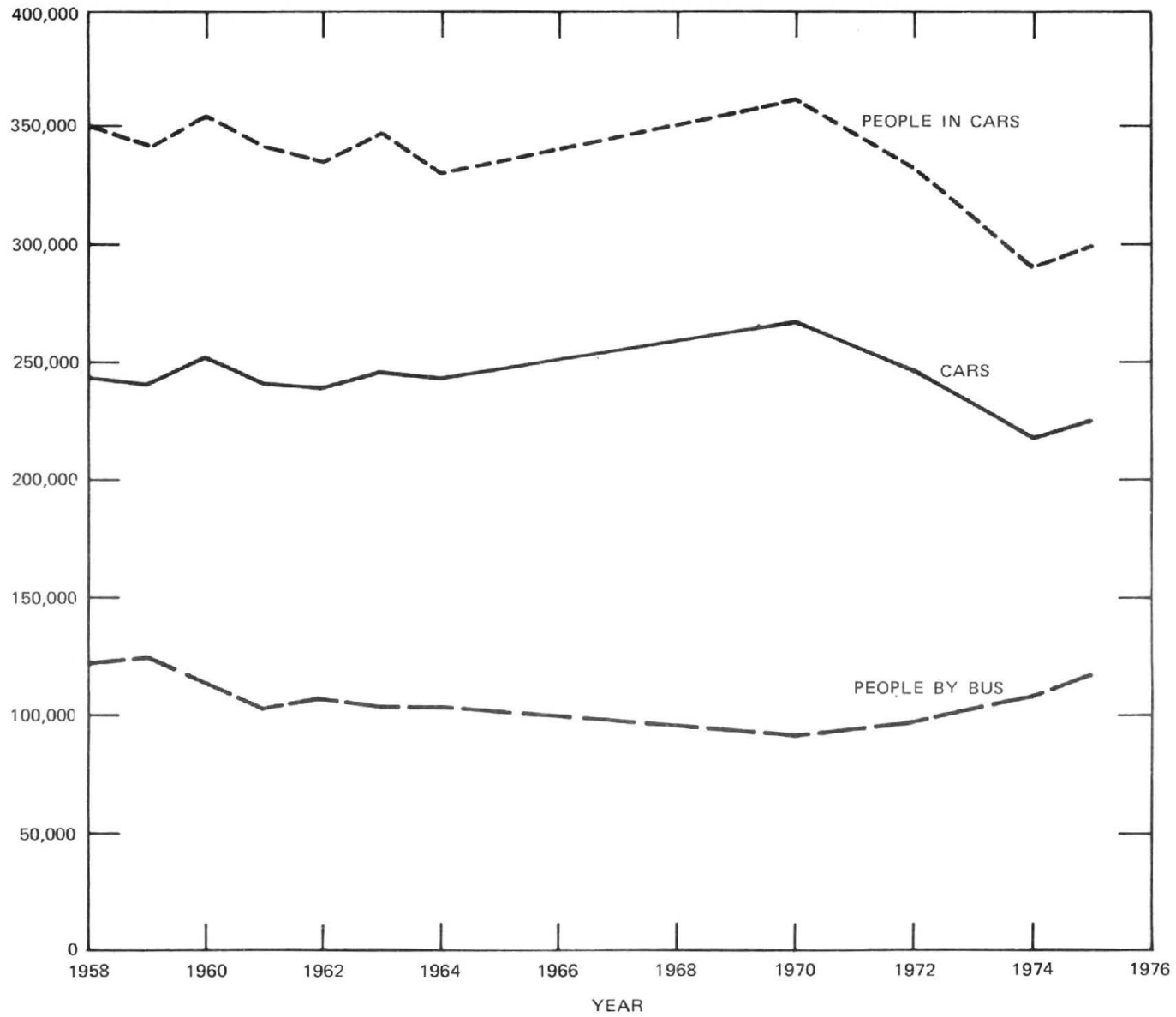
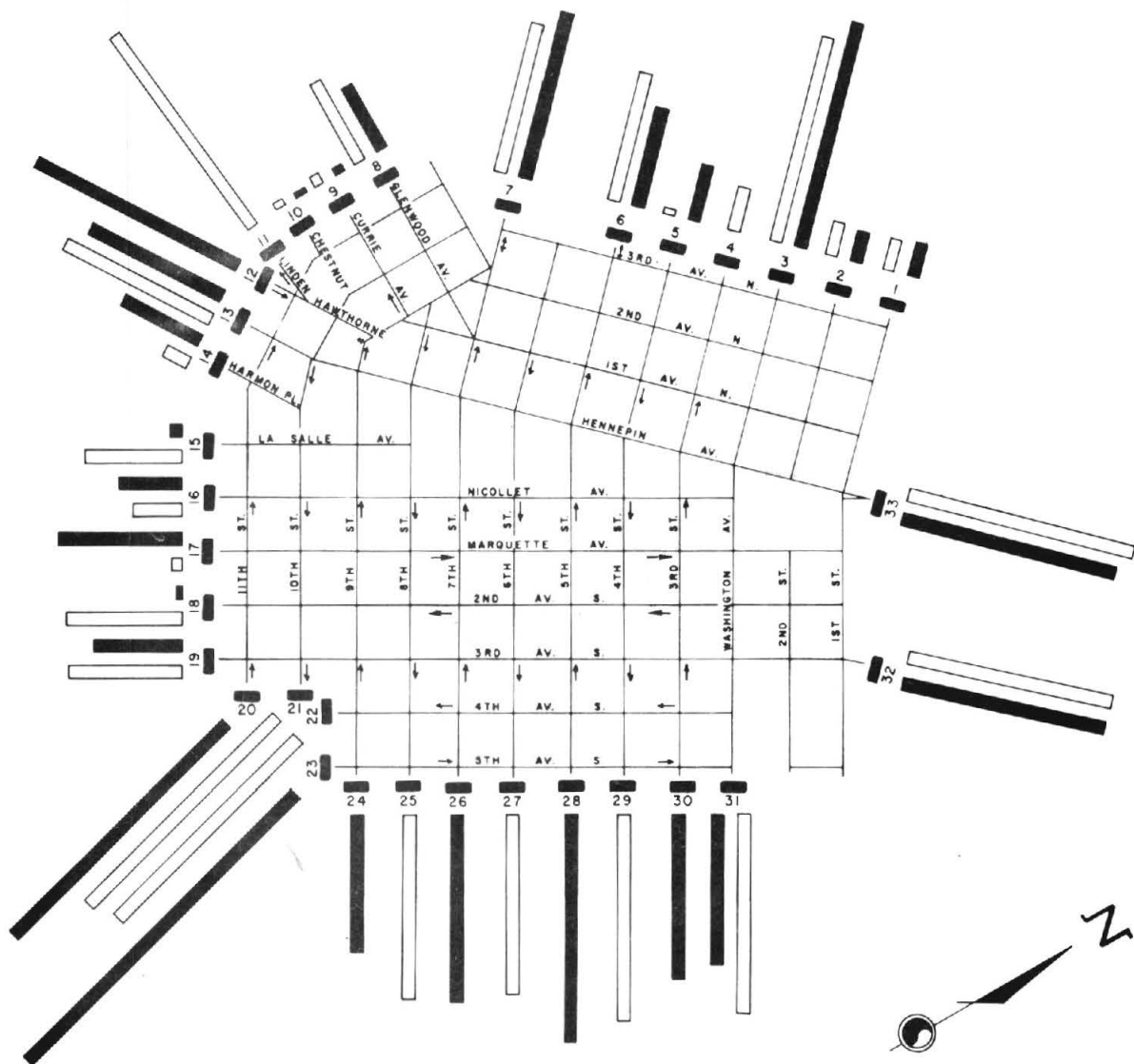


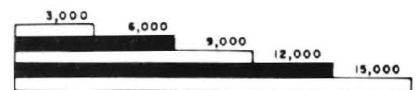
FIGURE 4-2. MINNEAPOLIS CORDON COUNT TRENDS



LEGEND

-  INBOUND TRAFFIC
-  OUTBOUND TRAFFIC
-  CORDON STATION

SCALE



1975 CORDON COUNT

6:30 A.M. TO 6:30 P.M. WED., SEPT 10, 1975

CITY OF MINNEAPOLIS
 DEPARTMENT OF PUBLIC WORKS
 TRAFFIC ENGINEERING DIVISION

FIGURE 4-3. MINNEAPOLIS DOWNTOWN STREETS AND CORDON COUNTS

pattern downtown, as well as how vehicular volumes were distributed at entry and exit points. The heaviest daily volume at any cordon point in 1975 was 18,000 vehicles arriving over the Hennepin Avenue Bridge. This is down from 23,300 in 1964 (before the mall). Traffic over the Third Avenue South Bridge is down from 24,300 vehicles daily to 16,500. The 1975 cordon count showed a daily peak accumulation of 28,000 vehicles in downtown for which there are about 44,000 parking spaces, including 14,000 in garages. (Ref. 4-7) Plans call for a total of 30,000 spaces in downtown parking garages. (Ref. 4-5) Minneapolis has a well-developed freeway system (see Figure 4-4), which permits easy travel to and around downtown.

An exceptional feature of the pedestrian circulation system in Minneapolis is the skyway network, an extensive series of privately-developed second-story connections between buildings across streets. They are glass-enclosed and climate-controlled. To get from one skyway to the next, one walks through selling areas or arcades. Plans call for 76 skyways by 1985; there are 18 now. The maximum pedestrian volume in any skyway is now 14,000 daily in summer and 23,000 in the winter. (Ref. 4-5)

Although there does not appear to be any integrated policy of favoring transit or pedestrian circulation over automobiles in downtown, recent events show a strong commitment to building up transit service and encouraging its use. Transit service levels have been upgraded considerably since public acquisition in 1971. Notable projects, in addition to the Nicollet Mall, are the Interstate 35W Preferential Access Bus Operating on Metered Freeway demonstration, and exclusive contra-flow bus lanes on Second and Marquette Avenues. However, a study committee representing a wide range of downtown interests (including government), formed to review alternatives to the present contra-flow lane, agreed that: "the implementation of any new extensive, preferential bus facility that would significantly disrupt

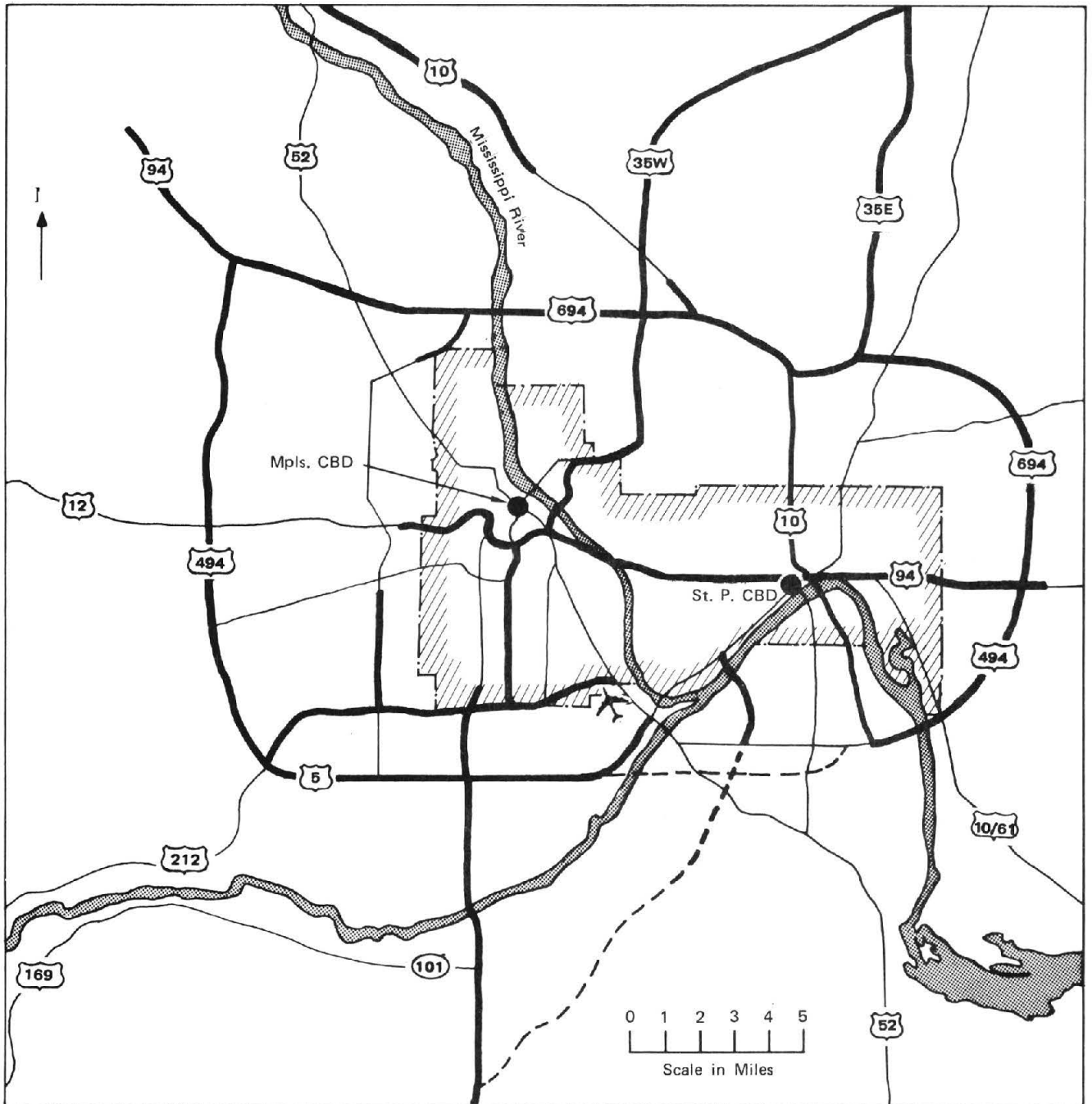


FIGURE 4-4. MAP OF MINNEAPOLIS AND VICINITY

movement of automobiles is not a reasonable alternative" [emphasis in original]. (Ref. 4-4) A computerized signal control system, now being completed, will include provisions for bus priority signalization for Nicollet Mall and, later, for the contra-flow lanes.

4.4 PROJECT STREET CONDITIONS BEFORE MALL

Conditions in Nicollet Avenue downtown prior to construction of the mall are shown in Figure 4-5. Traffic was two-way, with two moving lanes in each direction and parking on both sides. The roadway was 50 feet wide on an 80-foot right-of-way. As is clear from Figure 4-3, Nicollet Avenue was not particularly useful as a route to the major employment locations farther to the south and east, or as a route through downtown. The 1964 cordon count showed a 12-hour two-way volume of 6,800 vehicles on Nicollet Avenue at 12th Street. (Ref. 4-7) Traffic consisted largely of pick-up/drop-off traffic and shoppers with destinations on Nicollet Avenue. Twin City Lines operated one bus route on Nicollet Avenue downtown, with midday headways of 12 minutes, and peak-hour service every few minutes. The 12-hour two-way bus volume on Nicollet Avenue at 12th Street was 188. A pedestrian count made by the City in 1958 showed 12-hour volumes ranging from 23,600 between 6th and 7th Streets on the northwest side of Nicollet, to 4,700 between 4th and 5th Streets on the northwest side. The average per side for all blocks between 4th and 10th Streets was about 12,800. (Ref. 4-7)

4.5 PROJECT STREET AFTER MALL

Construction lasting from July 1966 to November 1967 completely changed the appearance and operation of the 80-foot right-of-way of Nicollet Avenue downtown. Figures 4-6 and 4-7 show the current appearance of Nicollet Mall.

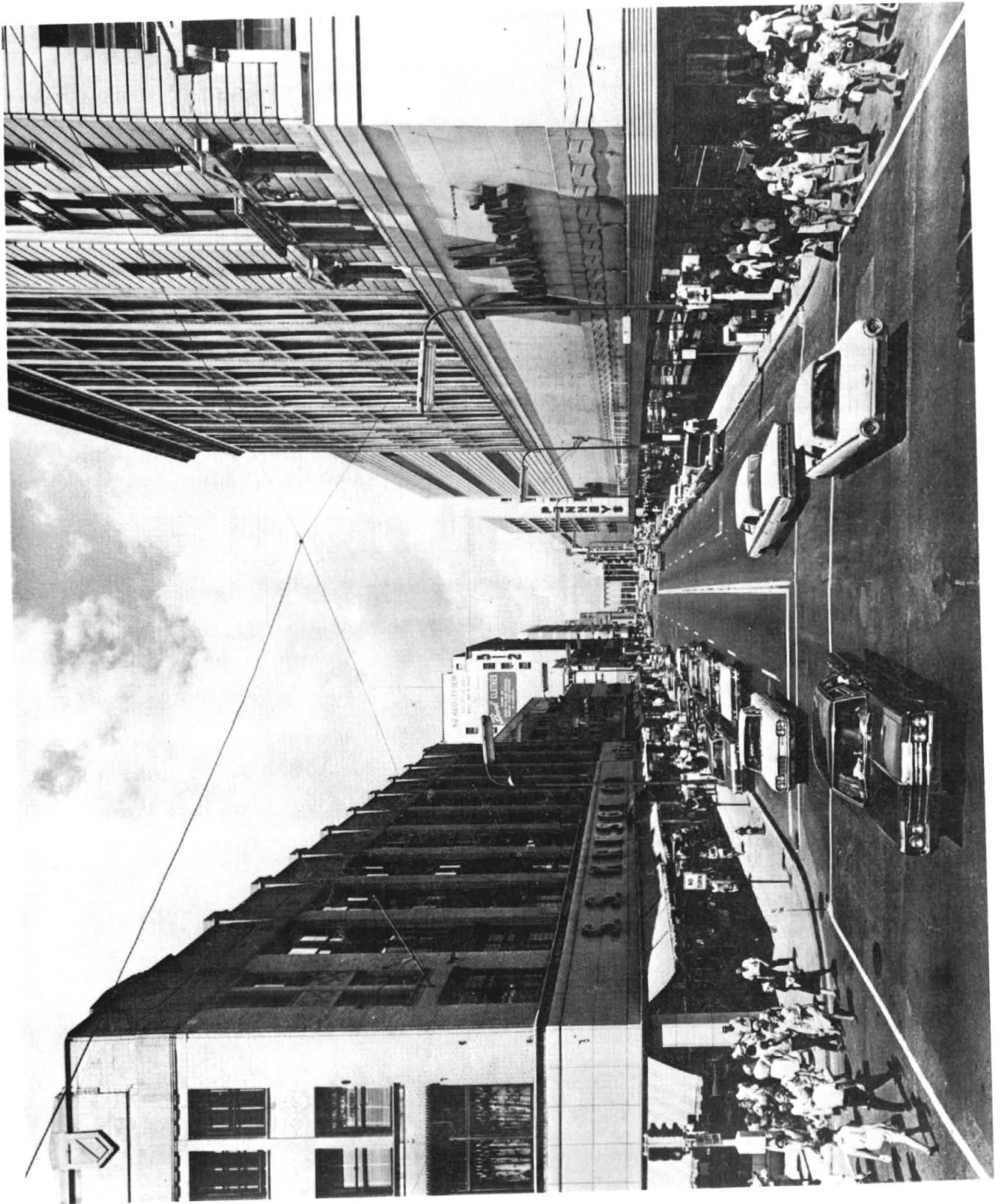


FIGURE 4-5. NICOLLET AVENUE BEFORE RECONSTRUCTION



FIGURE 4-6. NICOLLET MALL

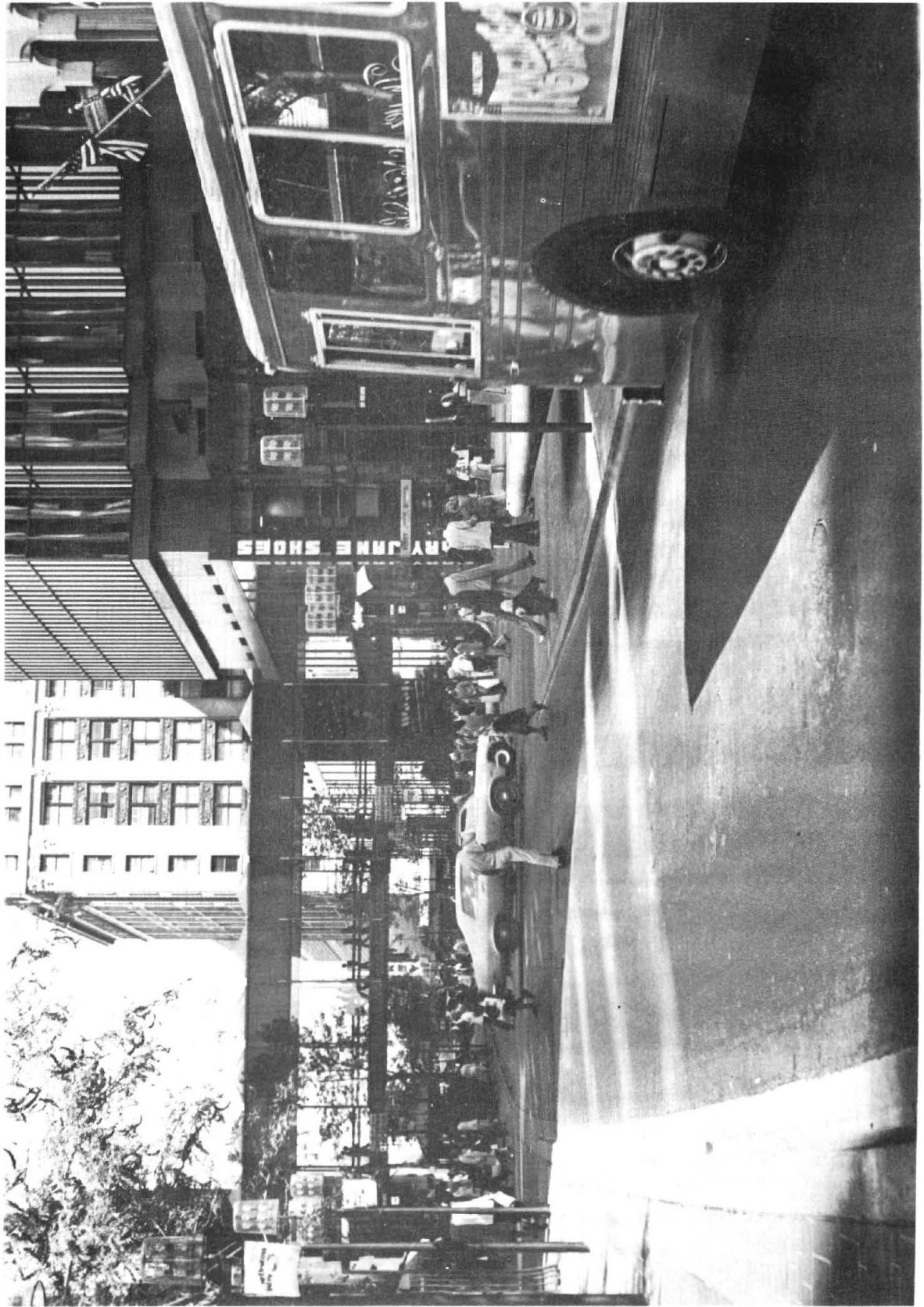


FIGURE 4-7. NICOLLET MALL

Total construction cost was \$3.8 million, of which 13 percent was paid for by an UMTA demonstration grant and 13 percent by an Urban Beautification grant. The remaining 74 percent was financed through the sale of city bonds. (Ref. 4-1) The bonds are being paid off over a 20-year period by assessments of all property owners (with no exceptions) within the assessment district, apportioned by square feet of land area (rather than by assessed value or floor area), with modifications representing varying degrees of benefit from the project. Properties nearer the ends of the mall than the middle, and those more than half a block off the mall, are assessed for a smaller portion of the total costs. The assessment district extends one block to either side of the mall and half a block past either end. Special assessment districts were first authorized under Minnesota law in 1911. However, new legislation was necessary to allow for the traffic restrictions required in making malls, and to permit payment for such projects through special assessment districts.

Between 10th Street and Washington Avenue, the roadway has been narrowed to 24 feet and is open only to buses, emergency vehicles, taxis (which must enter and leave only at the ends of the mall, and enter only in response to calls for pick-up and drop-off), and bicycles. Starting at 10th Street and continuing to between 4th and 5th Streets (retail use and pedestrian volume decline sharply after 4th Street), the roadway winds back and forth, completing about one cycle per block. The greatest degree of curvature was that considered tolerable by the transit operator. The sidewalks are paved with a distinctive composition material and contain electric snow-melting mats. The curving road is designed to create zones, apart from the main walking corridor, where the sidewalks widen out. Street furniture is concentrated in these areas. The actual clear walking area is the 15 feet next to the building line, which corresponds exactly to the old sidewalk width.

Bus shelters are located at the downstream end of each block on both sides of the avenue. These include benches, informational displays, and public telephones; they have piped-in music and house the power distribution system for the mall.

Only one-third of the \$3.8 million construction cost is visible above ground. The remainder was spent on relocating utilities (including police and fire call boxes) in order to avoid future street openings and for aesthetic effect, new utility capacity to support drinking and decorative fountains and a plant irrigation system, snow-melting mats, and a new traffic signal system. The physical appearance of the street was also changed by an ordinance requiring removal of all overhanging signs.

The mall is operated by the Nicollet Mall Advisory Board, which is appointed by the City Council. Overall maintenance and operating costs are about \$500,000 yearly. This is paid by assessments on property owners, distributed by the "benefit formula" described above for bond payment. The money pays for a full-time maintenance crew of nine, electricity and plants. After each winter some of the snow-melting mats imbedded in the sidewalks must be replaced; in 1976 the cost for replacing mats was \$57,000.

Since the opening of the mall, transit vehicle volumes on Nicollet have increased considerably. In 1968, one bus route was moved from neighboring Marquette Avenue onto Nicollet, and headways on that route and the route already on Nicollet have been reduced. The downtown shuttle route on Nicollet was introduced in 1971. In 1973 several freeway express routes were created, three of which run on Nicollet Mall. One of four remaining private bus lines (accounting for some fourteen buses a day) successfully petitioned to be allowed to run its buses on the mall. Bus volumes are now about 60 buses per hour in each direction in the afternoon peak. The 12-hour two-way bus count on Nicollet at 12th Street is now up to 610, from 188 in 1964. Current

Metropolitan Transit Commission (MTC) plans call for an increase in bus volumes of 51 percent by 1985. However, MTC's consultant has estimated that the mall is now at 80 percent of capacity. There seems to be widespread sentiment that no more buses ought to operate on the mall than do now. A policy of the Nicollet Mall Advisory Board is that no "new routes" should be allowed to use the mall. This has been taken to mean that only the Number 17, 18 and 35 buses are permitted, although MTC now operates buses designated 17A, 17B, 17CH, 17D, 17EJ, 18A, 18B, 18C, 18D, 18E, 18G, 35L, 35S and 35U on the mall.

Deliveries are not generally allowed on the mall. This does not present a problem, since there are only two businesses that do not have access through a back alley (these two are allowed to use the mall for loading purposes).

There have been no alterations to the vehicular circulation pattern in downtown other than the restrictions on the mall itself. No cross traffic has been removed. The traffic lights have been set to balance green time between pedestrian flows on Nicollet and vehicular flows on cross streets, with the progression being set up only on the basis of cross street requirements. A considerable amount of money was spent for the construction and hook-up of special traffic signals on the mall, designed to be harmonious with the new aesthetic scheme. The old-style signals were retained and are visible to the traffic on the cross streets. Mid-block pedestrian signals were installed, controlled by detectors that sensed the passing of a bus one block before. This system is no longer used, since it was generally ignored by pedestrians. Also no longer used is a blue light that signaled to bus drivers, stopping at corners to drop off and load, when the traffic light was about to turn green. As noted before, the computerized traffic control system now being installed in the CBD will include provision for bus priority signalization on Nicollet Mall.

4.6 PROJECT HISTORY*

Nicollet Mall has been, from the start, a project of the Downtown Council of Minneapolis, an organization of downtown business people formed in 1955 to prevent further decline of downtown Minneapolis. The Council spent some \$100,000 in studying and promoting the proposal before it became an official project. In 1956, Leslie C. Park, a downtown property owner, proposed a series of enclosed plazas on Nicollet Avenue. In 1957, the Downtown Council formed a temporary "Nicollet Avenue Survey Committee," led by Park, which pursued and promoted (by means of discussions with merchants) the idea of improvements on Nicollet Avenue as a key element in attempting to improve the situation in downtown as a whole. Nicollet Avenue improvement became a high-priority project for the Downtown Council, which formed a permanent Nicollet Avenue subcommittee and hired a consultant. The consultants' report (Ref. 4-2), published in 1960, recommended major improvements on Nicollet Avenue within the framework of an evolving downtown plan. Four objectives were formalized:

1. Improve pedestrian circulation in terms of efficiency and comfort.
2. Improve access and encourage mass transportation usage.
3. Create new opportunities for promotion of the retail area and the CBD.
4. Encourage private investment.

The report also outlined five general alternatives for improving the street:

1. Beautification—existing street with new lighting, planting, benches, etc.
2. Beautification plus pedestrian concourses—elevated or below ground, at intersections.
3. Full pedestrian mall—without cross traffic.

* Abstracted mostly from Ref. 4-1.

4. Plazas—a pedestrian mall with cross streets open to traffic.
5. Mall and transitway.

A consensus within the Downtown Council for the "mall and transitway" alternative appears to have been reached quickly. The decision to have a transitway is said to have been based on a desire to link the retail center with all parts of Minneapolis by bus. (Ref. 4-1) However, this concept involves counting every bus route that crosses or passes within a block of the mall. City officials wanted bus service to remain on Nicollet. The transitway approach also answered a desire to retain an urban atmosphere, clearly distinguishable from that of suburban shopping centers. Although the transitway has been put to good use, the improvement of bus service and operations is viewed as a fortunate side-effect, incidental to the primary purpose of improving the retail environment.

Donald Dayton, president of a prominent department store in the Minneapolis area, initiated an idea that gained acceptance—that any project must be of highest-quality construction and aesthetics. It was at this time, also, that the serpentine roadway became an element of the plan. The consultants were asked to produce more detailed plans, which were published in a report in 1962 (Ref. 4-3) and adopted by the Downtown Council. Major features of the mall, including its limits at 10th Street and Washington Avenue, were established at this time. By 1963, the project had been approved by the Minneapolis City Council and the Hennepin County Board of Commissioners. It took another three years, however, for construction to begin. These three years were spent getting legislation passed to allow construction of malls on city streets with financing by special assessment; establishing the formula for assessments; negotiating federal grants; and completing the physical design, including coordination with the utility companies. The law pertaining to

special assessment districts for pedestrian malls provided that the malls could be established by vote of the City Council unless a majority of abutting property owners filed formal objections. In April 1966, final plans were approved by the City Council and bids were requested. Since only one bid submission was judged to be complete, and this bid was high, the City decided to act as general contractor. The official opening of the Nicollet Mall was in November 1967.

Current plans are to extend Nicollet Mall an additional four blocks southwest along Nicollet Avenue during 1977. This would include all of Nicollet Avenue up to the point where it changes direction to run north and south. The new section is planned to look identical to the existing mall, including the serpentine transitway, bus shelters, lighting, traffic signals, and snow-melting mats. It is expected to be financed by assessments on property in an extension of the special assessment district described previously, plus funds from UMTA and the Federal Aid Urban System program. Though plans are considered settled, public hearings must still be held on the establishment of the special assessment district, and the new federal funding is still being sought.

4.7 RESULTS

Although the Nicollet Mall project seems to have played a key role in efforts to stimulate growth in downtown Minneapolis, there are no reliable figures to evaluate the effect of the mall itself. The Downtown Council remains enthusiastic. As noted above, bus service has been increased on Nicollet. However, an attempt by MTC staff to quantify the effects of the mall on running time and ridership produced inconclusive results. The exclusion of cars from Nicollet has not created congestion, but then, as noted above, downtown street volumes have decreased in

recent years for other reasons. Also, as noted before, there is plenty of parking in the vicinity and loading is accomplished by alleys, so no problems have been encountered in either area. A pedestrian count made by the City in 1973 shows an average pedestrian volume, over a 12-hour period, of 13,600 per side on Nicollet Avenue between 4th and 10th Streets, up 6 percent from 1958. (Ref. 4-7) Comparisons on a block-by-block basis show large increases in pedestrian volumes in some blocks and large decreases in others. It appears that changes in land use, such as the IDS development, are responsible for changes in pedestrian volumes along the mall. The greatest increase is in the vicinity of the 2,000,000 square-foot IDS development.

PHILADELPHIA DATA

<u>GENERAL</u>	<u>CITY</u>	<u>SMSA</u>
1970 population:	1,950,000	4,818,000
1970 employment:	764,000	1,878,000
Area:	128.5 sq. mi.	3,553 sq. mi.
Population density:	15,175 per sq. mi.	1,356 per sq. mi.
Employment density:	5,946 per sq. mi.	529 per sq. mi.
Service area mode split to downtown:	64 percent for work trips	

PROJECT

Name: Chestnut Street Transitway
 Status: Completed November 1975
 Cost: \$7 million
 Funding: 3-1/3 percent local, 16-2/3 percent state, 80 percent UMTA capital grant
 Financing of local share: City capital budget
 Primary backers: Planners; downtown business leaders
 Type of transit: Standard transit buses; special loop buses
 Pedestrian volumes: After transitway, 3016/block side/hr., peak periods on major blocks.
 Pre-mall traffic volumes: 14,000 (one-way, daily)
 Bus volumes at peak hour: 43 before transitway, 52 in each direction after transitway
 Dimensions: 12 blocks (1 mile) by 60 ft.
 Dimensions of transitway: 20-26 ft. wide
 Cost per ft.: \$1,300
 Cost per sq. ft.: \$22

5. PHILADELPHIA

5.1 INTRODUCTION

The Chestnut Street Transitway consists of a twelve-block segment of Chestnut Street in the retail core of downtown or "Center City" Philadelphia. For nine of those blocks, the reconstructed street has wider, brick sidewalks, special mid-block crossing areas with bus information displays and benches, bus shelters, and a two-way, two-lane roadway open only to buses and emergency vehicles (and taxicabs at night). The remaining three blocks are similar in appearance but have a wider roadway and lack the mid-block crossing area. On one block the east-bound lane is open to taxis, and on the second block the lane is open to general traffic (for access to parking lots). The final block is again an exclusive bus mall. The transitway opened in November 1975 after five and one-half months of construction costing \$7 million; finishing work continued well into 1976.

5.2 SITE DESCRIPTION

Philadelphia, the fourth largest city in the United States, with a 1970 population of 1,949,000, is located in extreme southeastern Pennsylvania at the confluence of the Delaware and Schuylkill Rivers (see Figure 5-1). The eight-county metropolitan area had a 1970 population of 4.8 million.

Central Philadelphia has, for the most part, the same north-south east-west grid pattern that characterizes most of the city. At the center is City Hall, which interrupts the two major streets, Broad and Market, and at whose intersection it is located (see Figure 5-2). Chestnut Street is an east-west street, one block south of Market Street in the center of the retail and office districts. It is one-way running eastbound

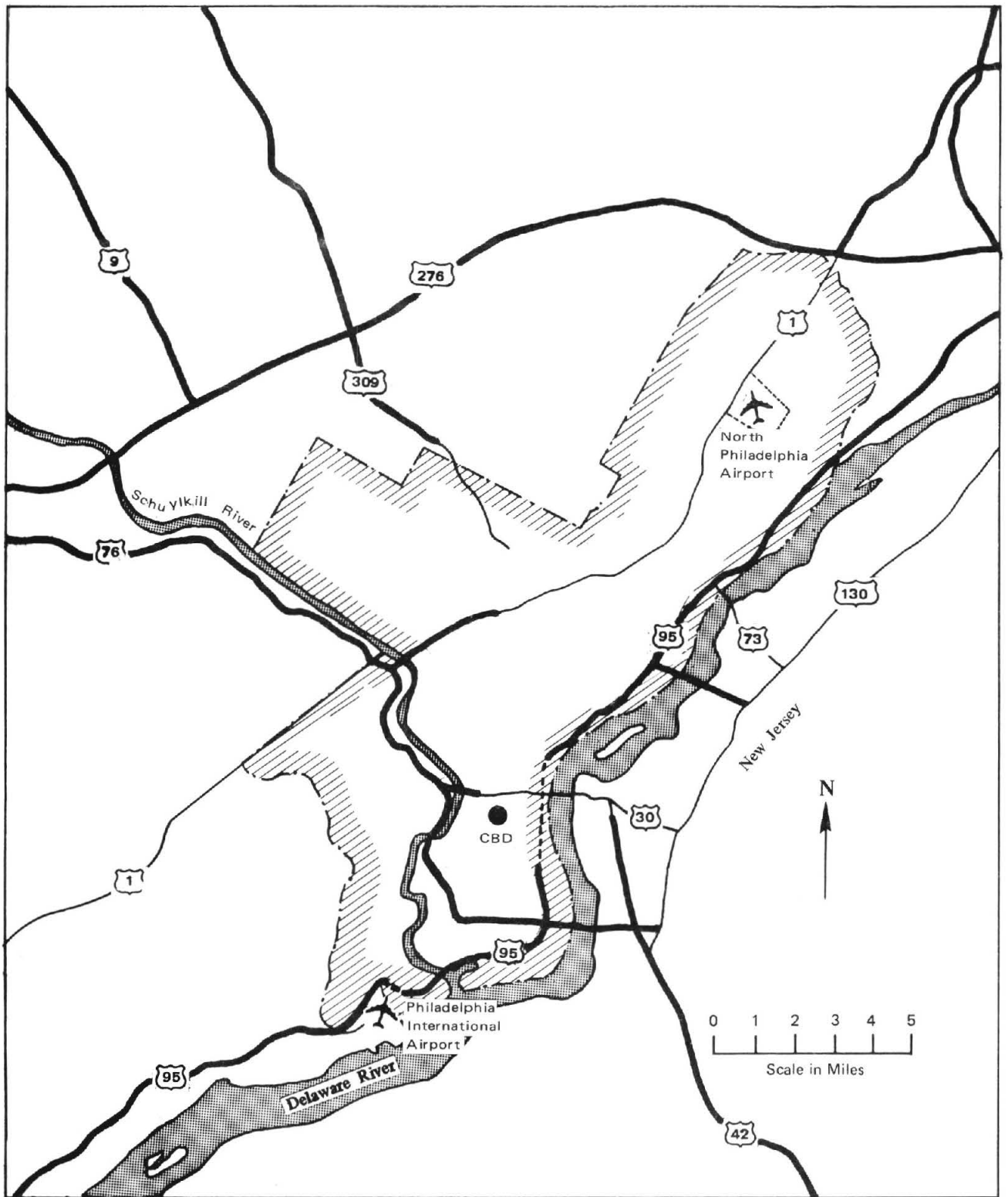
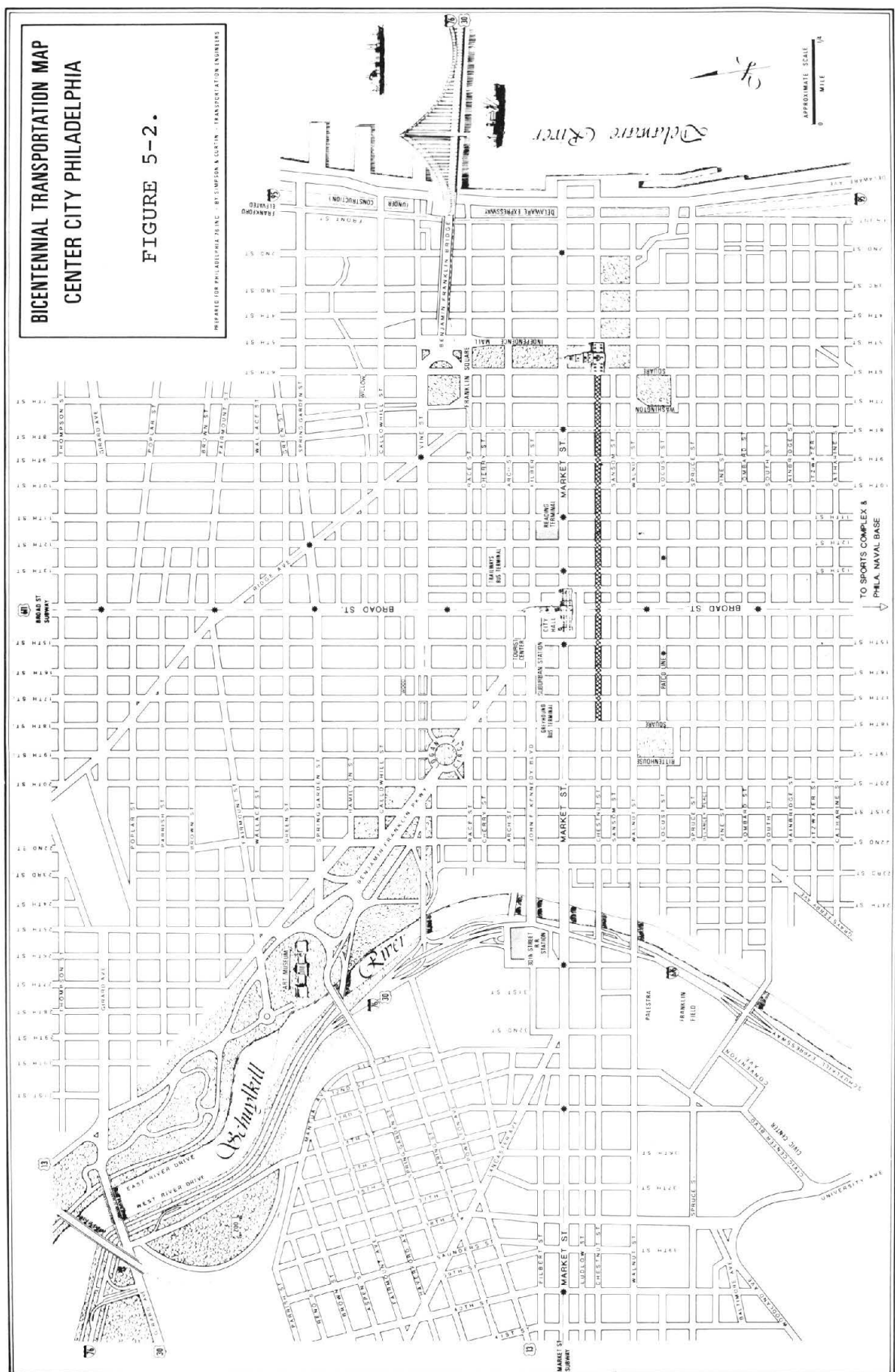


FIGURE 5-1. MAP OF PHILADELPHIA AND VICINITY

**BICENTENNIAL TRANSPORTATION MAP
CENTER CITY PHILADELPHIA**

FIGURE 5-2.

PREPARED BY PHILADELPHIA, INC. BY JIMPERA & LUSTIN, TRANSPORTATION ENGINEERS

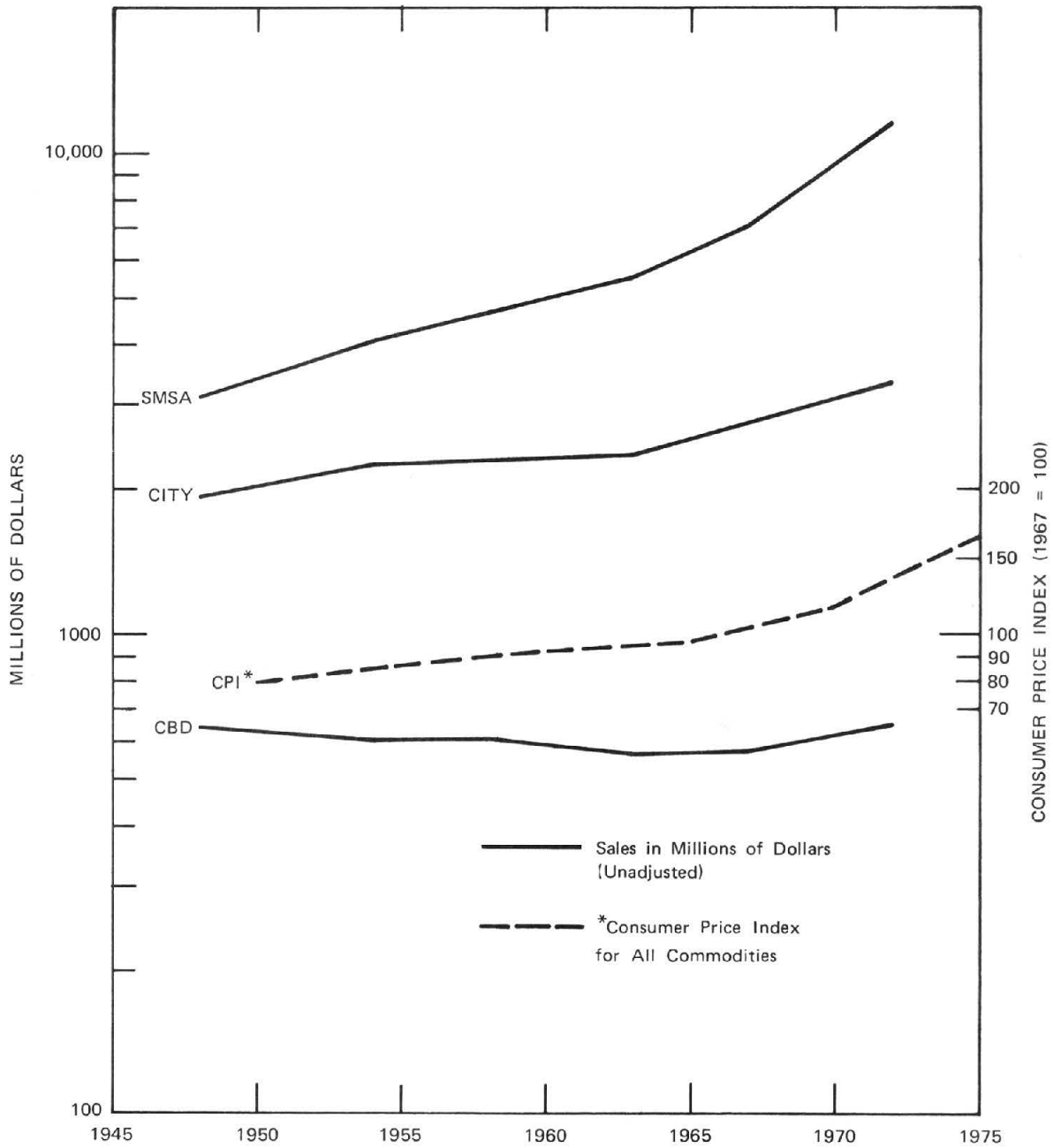


(except, now, for the length of the transitway), originating in West Philadelphia on the other side of the Schuylkill River from Center City. At the eastern end of Chestnut Street is the historic area, including Independence Hall, other landmarks, and some recent office development. Just to the south of the historic area is Society Hill, a residential area that has been the site of much renovation and construction. Immediately to the west of the Schuylkill River, Chestnut Street passes through the university area, which includes the University of Pennsylvania and Drexel University. The part of Chestnut Street centering on Broad Street has long been considered the quality shopping street in downtown Philadelphia.

Business downtown has generally been declining since World War II, absolutely and in comparison to the city and SMSA. Between 1950 and 1965, real estate assessments on Chestnut Street in the transitway area fell by 11 percent; the results of this decline on Chestnut Street are most visible east of Broad Street. (Ref. 5-5) Recently, Philadelphia has been the site of extensive development activity; the Penn Center area, immediately to the north of Chestnut Street west of Broad Street, is a ten-square block downtown site (formally a railroad embankment known as the "Chinese Wall") on which new office construction has taken place. The most recent Census of Retail Trade shows that the decline of business in Center City may have turned around in the late 1960's (see Figure 5-3). A current project of interest is the construction of a new Gimbel's department store downtown on Market Street East, which will be connected to an existing department store in the next block by a multi-level enclosed arcade. Completion of the store is scheduled for August 1977.

5.3 TRAFFIC AND TRANSIT - GENERAL

Philadelphia enjoys very high levels of transit service compared to most cities. The Southeastern Pennsylvania



SOURCE: U.S. Department of Commerce, Census of Retail Trade

FIGURE 5-3. PHILADELPHIA RETAIL SALES

Transportation Authority (SEPTA) carries 850,000 base-fare riders per day on 2,400 miles of streetcar, bus, and trackless trolley lines and 73 miles of high-speed rail lines; extensive commuter rail service is provided by the Penn Central and Reading railroads. SEPTA's City Division operates 1,320 buses, 128 electric trolley cars, 364 streetcars, and 489 rapid transit cars. Some of the rapid transit cars are old, however; 40 percent have been in service for 35 to 45 years. (Ref. 5-1)

On the other hand, Center City Philadelphia is not well served by freeways (see Figure 5-1). The only grade-separated facilities directly serving Center City are the Schuylkill Expressway, the portion of Vine Street between the Schuylkill Expressway and 16th Street, and the Benjamin Franklin Bridge from New Jersey. During the 1960's it was planned to surround downtown with expressways—with a Delaware Expressway along the eastern edge of the city, and two river-to-river east-west expressways, one at Vine Street and one near South Street (the Crosstown Expressway). Of these, the Delaware Expressway is nearing completion, the Vine Street Expressway is in the planning stage, and the Crosstown Expressway is officially dead.

From 1970 Census "Journey to Work" data, it is known that of the 228,000 workers in the Philadelphia CBD, 64 percent commute by some form of public transportation (18.7 percent by subway and elevated, 29.2 percent by bus and streetcar, and 16.5 percent by commuter railroad).

Traffic in downtown Philadelphia is often congested, particularly on the many narrow streets where loading and illegal parking often cause disruptions, and where City Hall interrupts Broad and Market Streets (Penn Square). Congestion is worse in the afternoon and evening than in the morning, since capacity limitations outside downtown tend to have a metering effect on morning inbound traffic, and the effect of parking violations does not have a chance to build up until after the morning rush.

Chestnut and Walnut Streets are a one-way pair (except, now, for the length of transitway) which carried roughly 14,000 vehicles per day apiece in 1973. This was only slightly fewer than the other major east-west pair, Market Street and JFK Boulevard. Neither pair carries as many vehicles as the remaining east-west route, Vine Street, located four blocks north of Market Street, which carries over 25,000 vehicles per day in each direction through Center City, connecting the Schuylkill Expressway on the west and the Benjamin Franklin Bridge to New Jersey on the east. (Refs. 5-3, 5-7) For traffic with downtown destinations south of Market Street coming from the west and southwest, Chestnut Street, prior to the transit mall, was a good morning route into Center City. For traffic with destinations north of Market Street, for traffic arriving from the north and northwest, or for traffic intending to drive through Center City to points east, Market Street or Vine Street would be the logical route. At least in the case of Chestnut Street, this general pattern is confirmed by motorist postcard surveys performed in 1967 and 1974. (Ref. 5-7)

Feeding into these east-west routes is the Schuylkill Expressway, running roughly north and south along the west bank of the Schuylkill River, which forms the western boundary of Center City, separating it from West Philadelphia. The Delaware River forms the eastern boundary of Center City and the city of Philadelphia. Camden, NJ, lies across the river.

A parking study done in early 1975 (Ref. 5-2) showed the project area had parking barely adequate to accommodate current demand. Although the 46 off-street parking facilities in the study area (Chestnut Street from 8th to 18th Streets plus about a block to the north and south), with some 9,100 spaces, had an excess usable capacity of nearly 900 spaces, the amount of illegal parking at the time of the survey was substantial. In an area estimated to have about 160 legal parking spaces, an

average peak on-street accumulation of 350 cars was observed over three days. All these parking spaces are eliminated by the transitway project, at least during the day (parking in loading zones is allowed after 6:30 PM). In theory there is adequate off-street capacity to handle all these cars, although it is not always matched geographically to the demand. However, as the report notes, there is insufficient parking capacity for any economic growth which, it is hoped, may be induced by the transitway.

According to planning officials, there is no coordinated policy of creating pedestrian areas or discouraging automobile use in Philadelphia. There is a Transportation Control Plan to meet Clean Air Act requirements, which calls for the creation of exclusive bus lanes downtown. At the public hearing on the transitway, Environmental Protection Agency (EPA) officials commended the project as a first step toward this end. Plans to reduce air pollution generally support a policy of reducing automobile use; however, these plans do not have much support in most city departments. There have been notable pedestrian-oriented projects, however, such as the historic area redevelopment. In Center City, the subway concourses have been gradually lengthened and linked to each other and to a sunken plaza at City Hall, so that it is now possible to walk many blocks below street level. There are hopes of making the concourses more attractive to pedestrians by bringing light into the concourses and encouraging commercial activity.

5.4 PROJECT STREET BEFORE TRANSITWAY

Chestnut Street's role as an artery feeding into downtown has already been described. Chestnut Street has a 60-foot right-of-way which was formerly divided into 26 feet of roadway and 17 feet of sidewalk on each side. In the AM peak-hour,

Chestnut Street is estimated to have carried up to 940 vehicles per hour between 16th and 17th Streets, with three lanes of moving traffic and no stopping permitted. According to a study in 1964, the average morning-peak speed on Chestnut Street downtown was 13 mph. After the morning peak, parking and loading were permitted. Legal and illegal parking, often involving conflicts between parked autos and loading trucks, then combined to cause frequent congestion and tie-ups. Figure 5-4 shows these conditions at their worst. At midday the average speed on Chestnut Street dropped to 9 mph. (Ref. 5-7) Total daily volumes on Chestnut Street appear to have declined somewhat in the last ten years, possibly as a result of the conversion of Market Street and JFK Boulevard into a one-way pair west of City Hall. In the morning peak, just about all travel was work trips, but between 10 AM and 4 PM, most travel was for personal business (21 percent), shopping (14 percent), deliveries (11 percent), and other nonwork purposes. In 1964 and 1965 there were 231 accidents on Chestnut Street downtown, of which 57 involved personal injury and 25 involved pedestrians. This converts to a rate of 18 accidents per million vehicle miles, which is not considered excessive. (Ref. 5-7)

Two regular bus routes used the Chestnut/Walnut Streets pair, linking West Philadelphia and the university area to downtown. In addition, the Mid-City Loop operated on Chestnut Street. Total transit ridership on Chestnut was about 15,000 per day. (Ref. 5-4) These lines compete with a subway line, only a block away, which offers much faster service from the same general area.

5.5 PROJECT STREET AFTER TRANSITWAY

Construction of the Chestnut Street Transitway began in June 1975; on November 25, 1975, the reconstructed street was opened for one-way transit use and pedestrians; finishing work



FIGURE 3-4. TRAFFIC JAM ON CHESTNUT STREET

continued until the summer of 1976. Two-way bus operations began in March 1976. The finished condition of the transitway is shown in Figures 5-5 through 5-7.

Eighty percent of the \$7 million cost was paid by an UMTA capital grant, 16-2/3 percent by the Pennsylvania Department of Transportation, and 3-1/3 percent by the City of Philadelphia out of its capital budget. Maintenance will be the responsibility of the usual city departments and paid for out of their operating budgets.

Between 9th and 18th Streets, the sidewalks have been widened by three feet (from 17 ft. to 20 ft.) on both sides and paved with brick. Bus shelters are located on the near side of each intersection on both sides of Chestnut Street. Amenities have been added. In the middle of each block between 9th and 18th Streets is a special crossing area. It is marked by informational displays, distinctive street paving, benches, and WALK/DON'T WALK signals triggered by passage of an approaching bus over a detector at either end of the block. The original intention was to have the bus stops at these mid-block areas. This idea was vetoed on the basis of transit operating inefficiency, since buses would often have to stop twice in one block (once for a traffic light) and passengers would be inconvenienced in making transfers. The scheme described in the grant application included a narrowed pavement at the mid-block stops (but narrower sidewalks elsewhere than in the final plan) and signs indicating the arrival time of the next bus. The transitway between 9th and 18th Streets has two 10-foot lanes which carry buses in two directions. The transitway is also open there to emergency vehicles; taxis are permitted only between 6:30 PM and 7 AM. Bicycles are not permitted. Between 6th and 9th Streets, the roadway on Chestnut Street retains its former 26-foot width. The eastbound lane is open to taxicabs between 8th and 9th (to serve the Benjamin Franklin Hotel) and to general traffic between 7th

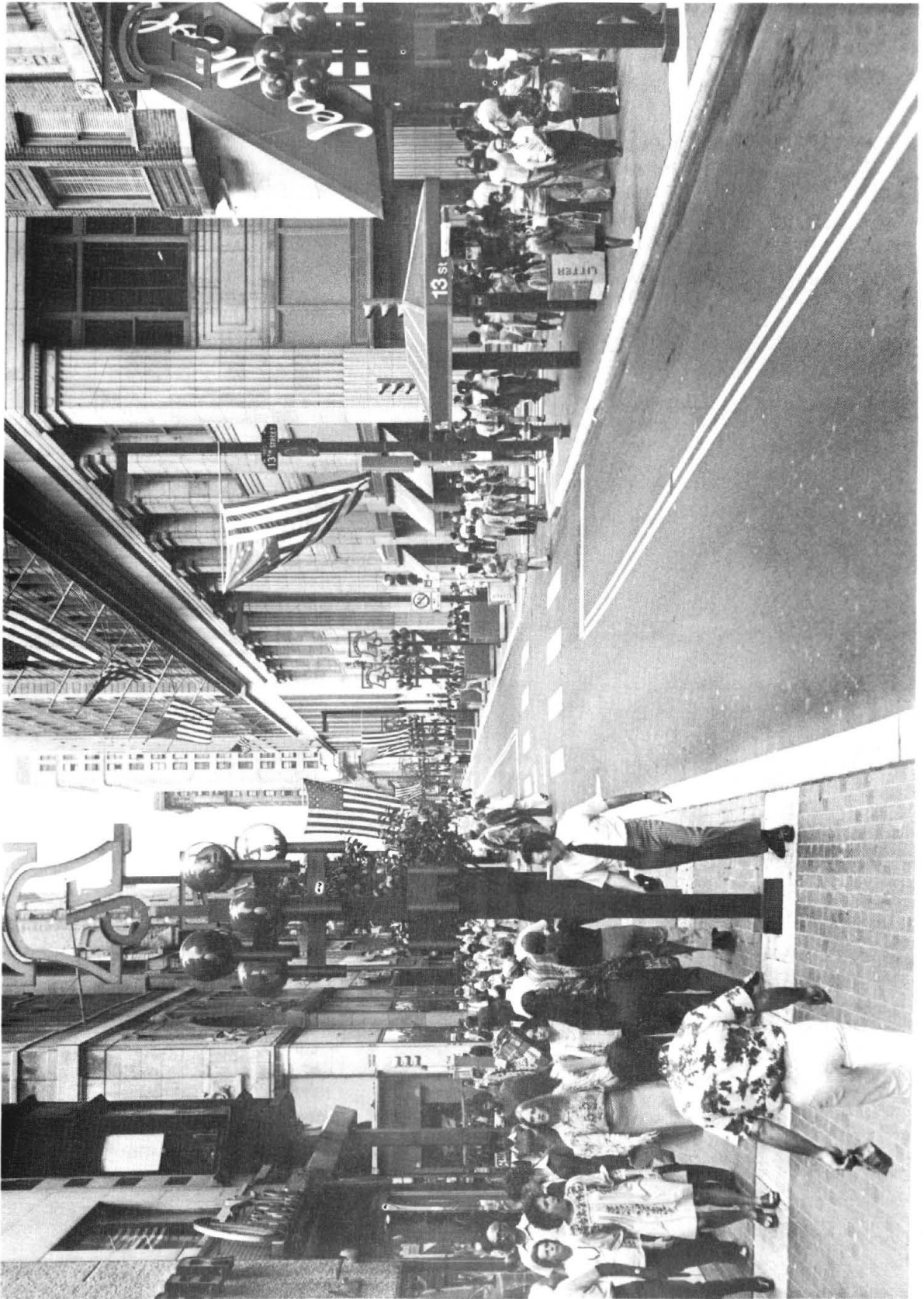


FIGURE 5-5. CHESTNUT STREET TRANSITWAY

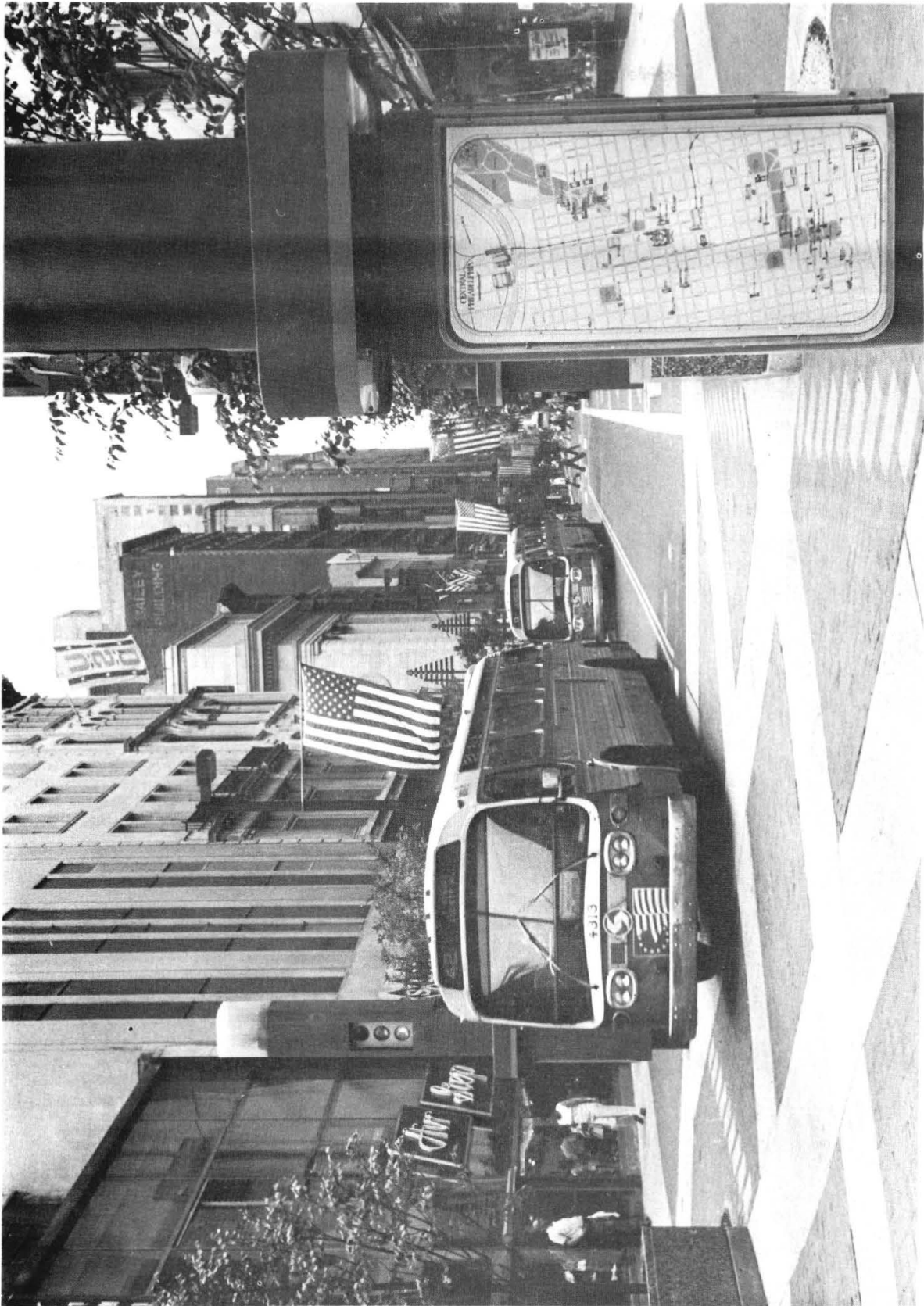


FIGURE 5-6. CHESTNUT STREET TRANSITWAY:
MID-BLOCK CROSSING AREA

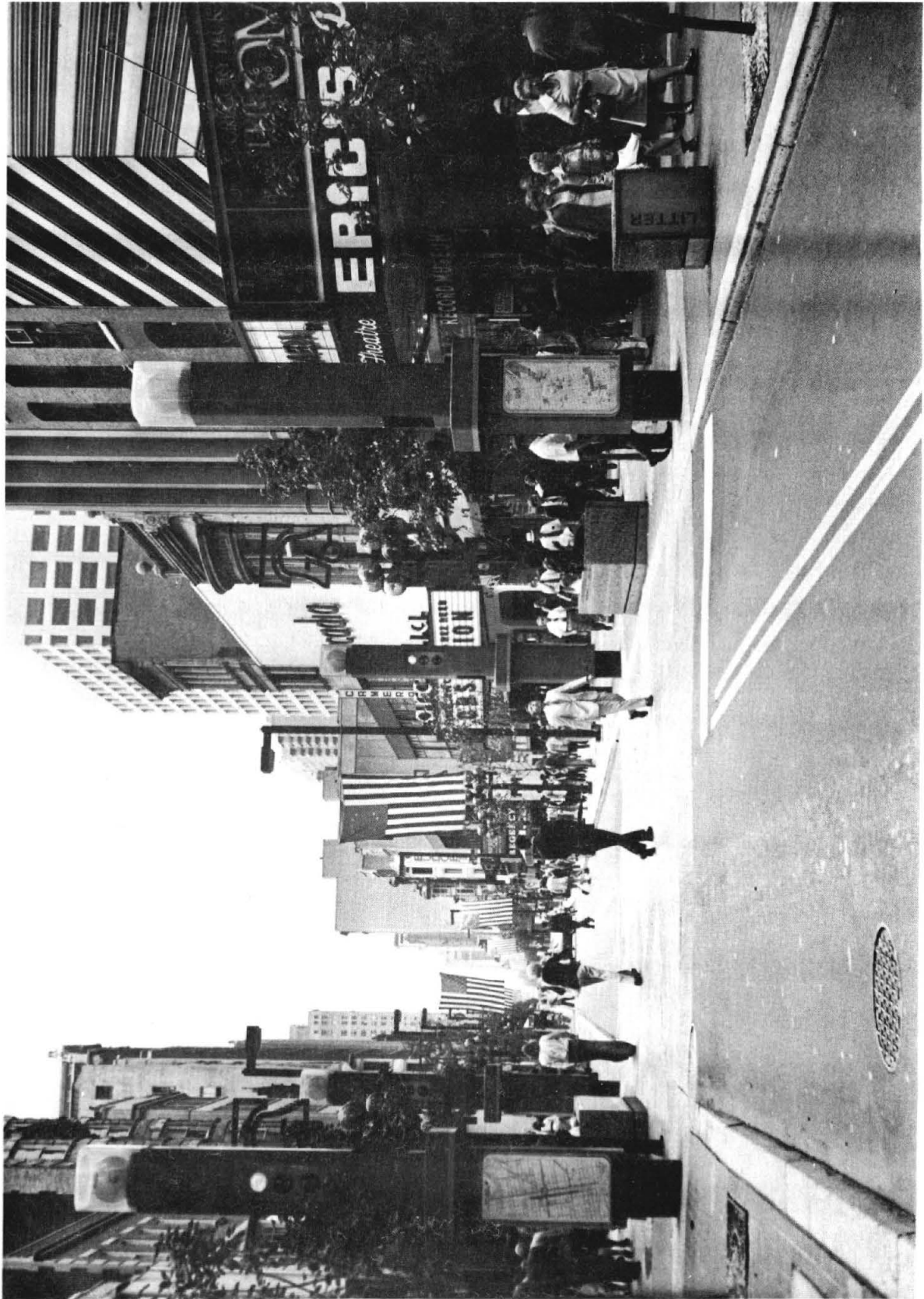


FIGURE 5-7. CHESTNUT STREET TRANSITWAY

and 8th Streets (for access to parking lots). Between 6th and 7th, Chestnut Street returns to an exclusive bus mall. These three blocks also lack mid-block crossing areas; otherwise they are similar in appearance to the rest of the transitway.

The complete transitway is twelve blocks or about one mile long. Cross traffic is unrestricted. No deliveries are allowed on the transitway, except in off-hours with special permission granted in advance. To make up for this loss, most cross streets now have block-long loading zones north and south of Chestnut Street. These have special pavement markings and can be used only by commercially licensed vehicles between 7 AM and 6:30 PM, excepting peak hour restrictions on some blocks,

To further facilitate bus movements on Chestnut Street, new signal timings have been implemented that are specially calculated for expected bus speeds. In addition, lights have been retimed on Market Street to eliminate bottlenecks associated with diverted traffic. One crosswalk was removed to improve traffic flow around City Hall. Eastbound traffic is encouraged to divert north from Chestnut Street toward Market or Vine Streets (rather than to the south, which is more residential in character) as far west as possible, by means of informational signs as far west as 52nd Street and by left-turn-only lanes at 20th and 22nd Streets. Plans called for an exclusive bus lane on the south side of Chestnut Street between 19th and 18th Streets to induce early diversion from Chestnut Street, as well as AM peak parking prohibitions on 22nd, 20th and 18th Streets between Chestnut and Market Streets to improve flow for diverting traffic.

The same regular bus routes use Chestnut Street as before; one of the two routes, however, detours from Walnut Street to Chestnut street between 7th and 17th Streets on its westbound leg

in order to take advantage of the two-way transitway. The Cultural Loop, a bus route which runs on thirty-minute headways, offers unlimited same-day rides with no transfer privileges, and has been rerouted to use the transitway. The Cultural Loop is a seasonal service, running daytimes only, seven days a week in spring and summer, weekends only in fall and winter. Two-way bus volumes are now 52 in the peak hour. Plans are now being studied to add more bus routes to the transitway.

5.6 PROJECT HISTORY*

The idea for some kind of mall on Chestnut Street goes back fifty years. The first modern-day proposal was made in 1956, apparently on the initiative of city planners. A Chestnut Street mall was added to the City's comprehensive plan in 1960. Under Edmund Bacon, a dynamic planner who was able to bring numerous projects to completion in Philadelphia, the Planning Commission moved to implement the mall by commissioning economic and traffic feasibility studies in 1965. These studies, completed in 1966, envisioned a trolley line on Chestnut Street connecting large parking garages near the two rivers, with vehicular traffic banned between 2nd and 22nd Streets. Although an economic study supported the project enthusiastically (Ref. 5-5), a traffic study (Ref. 5-7) was more guarded. Unless the Center City expressway system were completed, it said, traffic should not be removed except between 2nd and 12th Streets. The traffic report also stated that closing all of Chestnut Street downtown would cause congestion on other streets.

In the ensuing debate, city planners, elected officials and downtown business interests supported the mall. However, the Chestnut Street merchants, most of them with small businesses, distrusted the planners and felt that since business was currently

*Abstracted largely from Reference 5-4.

good enough there was no need to take chances on anything extreme. This opposition, plus a decision not to build the proposed Crosstown Expressway (a part of the Center City expressway system considered a prerequisite to closing Chestnut Street by the traffic study) led to suspension of plans for a Chestnut Street mall.

The mall idea was revived in 1972 as part of plans for the 1976 Bicentennial celebrations. A massive influx of visitors was expected. An exclusive bus service was proposed to move tourists between the historic area, in the eastern end of the city, and the Art Museum and Parkway areas to the west—two major focal points of the celebration. The transitway became, in effect, a project of Philadelphia '76, the Bicentennial organization. A consultant was hired to analyze three alternative designs:

1. Two-way transitway on Chestnut Street
2. One-way exclusive bus lanes on Chestnut and Walnut Streets
3. Eastbound exclusive bus lane on Chestnut Street, westbound exclusive bus lane partly on Walnut Street (east of 7th Street) and partly on Sansom Street (west of 7th Street).

All three alternatives involved a transitway from 17th Street to the Delaware River. The study (Ref. 5-6) was completed in September 1973 and concluded that Alternative 1. would cause the least traffic disruption, and provide the best transit and pedestrian services. The report noted that volumes on Chestnut Street had decreased since the time of the 1966 traffic study, due to improvements on other streets. The 1973 report also noted that actual congestion levels, with or without a transitway, were much worse than predicted by the models used, mainly as a result of poor enforcement of curb restrictions.

Efforts to interest the Chestnut Street merchants in the project met with little initial success. However, leaders of

the Chestnut Street Association, the merchant organization, indicated that a transitway would be more likely to win acceptance than a pedestrian mall. At the same time UMTA officials encouraged the City to prepare a grant application using city funds. Meetings with individual merchants and groups continued through the fall and spring of 1973-74. Provision of adequate loading facilities proved to be a problem. A survey showed that about forty businesses on Chestnut Street had to load from the front. (Ref. 5-1) Loading zones on the intersecting streets were proposed as a solution. Given the existing conflicts between parkers and trucks on Chestnut Street, there was understandable concern about enforcement problems in the proposed loading zones. The final proposal, including suggestions from the police department, called for block-long loading zones and distinctive pavement markings (in addition to signs and curb markings). Only commercially licensed vehicles (as opposed to anyone engaged in loading) were to use these zones. Today the consensus is that this arrangement has worked well. It was at this stage also that a taxi lane between 8th and 9th was decided on to satisfy access requirements of the Benjamin Franklin Hotel at 9th and Chestnut.

An architectural firm retained in November 1973 worked with a special committee of the Chestnut Street Association to produce preliminary design concepts and an initial cost estimate. The initial cost estimate was \$7 million. The preliminary design, containing most of the final concepts, was presented to a well-attended general meeting of the Chestnut Street Association in March 1974. Although the overwhelming majority of merchants approved of the design, they made it clear that major construction must be completed before the 1975 Christmas shopping season. Merchants between 17th and 18th Streets expressed a desire for the transitway to extend to 18th Street. Several parking lot operators first expressed strong opposition to the project at this meeting.

Following this meeting a preliminary grant application was filed with UMTA. To obtain quick approval of a final grant application and complete the project by November 1975, it was necessary to seek a negative environmental declaration and to have a strong showing of public support at the public hearing. A survey was used to further cement support among the merchants. Using the opportunity to further explain the project and answer objections, favorable responses were obtained from 78 percent of 206 respondents (12 percent were opposed, 10 percent had no opinion). The parking lot owners could not be convinced that the project would not ruin their businesses, even though they were promised a special lane for general traffic to allow access to the three facilities fronting on Chestnut Street between 6th and 8th Streets (later changed to between 7th and 8th Streets). At the public hearing, held in May 1974, the parking lot owners, represented by legal counsel, expressed the only major opposition to the project; they threatened to sue to stop it.

By this time the limits of the project had been changed to 9th and 19th Streets. This decision was based on a determination that loading problems at the lower end of Chestnut Street were too severe, since there are many warehouses, furniture and appliance stores in the area; that congestion west of 6th Street did not seriously impede bus operations; and that new development on the river front made it important for this end of Chestnut Street to be open to general traffic. A fairly extensive environmental analysis concluded that there would be no significant adverse impact on air and noise pollution. At the insistence of EPA and UMTA, a section of the analysis was prepared, showing methods that would be used to minimize construction impacts. With a negative declaration issued by EPA, the final grant application was sent to UMTA in May 1974, with a final cost estimate of \$7.4 million. Approval was received in less than two months.

A contractor was selected and given notice to proceed on

preliminary work in August. By September the limits of the mall were settled at 6th and 18th Streets. On the contractor's recommendation, in order to keep the construction period as short as possible, it was decided to avoid extensive utility relocation. It was not until November 1974 that a decision was reached to widen the sidewalks between 9th and 18th Streets in order to have more space for pedestrian movement and street furniture. Some people favored keeping the old road width in order to make the project reversible if it did not work out.

In October, the parking operators filed suit in U.S. District Court requesting an injunction to stop the project. They claimed the project constituted highway construction by UMTA, that their property rights were being violated and that procedural irregularities had occurred. Hearings were delayed until after the traffic ban took effect at the end of May 1975. In April and May, bids for street furniture and general contracting were opened. The street closing, in two phases, went smoothly as a result of extensive preparation, signing and publicity. A few weeks later, the parking operators withdrew their suit because the expected traffic problems had not occurred. Although the winning contractors were given notice to proceed in early June, most construction was delayed a few weeks by a strike. Major construction was completed on schedule by November 24, 1975. Bus service and access to stores on Chestnut Street were maintained at all times during construction, due to careful phasing and the modest program of utility relocation. In order to secure UMTA funds for construction on the lower three blocks (6th to 9th Streets), general traffic, to serve a parking lot, was ultimately banned between 6th and 7th Streets. The one parking lot involved had access through a rear alley, and the new policy prevented the use of Chestnut Street between 6th and 8th Streets for eastbound through-traffic.

5.7 RESULTS

No official study of the effects of the Chestnut Street Transitway has been done, but the general opinion of those contacted is that the project has worked out well, with fewer bad side effects (such as reduced parking lot access) than feared. According to the SEPTA official in charge of coordinating with the City, the main advantage of the transitway is in reliability rather than time savings. He does not regard this as a failing, since people who are especially concerned with speed can use the subway line that parallels Chestnut Street. The same official pointed out that gauging changes is difficult since the project opened just before the Christmas shopping season, and there was increased service to handle the expected Bicentennial influx, whereas normal practice would have been to reduce service during the summer. According to the City's staff, ridership on Chestnut appears to have increased, mostly for short-haul trips on or near the transitway, and the resulting increased loading times have prevented any noticeable time savings.

The City has been making pedestrian counts since the opening of the transitway. These showed steadily increasing pedestrian volumes up to the time of the bad publicity over "Legionnaire's Disease" in September 1976, after which volumes dropped. Even without the tourists, lunchtime crowds were still considerable as is evident from Figure 5-5. No "before" pedestrian counts are available.

There is some disagreement over the effect of the transitway on the merchants. The Philadelphia Inquirer conducted an informal poll of 33 shopkeepers, of whom 21 said there had been no change in business, 7 said business was up, and 4 said it was down (including one who closed his store). The president of the Chestnut Street Association, Jack Pearson, of Pearson's Sporting Goods, is as enthusiastic about the project as he was when it was being planned, describing the situation on Saturdays as

"wall-to-wall people." Pearson pointed out that, although some Chestnut Street merchants complain that the transitway has driven customers to nearby Locust and Walnut Streets, merchants there have the opposite complaint. Further, according to Pearson, as vacancies occur on Chestnut Street, they are being taken over by national chains, which he regards as a good sign.

The police were originally apprehensive about enforcement problems on the transitway. However, they now feel that most aspects have worked out well. The old "No Parking" restriction was virtually unenforceable after the morning rush hour; by contrast, the new system of total prohibition and side-street loading zones appears to work well. For the first year and a half of operation, bicycles were not allowed on the transitway, and the police found their continued presence there a headache, especially since a legal quirk kept them from issuing tickets to cyclists. In the spring of 1977, bicycles were officially permitted on the transit mall, pending UMTA approval. UMTA rejected this change, and bicycles will again be banned.

PORTLAND
Section 6

PORTLAND DATA

<u>GENERAL</u>	<u>CITY</u>	<u>SMSA</u>
1970 population:	381,000	1,000,000
1970 employment:	156,000	400,000
Area:	89.1 sq. mi.	3,650 sq. mi.
Population density:	4276 per sq. mi.	276 per sq. mi.
Employment density:	1751 per sq. mi.	110 per sq. mi.
Service area mode split to downtown:	21 percent	

PROJECT

Name: Portland Mall
Status: Under construction, completion in early 1978
Cost: \$15.0 million, plus \$1-1.5 million additional utility costs
Funding: 80 percent UMTA capital grant, 20 percent Tri-Met,
plus utility costs by city departments/utility companies
Financing of local share: Capital budget of transit authority
(Tri-Met)
Primary backers: Downtown business leaders, planners
Type of transit: Standard transit buses
Pedestrian volume: 686 on Sixth Avenue, 444 on Fifth Avenue
(average hourly volume mid-morning and mid-afternoon, per side, per block)
Traffic volume: Less than 14,000 daily
Bus volume at peak hour: 32 on Sixth Avenue, 85 on Fifth Avenue
before mall; 207 Sixth Avenue, 211 on
Fifth Avenue projected after mall
Dimensions: 11 blocks (2800 ft.) long on two parallel streets,
each with 80-foot right-of-way
Dimensions of transitway: Two lanes (24 ft.) on each street,
plus one auto lane (12 ft.) on three
out of every four blocks
Cost per ft.: \$2730
Cost per sq. ft.: \$34

6. PORTLAND

6.1 INTRODUCTION

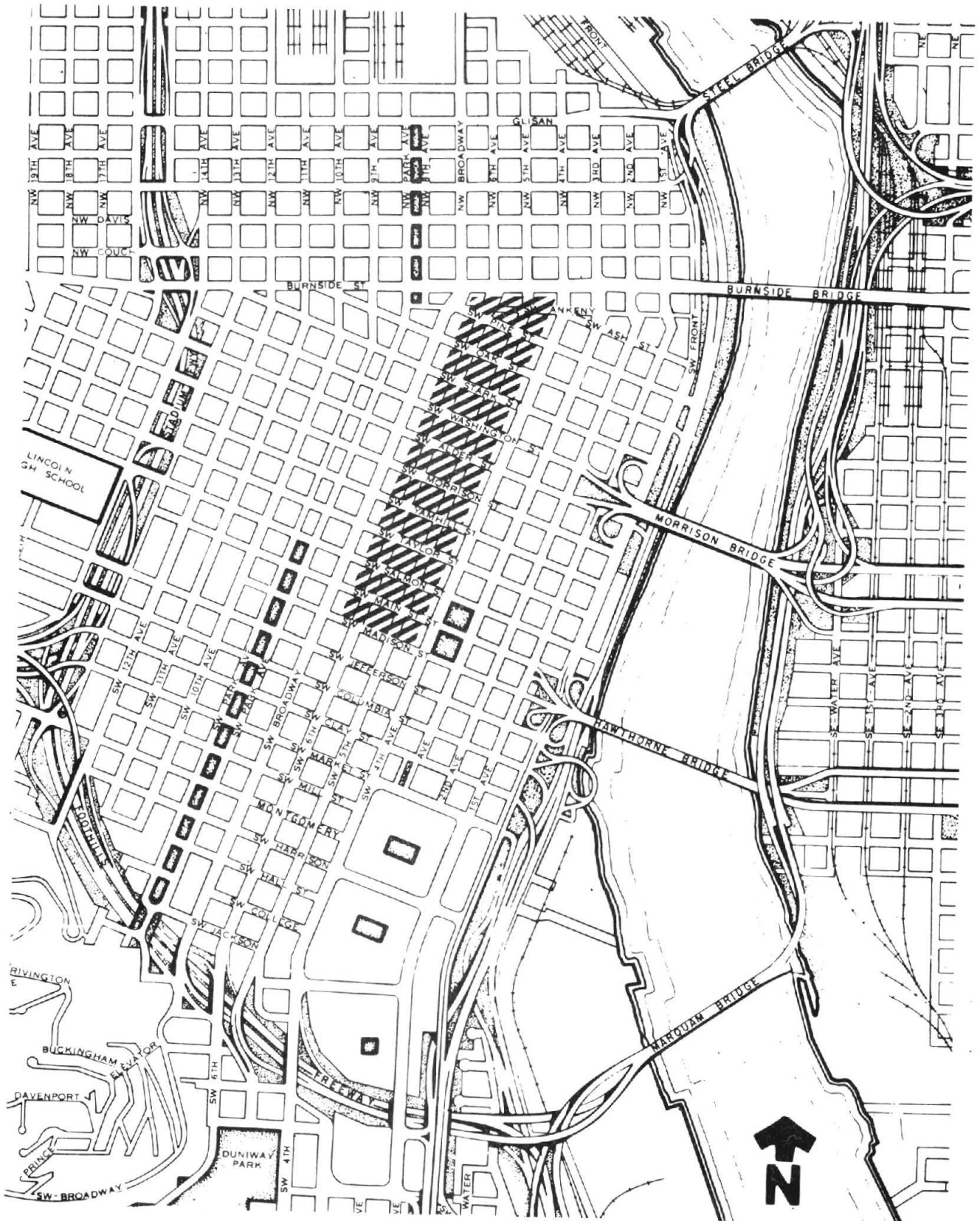
Two parallel streets, Fifth and Sixth Avenues, are under construction to become the Portland Mall. The mall will extend for 11-12 blocks (2800 ft.) along each of the two streets, which are one block (200 ft.) apart. These streets pass through the center of office concentration in the Portland CBD, and intersect the main retail streets near the middle of the mall. On each street the completed mall will have widened brick sidewalks, bus shelters with special information systems, seating, new trees, and other new amenities. The roadways will have two one-way bus-only lanes and, in most blocks, a single left-hand lane for general traffic. Major construction began in April 1976 and will continue, in phases, through early 1978. By the spring of 1977, major construction was complete on Fifth Avenue. On Sixth Avenue, utilities work was nearly finished and construction had passed the half-way mark. Eligible costs, construction and some utility work, will total about \$15 million, paid 80 percent by an UMTA capital grant and 20 percent by the Tri-County Transportation District (Tri-Met). Additional utility costs, estimated at \$1 to \$1.5 million, will be paid by city departments and utility companies.

6.2 SITE DESCRIPTION

Portland is in extreme northwestern Oregon, on the Willamette River, just south of its confluence with the Columbia River, which forms the boundary with Washington state (see Figure 6-1). The city of Portland had a population of 383,000 in 1970 and is part of a four-county SMSA with a 1970 population of 1.0 million. Downtown Portland is laid out in a grid pattern with blocks only about 200 feet long (see Figure 6-2). Five bridges



FIGURE 6-1. MAP OF PORTLAND AND VICINITY

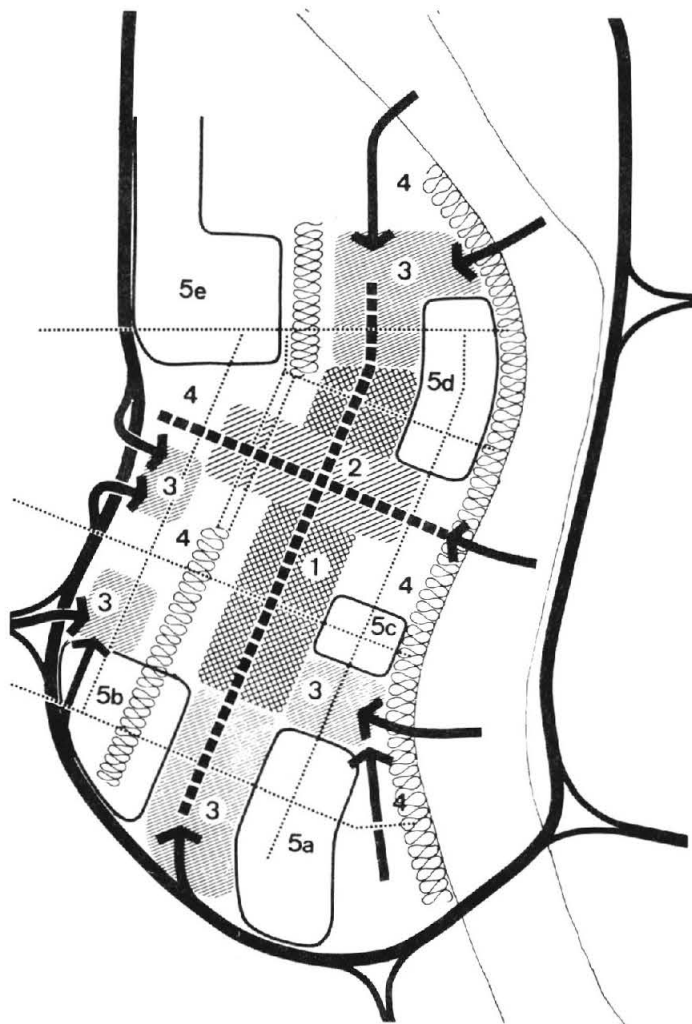




Scale 1" = approx. 1,000'

FIGURE 6-2. PROJECT LOCATION IN DOWNTOWN PORTLAND

across the Willamette River lead directly into downtown, connecting it with the eastern and northern parts of the city. The major downtown retail district is concentrated on Washington, Alder and Morrison Streets, between Third and Tenth Avenues. Thus, the middle portion of the mall passes through the center of this area. Buildings fronting on the mall include three major department stores. North and south of this area, the mall streets run through the high-density office area; to the south, especially, is recent high-rise office and commercial development. Figure 6-3, from "Planning Guidelines/Portland Downtown Plan," gives an approximate schematic rendering of the surrounding land uses.

For its size, Portland has a very compact, high-density CBD. A report by the Portland Bureau of Planning claims: "In contrast to current trends in many major cities, the Portland core is an economically viable, and growing office-retail business district." Local planning efforts have a strong emphasis toward preserving and encouraging downtown and high-density land uses in general. Although downtown's share of SMSA office employment is falling, 80 percent of SMSA total office employment is still in the city of Portland, and most of that is downtown. This represents a continuing growth in employment (about 5 percent annually since 1962), which has not quite kept pace with suburban growth. Between 1962 and 1973, over 3 million square feet of new office space were built in Portland. (Ref. 6-2) On the other hand, retail sales have not fared well in downtown Portland. Figure 6-4 shows the continuous decline in CBD sales between 1948 and 1967. The most recent figures show a slight upturn. Following a national trend, downtown Portland is losing population, having declined from 32,000 in 1940 to 14,000 in 1972 (Ref. 6-2); the city of Portland, however, has grown slightly.

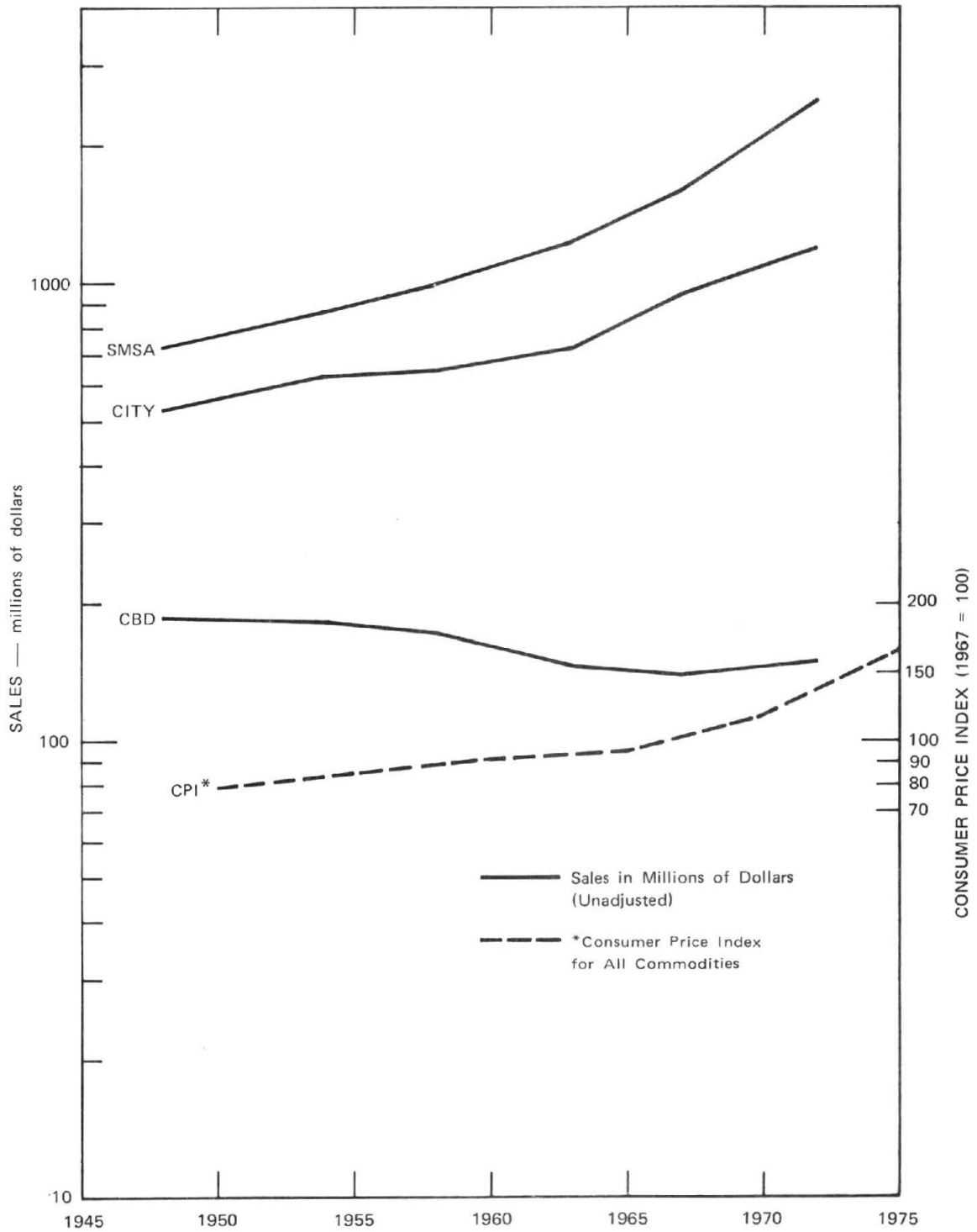


- 1. HIGH DENSITY OFFICES RELATED TO NORTH-SOUTH TRANSIT
 - 2. STRONG, COMPACT RETAIL CORE RELATED TO N-S AND E-W TRANSIT
 - 3. MEDIUM-DENSITY OFFICE RELATED TO MAJOR ACCESS & PERIPHERAL PARKING
 - 4. LOW-DENSITY MIXED USES INCLUDING HOUSING, OFFICES & COMMUNITY FACILITIES
 - 5. SPECIAL DISTRICTS
 - a. PORTLAND CENTER
 - b. PORTLAND STATE UNIVERSITY
 - c. GOVERNMENT CENTER
 - d. SKIDMORE FOUNTAIN/OLD TOWN
 - e. INDUSTRIAL
-  MAJOR OPEN SPACE
- 

CONCEPT PLAN

Planning Guideline, Portland Downtown Plan
Portland City Planning Commission

FIGURE 6-3. PORTLAND DOWNTOWN LAND USE



SOURCE: U.S. Department of Commerce, Census of Retail Trade

FIGURE 6-4. PORTLAND RETAIL SALES

6.3 TRAFFIC AND TRANSIT - GENERAL

The major transit operator in the Portland area is the Tri-County Metropolitan Transportation District (Tri-Met), which took over from two private operators in 1969 and 1970. Since then both service and patronage have increased dramatically. Tri-Met inherited 289 buses, most of which were old. They now operate just over 500 diesel buses, including 100 that are brand-new. By 1970, the percentage of downtown workers commuting by transit had declined to 15 percent from 38 percent in 1950. Total annual ridership fell from 60 million in 1950 to 15 million in 1969. Since then new routes have been added, including an express commute service; headways have been reduced; park-ride lots and bus shelters have been installed; a flat fare for the entire service area has been introduced (recently increased to 40 cents from 35 cents), as well as a monthly pass program and a downtown free-fare area. Annual ridership increased to 29 million in fiscal 1975, up 95 percent from 1969; 21 percent of person-trips to downtown were by bus. Tri-Met's goal is to increase this to 36 percent by 1979. (Refs. 6-11, 6-12)

Downtown Portland is well served by highways, including a complete close-in freeway loop and four radial freeways into downtown. People in Portland speak, however, of having a relatively incomplete freeway system. At one time, plans called for completion of a very elaborate system of circumferential and connector freeways. Recently, increasing environmental and community awareness has led to more emphasis on transit. Thus it was decided not to build the controversial Mt. Hood freeway, an additional radial connector to the east, and to instead use the federal money for it (about \$203 million, which can increase with inflation) for transit under the "interstate transfer" provision of the 1973 Highway Act. Five major highway projects are still planned, several of which will include reserve bus lanes for express transit service.

In the first half of 1973, 147,000 vehicles entered downtown on an average day; this number may have decreased slightly since then. (Ref. 6-5) Due to the very short block lengths in downtown, there are many streets in a small area to carry this traffic. Most streets are one-way with parking lanes on both sides, north-south streets having three 11-foot 4-inch lanes and east-west streets two 11-foot lanes of moving traffic. Traffic signals are computer-controlled and operate on a quarter-cycle offset to provide progression. Worst-case peak-hour traffic in 1974 was generally under 1000 vehicles per street for all downtown streets, with daily totals under 14,000 vehicles on any one street. Heaviest volumes were on Front Avenue, a major two-way street along the waterfront, which carried up to 1,550 vehicles northbound in the peak hour and 1,250 southbound. (Ref. 6-10) Thus, Portland should not have suffered from severe congestion downtown. Some congestion may have been induced by excessive amounts of turning movements and circulating traffic due to the closely-spaced street pattern.

In February 1975 Portland adopted a "Parking and Circulation Policy" which classified streets as being for traffic access, local service, or as non-automobile oriented. (Ref. 6-6) The non-automobile oriented streets, which comprise perhaps a fourth of the downtown street network, "are those streets that may become public transit, pedestrian or bicycle routes in the future." The policy also put a lid on total parking in downtown of 39,683 spaces, equal to the amount existing or approved for development in May 1973. The Parking and Circulation Policy also established maximum allowances for provision of private-use parking in new downtown developments (e.g., one space per 1000 sq. ft. of gross floor area in retail and office developments). The policy calls for a program of gradual removal of curb parking to meet clean air requirements, improve traffic flow, and create pedestrian areas; for replacement of curb parking with off-street

parking; and for conversion of long-term parking to short-term, in order to favor shoppers and encourage commuters to use transit. The Bureau of Traffic Engineering is now implementing the program of reducing curb parking and converting long-term to short-term parking.

6.4 PROJECT STREETS BEFORE MALL

Fifth and Sixth Avenues, like most north-south streets in downtown Portland, have 80-foot rights-of-way. Before mall construction, this was apportioned into two 15-foot sidewalks, two 8-foot parking/loading lanes, and three 11-foot 4-inch lanes for moving traffic. Figure 6-5 is a picture of Sixth Avenue just before major construction began. Sixth Avenue ran north, providing a direct route into downtown from the Foothills Freeway off-ramp and from local streets to the south. Fifth Avenue, running south, connects to a freeway on-ramp. Both avenues connect to Burnside Street and the Burnside Bridge. Both streets carried substantial traffic volumes, since both are good routes to and from the core, and pass through the greatest concentrations of office and retail uses. Neither, however, carried quite as much as the nearest parallel streets in the same direction (worst-case peak-hour: Fifth Avenue, 760 vs. Broadway, 890 and Third Avenue, 1000; Sixth Avenue, 970 vs. Fourth Avenue, 1090). (Ref. 6-12) Volumes on Fifth and Sixth Avenues were considered to be near or over capacity. Some congestion is said to come from circulating traffic in the retail area, either looking for parking or waiting to pick up passengers.

Before mall construction began, Fifth and Sixth Avenues were already important transit streets by usual standards. In the mall area, Sixth Avenue carried 32 buses in the heaviest hour and Fifth Avenue 85 buses; by 1977 this was projected to increase to 53 buses for Sixth Avenue and 144 for Fifth Avenue. (Ref. 6-12).

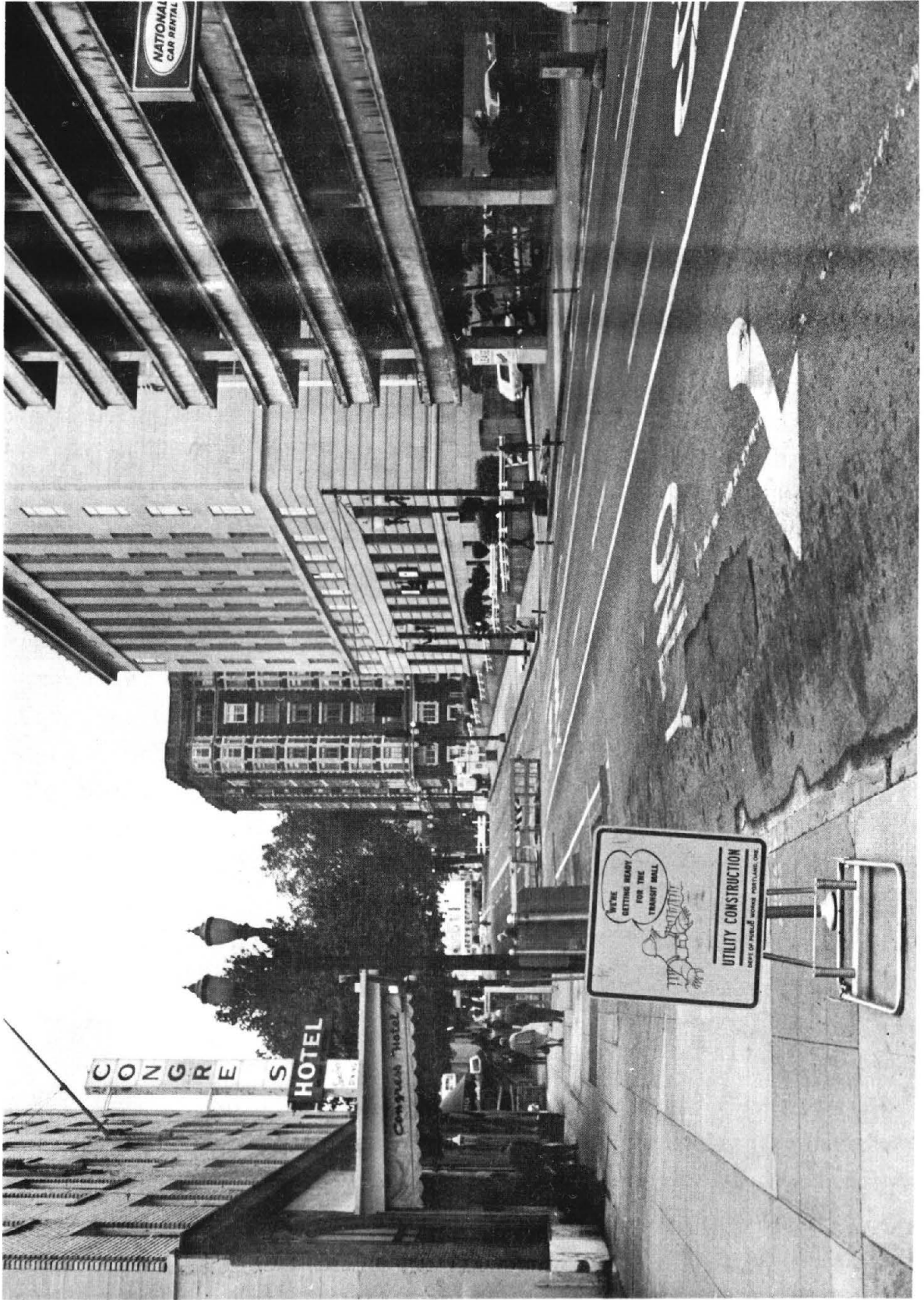


FIGURE 6-5. SIXTH AVENUE: "WE'RE GETTING READY FOR THE TRANSIT MALL"



FIGURE 6-6 FIFTH AVENUE: "THE PORTLAND MALL"



FIGURE 6-7 FIFTH AVENUE: "THE PORTLAND MALL"

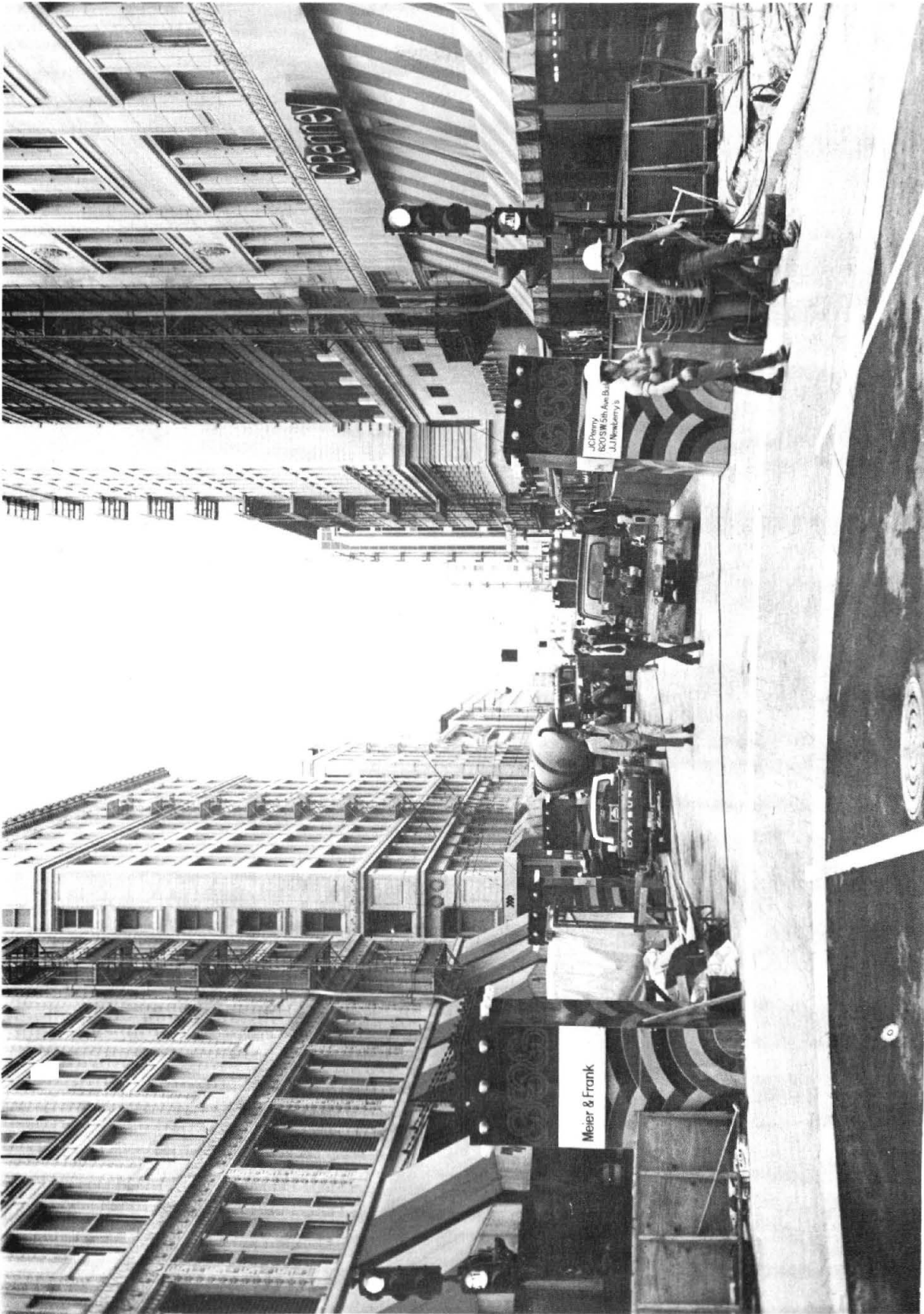


FIGURE 6-8. CONSTRUCTION ON FIFTH AVENUE

Broadway and Fourth Avenue carried similar existing and projected bus volumes. Bus volumes decreased to the south and north of the mall limits. Buses stopped at every other block, and waiting areas were often crowded.

According to counts taken by the Portland Association of Building Owners and Managers in May 1975, Fifth and Sixth Avenues near the retail districts are very important pedestrian streets. Counts taken at mid-morning and mid-afternoon show average hourly volumes near the retail area of 686 and 444 (each side, per block) for Sixth and Fifth Avenues, respectively. The highest count is on Sixth Avenue in front of the Meier & Frank department store, showing 1,925 people in an hour. (Ref. 6-3)

Most businesses front on Fifth and Sixth Avenues, rather than on the east-west streets. There is no alley network, so most rely on curbside loading and delivery.

6.5 PROJECT STREETS AFTER MALL

Fifth and Sixth Avenues, between Burnside Street and Madison Street, are being converted into a high-capacity bus and pedestrian facility. Non-bus traffic has been banned from the project streets and work is proceeding according to an elaborate phasing plan. Combinations of the two streets, depending on the stage of construction, are being used as a two-way transit mall. An interim version of a comprehensive re-routing, concentrating downtown bus service onto the mall, has already been put into effect. As of late spring 1977, major construction on Fifth Avenue was complete (see Figures 6-6, 6-7 and 6-8); on Sixth Avenue utilities work was nearly complete (see Figure 6-5), construction south of Yamhill Street was nearly finished and construction was underway on the remainder of Sixth Avenue.

The completed project is expected to cost \$15.0 million for construction and eligible utility costs, of which 80 percent will come from an UMTA capital grant, and 20 percent from Tri-Met. (Ref. 6-12) Tri-Met's major revenue sources are fares (38 percent) and an employer payroll tax (58 percent). (Ref. 6-11) Earlier UMTA grants were received for preliminary design and engineering, totaling \$1,150,000 (2/3 UMTA, 1/3 Tri-Met).

Maintenance of the mall, except for bus elements, will be handled by the City, which has adopted a special mall maintenance program including cleaning, and flower and tree planting. The Chamber of Commerce and Bureau of Retail Trade are reportedly considering the establishment of a bureau to administer special mall programs.

The reconstructed streets will have widened brick sidewalks and, in most blocks, three 12-foot lanes of roadway. The two right-hand lanes will be reserved for buses. The left-hand lane, where it exists, will be open to general traffic, which can also cross the mall on all east-west cross streets. The left-hand lane is designed to meet the access requirements of three parking garages, the Hilton Hotel, and the Multnomah County Courthouse. About every fourth block, there will only be the two bus lanes; there, the left-hand sidewalk will extend an additional twelve feet to create a discontinuity in the general traffic lane in order to discourage its use for purposes other than pick-up and drop-off. Non-bus traffic will not be permitted to cross the bus lanes to enter or leave the mall. Both buses and general traffic will run north on Sixth and south on Fifth. The overall scheme of circulation is shown in Figure 6-9. Right-hand sidewalks will be 26 feet wide to accommodate bus-loading requirements; left-hand sidewalks will be 18 feet wide, except where the general traffic lane is interrupted, where they will be 30 feet wide.

Other features of the mall will be bus passenger shelters, trees, drinking fountains, lighting, and specially designed

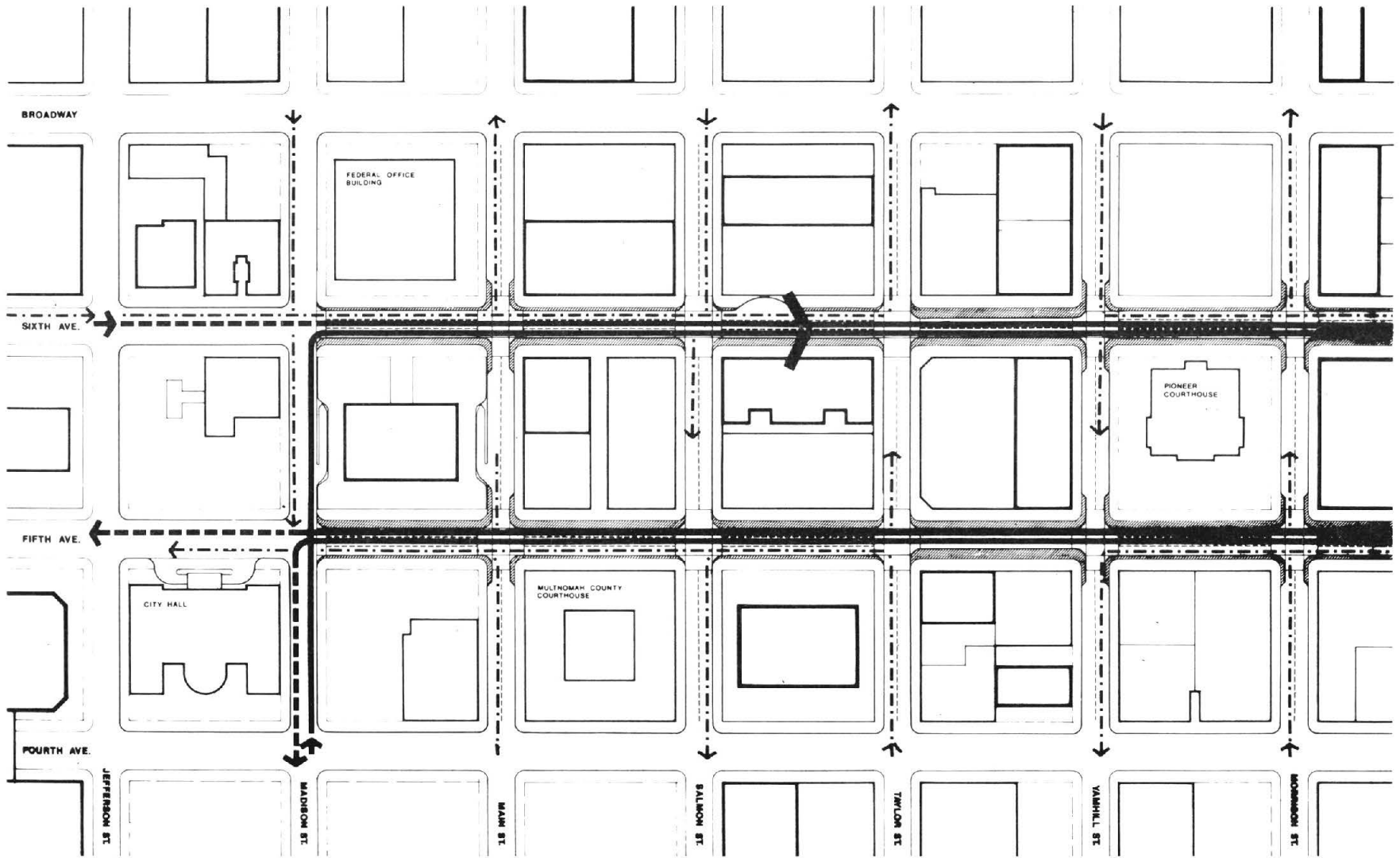


FIGURE 6-9. PROPOSED VEHICULAR CIRCULATION

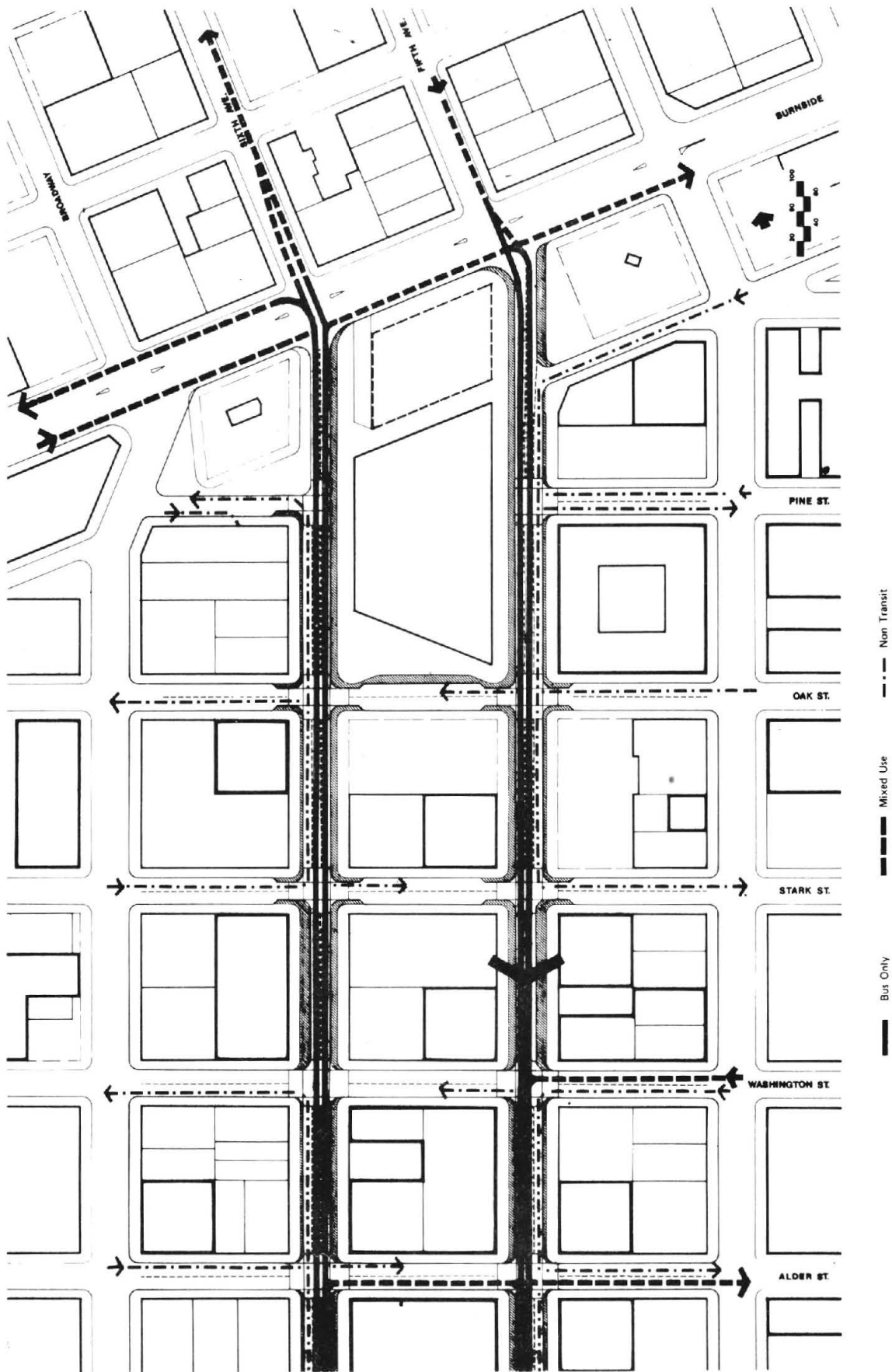


FIGURE 6-9. (cont.) PROPOSED VEHICULAR CIRCULATION

benches, information kiosks, new vending machines, concession booths, planters, granite bollards and trash containers. Traffic signals will be of a special design to be harmonious with other mall features. Figure 6-10 shows an architect's model of the completed mall on Sixth Avenue at Yamhill Street.

Numerous operational changes are planned to make use of the mall. Initial peak-hour bus volumes are estimated at 207 on Sixth Avenue (PM peak) and 211 on Fifth Avenue (AM peak). Midday volumes will be 73 buses per hour on Fifth Avenue and 89 on Sixth Avenue. The capacity of the mall in its initial configuration is considered to be 260 buses per hour on each street. These heavy volumes result from service increases and the comprehensive rerouting of buses in the downtown area. Virtually all north-south routes in the mall area will be moved onto the mall, leaving no buses on Second, Third, Fourth or Tenth Avenues or on Broadway. Most east-west bus traffic will be concentrated on Washington, Stark, Salmon and Taylor Streets, all of which are south of the mall. The mall will thus act as a funnel through which all buses in the core area must pass.

As of late 1975, plans called for 45 out of Tri-Met's total of 70 lines to use the mall; of these, all but four will run the full length of the mall. Work is continuing, however, on redesigning the Tri-Met route system. In particular, numerous "loop routes," which enter downtown, loop around and leave in the direction from which they came, are being consolidated into through routes, which serve areas on two sides of downtown, passing through downtown in the middle. This reduces total bus mileage and volumes on downtown streets and increases operating efficiency. Exact bus volumes on the mall will depend on how much route consolidation is done. By converting loop routes into through routes, Tri-Met will be able to expand service further without exceeding the capacity of the mall. Initial volumes cited above are based on twelve loop routes being

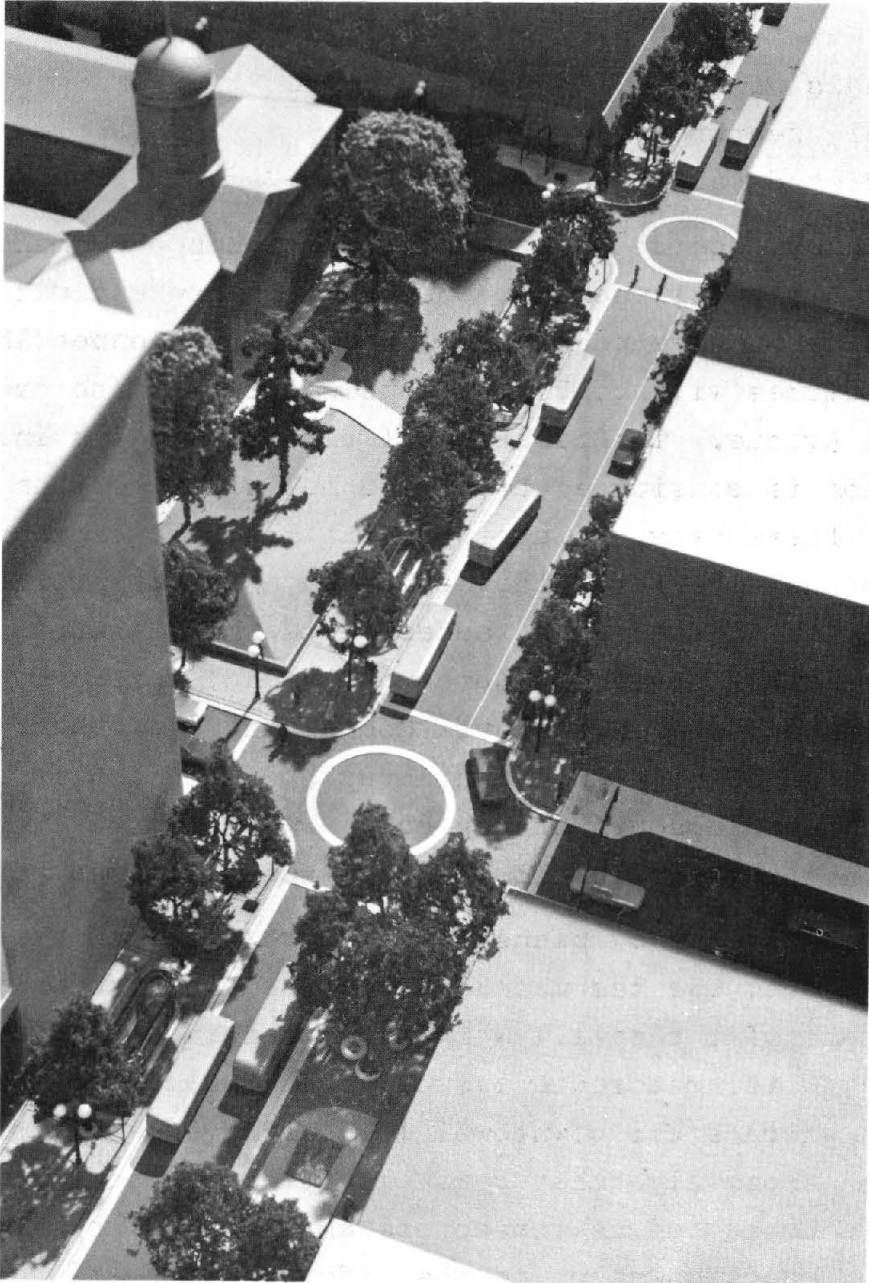


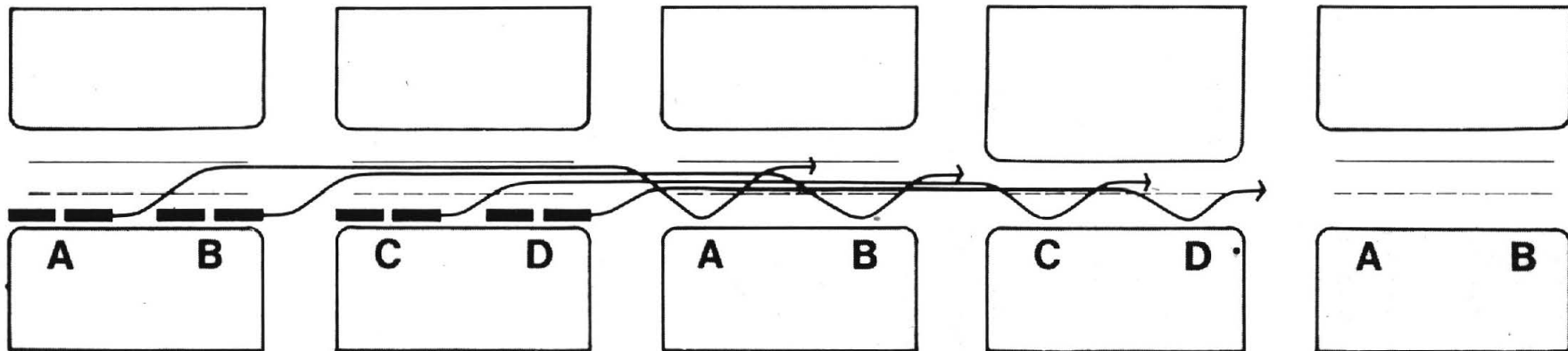
FIGURE 6-10. MODEL OF PORTLAND MALL

consolidated into six new through routes. Were this not done the mall would be operating at capacity from the start.

To maximize mall capacity and make the bus system easily comprehensible, a system of bus landings has been worked out that will permit formal platooning of buses. Each block will have two landing areas, each of which has space for two buses. The four landing areas in each two-block segment will be considered a group, and each bus will be assigned to one landing out of the four, stopping at that landing in every second block. The landing areas on Fifth Avenue are called A through D; those on Sixth Avenue are called E through H. The Tri-Met area has been divided into seven sectors; all the buses bound for a given sector will be designated by a letter and stop at the landings called by that letter. Passengers will board buses headed south and west on Fifth Avenue (landings A through D) and buses headed north and east on Sixth Avenue (landings F through H). E landings will be used only for unloading loop routes coming from (and heading to) the south, which then loop around and load at the appropriate area on Fifth Avenue.

Figure 6-11 shows schematically how buses will use the landing areas. It is planned to have a two-block staging area at each entry to the mall. Buses will form into groups of six or eight, with no more than two for any given letter group; then they can proceed along the mall in single file, passing only if a bus is abnormally delayed. To further increase capacity, no fares are collected in the downtown area. Trips within downtown are free; on trips to or from downtown, fares are collected as passengers board going inbound and as they alight going outbound (to travel through downtown one needs a transfer, which is free).

Traffic signals on the mall will be timed to allow smooth bus operations. A definite timing has not been established but will be adjusted according to operational experience.



Bus routes are divided into 4 groups (A, B, C, D).

Each bus stops and loads at every second block at its designed group stop (A or B or C or D).

Each block has two stops (A & B or C & D).

Each stop has two loading positions.

FIGURE 6-11. BUS STOPS: LOADING SEQUENCE

An elaborate information system is planned for transit users. Some bus shelters will have electronic displays showing scheduled departure times for buses leaving from that loading area. Users will be able to request additional information through a keyboard and a direct phone line to the Tri-Met information center. The displays will be able to give notice of exceptional delays. Data for the displays will come from a central computer with access to schedules developed by the RUCUS computerized scheduling package, which Tri-Met has already implemented.

There will be changes to some streets in addition to Fifth and Sixth Avenues. Most east-west streets will have neck-downs where they cross the mall; the parking lanes on those streets will stop short of intersections with the mall streets. Thus, pedestrians on the mall will have only 24 feet of roadway to cross instead of 36 feet. Cross streets designated as "traffic access" or arterial streets (Stark, Oak, Taylor and Salmon) will not have neck-downs, and may be upgraded to increase their capacity. To improve bus access to and from the mall, Madison Street, which is now one-way eastbound, will have a westbound exclusive bus lane between the Hawthorne Bridge and Sixth Avenue. Also, the two middle lanes of the Hawthorne Bridge will become exclusive bus lanes.

Pick-up and delivery of goods and parcels will not be permitted on the mall, except by special permit at night and on weekends. New curbside loading zones will be established on all east-west streets in the mall area, resulting in a net increase of 525 feet in the length of available loading zones (Ref. 6-12). Access to several buildings along the mall will be disrupted. Trucks will no longer be able to get into the Greyhound package express facility at Sixth Avenue and Taylor Street. Greyhound and Trailways both have terminals between Fifth and Sixth Avenues in the mall area. Their buses will be able to use the bus lanes on the mall; however, both companies possibly will

move into a joint terminal near the north end of town, about a half-mile from the northern end of the mall, near the Amtrak station, which may be converted into a regional transportation center as called for by the Portland Downtown Plan. Although all public garages on the mall will be accessible, a garage in the basement of an office building with access only on the east side of Sixth Avenue will have to relocate its driveway or else close. The Congress Hotel, at Main Street and Sixth Avenue, has access only on the east side of Sixth Avenue, where buses load. Studies were underway to consider relocating the hotel's entrance; however, the owners have since announced the sale of the property and a 20-story office building with retail and commercial space is now planned for the entire block.

6.6 PROJECT HISTORY

Plans for a mall in downtown Portland evolved from plans to improve transit service. In 1952 the staff of the Portland City Planning Commission recommended the creation of two downtown bus loops in the area of the current mall, one in each direction, along with off-street parking and loading platforms on the north-south streets. This plan was never acted on.

In the late 1960s, concern about environmental quality and the deterioration of downtown led to a variety of planning activities and political events emphasizing transit, pedestrians, and downtown redevelopment. In 1969 the Oregon state legislature created Tri-Met with authority to use tax revenues to acquire and operate public transit service in the Portland area. A consulting firm was retained by the Columbia Regional Association of Governments (CRAG) to work on an "Immediate Bus Improvement Plan," which was published in 1971. In 1970, downtown business people and property owners formed a Downtown Committee with the aim of stimulating planning to reverse the deterioration of downtown. By late 1970 a Downtown Plan Team was

formed, sponsored by the City and with both public and private financing. Their report, "Planning Guidelines/Portland Downtown Plan," (adopted by the City Council in December 1972), and others all recommended a transit mall on Fifth and Sixth Avenues. The idea was first published in the consultants' report in 1971, which suggested the mall along with a consolidation of bus routes. The Planning Guidelines also called for an east-west transit mall on Alder and Morrison Streets, and suggested the street classification system described earlier.

A key figure in promoting the transit mall concept was William Roberts, a downtown property owner and then president of Tri-Met, who had business connections in Minneapolis, the site of Nicollet Mall, the only example of a downtown transit mall at that time. Roberts was also aware that there might be federal interest in a transit mall that was designed in close cooperation with a transit operator as a relatively low capital but important transit improvement.

The earliest transit mall proposal involved no construction but merely elimination of parking on the left side to leave room on the existing roadway for two exclusive bus lanes and two lanes for general traffic. This concept had problems, including inadequate waiting space on sidewalks and anticipated conflicts between buses and autos. Discussion involving the Downtown Plan Staff, the Bureau of Traffic Engineering, and consultants led to the conclusion that the project should extend to widened, landscaped sidewalks, and provision for eventual removal of general traffic. The initial configuration, however, would have had two general traffic lanes, and 10-foot bus lanes.

The mall concept gained rapid acceptance. It was approved by the City Planning Commission in December 1971 and by the City Council in January 1972. Tri-Met submitted a grant application to UMTA for a \$250,000 preliminary design study. Work began in

February 1973 and culminated in publication of a report in August 1974. Consultants were hired. The four-lane alternative was discarded on the grounds that the bus lanes were too narrow. Work concentrated on a two-lane alternative (buses only), and several three-lane alternatives. In June 1973, the City Council approved an alternative that looked much like the one being built, except for a continuous left-hand general traffic lane and a mixed-use center lane. As bus volumes increased, it was planned to give over the center lane, and then all three lanes, to exclusive transit use. The initial configuration was a response to downtown business interests that opposed the immediate elimination of automobile access on the mall, or the construction of wider sidewalks in some blocks, since that would make the retrieval of the third lane for auto use difficult.

At the City Council's request, Tri-Met made a preliminary grant application to UMTA in September 1973. UMTA refused to fund the project fully with the design just mentioned. UMTA's concern was over the mixed-use center lane and the degree to which private vehicles would have access to the mall. In January 1974, a revised application was submitted, containing the final design, as it is now being built, which was also approved by the City Council at that time. A public hearing was held in March, without significant opposition. The final grant application was submitted in April 1974. According to the August 1974 Preliminary Design Study report, project cost was estimated at \$12.9 million for construction (\$2.4 million less than the 1976 estimate) and \$890,000 for engineering. The Preliminary Design Study discussed the purpose of the mall, which is primarily to improve transit service. This is also a major objective of planning in the Portland area. The objectives of improved transit service, concentration of development in the downtown core near the mall, and reduction of air pollution are all seen as mutually supporting and served by the mall. The

mall's purpose is further discussed in the Environmental Impact Statement (EIS) (Draft, June 1975; Final, December 1975), which mentions that the mall is intended to:

1. Minimize conflicts between auto, bus and pedestrian traffic while providing efficient transportation for shoppers and commuters into the CBD;
2. Make bus travel as efficient and convenient as possible because mass transportation promotes better land uses, and is less energy-consumptive and less polluting than automobile travel;
3. Encourage bus travel while discouraging travel by automobile;
4. Make bus travel faster;
5. Make transfers easier;
6. Make the route system more comprehensible;
7. Provide an environment inviting to residents and visitors, thereby benefiting downtown businesses and making the downtown more competitive with suburban locations.

The EIS also notes that the mall was not in accordance with the existent regional transportation plan adopted in July 1969, which did not reflect the recent renewed interest in mass transportation. An "Interim Transportation Plan," adopted by CRAG in June 1975, reflected this change in thinking.

There appears to have been very little outright opposition to the mall, although there was much disagreement on details, especially the extent of auto access to be allowed. The Bureau of Traffic Engineering was involved from the start. In 1972, the City Traffic Engineer gave the City Council his formal recommendation of the mall concept, on the grounds that it promised to increase the capacity of downtown streets to carry people, and that planned increases in bus volumes would interfere too much with traffic unless the modes were separated. Work on the preliminary design was used as an occasion to talk with all interested parties and ensure that the proposal met no unnecessary opposition. The process was guided by a Transit Mall Review

Board, whose original members were William Roberts and the Commissioner of Public Works, Lloyd Anderson. They were replaced in 1974 by the new president of Tri-Met, Gerard Drummond, and Portland mayor, Niel Goldschmidt.

Approval of the engineering portion of the grant application was received quickly. In June 1975, the draft EIS was published. The EIS includes a summary analysis of several alternatives and presents the major expected changes in traffic patterns. The analysis concentrates on predicting air and noise pollution impacts, since many people were (and are) concerned that the bus volumes anticipated would make the mall an unpleasant place for pedestrians. Increase in noise levels and nitrogen oxides in the mall area are predicted. Decreases in levels of carbon monoxide, hydrocarbons, and particulates on the mall streets are projected. On the nearby streets, increase in air pollution due to diverted traffic is expected. The long-range environmental effect of the mall is considered beneficial, as a result of its contribution to the Tri-Met goal of carrying 70 to 80 percent of future new trips into the Portland CBD by 1990.

In April 1974 a final grant application for construction funds was made to UMTA. Estimated cost had risen \$2.4 million over the preliminary estimate. Approval was received February 1976 for 80 percent funding of all costs except for \$1 to \$1.5 million in utilities work. Work began in spring 1976 and is proceeding on schedule year around.

6.7 RESULTS

General traffic has been excluded on Fifth and Sixth Avenues in the mall area since the beginning of construction. Buses have been using those parts of the two streets that are either not yet torn up or already repaved as a temporary two-way

transit mall. Much of the planned route consolidation and relocation has already been put in effect. Peak scheduled two-way bus volumes on the mall are now 173 buses in 40 minutes in the morning (259 per hour) and 172 buses in 40 minutes in the evening (258 per hour). In September 1976 buses were using the north end of Sixth Avenue and the south end of Fifth and crossing over on Morrison and Yamhill. Despite this turning, two-way operation, and heavy volumes, Tri-Met operations personnel are satisfied that things are going smoothly, and claim significant reductions in bus travel times. Before the mall, at peak-hour, buses required over 15 minutes on the average to negotiate a distance now covered in 8 to 10 minutes. Some routes, however, have lost time overall due to having been rerouted.

Parking had been removed from Fourth Avenue and Broadway to handle the expected increase in traffic. However, since no problems appeared, parking has since been reallocated without detrimental effect. Apparently, reductions in turning and circulating traffic and in buses on these streets has compensated for any diverted traffic.

Some thought is being given to extending the mall an additional block southward. There are no plans for a northward extension.

Downtown retailers and the business community in general are said to be pleased with the mall. One of the major department stores recently announced a decision not to move from downtown, citing the mall as a reason. A new department store is under construction at the corner of Broadway and Yamhill Street.

MADISON

Section 7

MADISON DATA

<u>GENERAL</u>	<u>CITY</u>	<u>SMSA</u>
1970 population:	172,000	290,000
1970 employment:	76,000	123,000
Area:	48.5 sq. mi.	1,198 sq. mi.
Population density:	3,546 per sq. mi.	242 per sq. mi.
Employment density:	1,567 per sq. mi.	103 per sq. mi.
Service area mode split to downtown:	14 percent	

PROJECT

Name: State Street Mall - Capitol Concourse

Status: Two-block pedestrian mall completed fall 1975; Capitol Concourse and upper State Street, detailed design completed; middle State Street (transit mall), preliminary design completed

Cost: \$7.8 million, est.

Funding: 85 percent local, 15 percent UMTA capital grant

Financing of local share: 50-75 percent city capital budget
25-50 percent by special assessment district with assessment by sq. ft. of property plus modifications

Primary backers: Planners, politicians

Type of transit: Standard transit buses and shuttle bus

Pre-mall traffic volumes: 10,000 on State Street (two-way, daily), 14,000 on Capitol Square (one-way, daily)

Bus volumes at peak hour: 60 (two-way on State Street, one-way on Capitol Square)

Dimensions: State Street, 8 blocks (3600 ft.) x 66 ft.; Capitol Square, 8 blocks around (3200 ft.) x 82 ft.

Dimensions of transitway: 6 blocks, 22 ft. wide

Cost per ft.: \$1150

Cost per sq. ft.: \$16

7. MADISON

7.1. INTRODUCTION

The State Street Mall and Capitol Concourse project in Madison, Wisconsin will involve the reconstruction of several streets in the retail center of Madison. Two blocks at one end of State Street, near the University of Wisconsin, have already been converted into a pedestrian mall (Phase I). Reconstruction began on two blocks at the other end of State Street, and around the adjoining Capitol Square in the spring of 1977 (continuing through the end of 1978) with widened sidewalks and other amenities, plus preferential treatment for buses (Phase II). The four middle blocks of State Street are to be rebuilt as a transit mall (Phase III); work on final planning for this segment is to start once Phase II is under contract. The completed project is estimated to cost about \$7.8 million, of which 15 percent was to be paid by an UMTA capital grant, according to a 1975 estimate.

7.2. SITE DESCRIPTION

Madison, the capital of Wisconsin, is located in the south-central part of the state. It had a 1970 population of 172,000. The Madison SMSA, which has the same boundaries as Dane County, had a 1970 population of 290,000. Central Madison is on an isthmus, between Lake Monona and Lake Mendota, which is only 0.6 miles wide at its narrowest point, near the capitol (see Figure 7-1), thus giving the city an hourglass shape. The two most prominent employers in Madison are the University of Wisconsin and the state government. State Street links the university campus with the state capitol building, in the center of Capitol Square (see Figure 7-2).

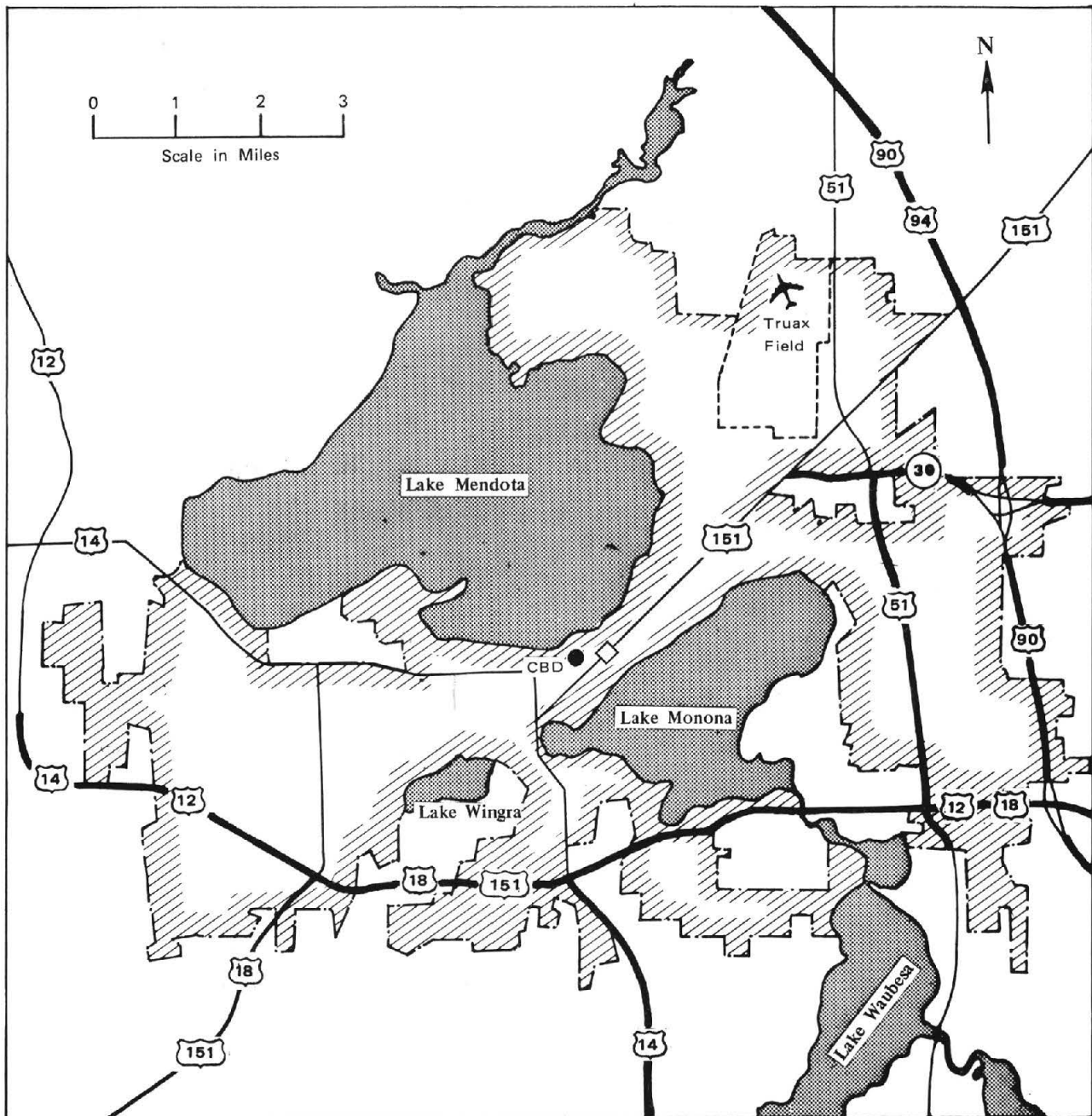


FIGURE 7-1. MAP OF MADISON AND VICINITY

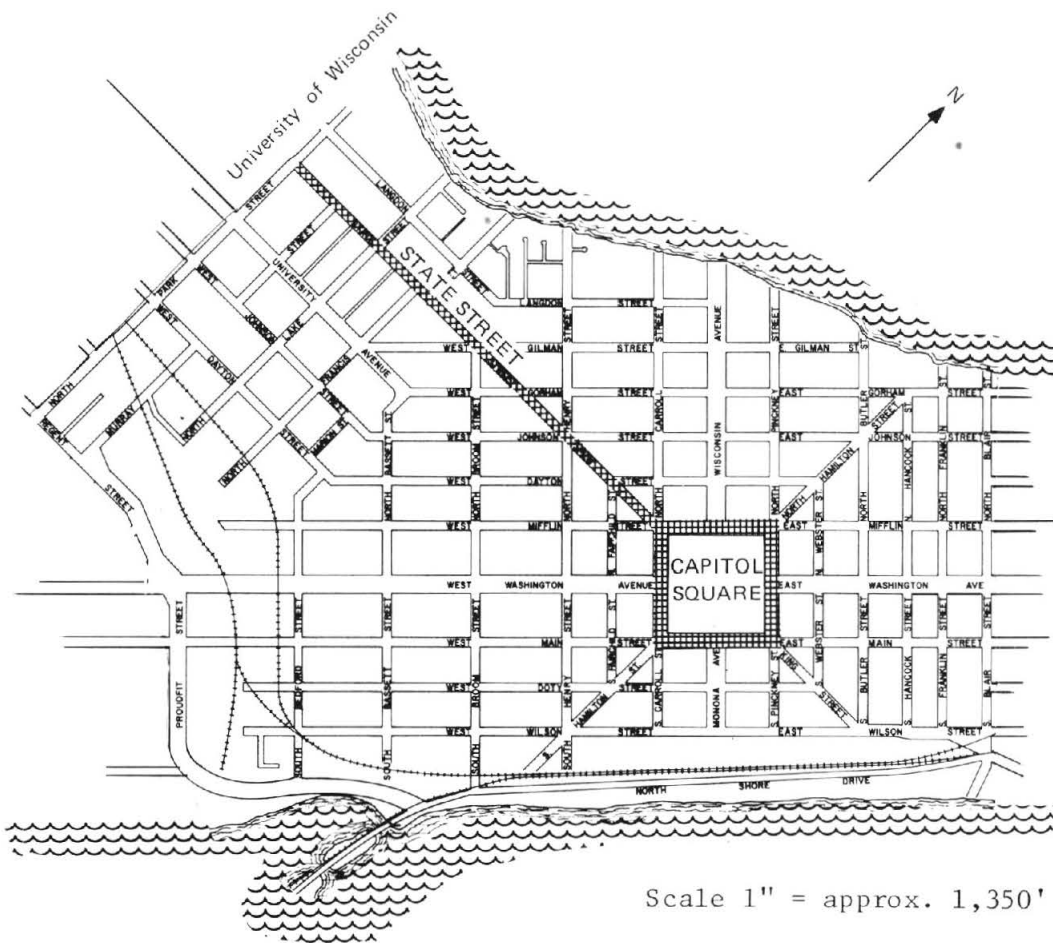


FIGURE 7-2. MAP OF DOWNTOWN MADISON

The area around Capitol Square is the site of many government offices (state, city and county) and related private development. Fronting on the square are most of the "quality shops" in downtown Madison. State Street is the site of the greatest concentration of retail business in central Madison. Of the 161 businesses on State Street, 36 percent are retail specialty, 25.5 percent service, 15 percent retail clothing, 13 percent food and drink, and 6.2 percent miscellaneous retail (Reference 7-3). In recent years there has been a sharp decline in retail business on Capitol Square, although there is a new bank and office development with an indoor shopping arcade. Upper State Street, near the capitol, has also declined (see Figure 7-3). The City plans to renovate the abandoned Capitol Theatre as a new civic center, and the adjacent former Montgomery Ward's as an art exhibit center. Businesses on the lower portion of State Street, between Gilman and Lake Streets, cater primarily to the student population; business there is said to be experiencing a moderate rate of growth. However, there is a very high turnover rate and conditions must be described as unstable, except at the very end of the street, between Lake and Park Streets, where the University is the major landowner. There have been several recent student housing developments on the lower end of State Street. The area around State Street is dominated by student housing, especially to the north.

Census data on retail sales show that the overall picture is one of decline in central Madison (see Figure 7-4). The pattern of relative stability followed by a recent sharp decline appears to confirm the widely-held belief in Madison that the period of student unrest in the late 1960's, culminating in riots on State Street in 1968, combined with the opening of Madison's two regional shopping malls in the same period, was responsible for an exodus of business from central Madison.

At midday, State Street is quite active, with heavy pedestrian volumes. The two blocks which have been made into malls

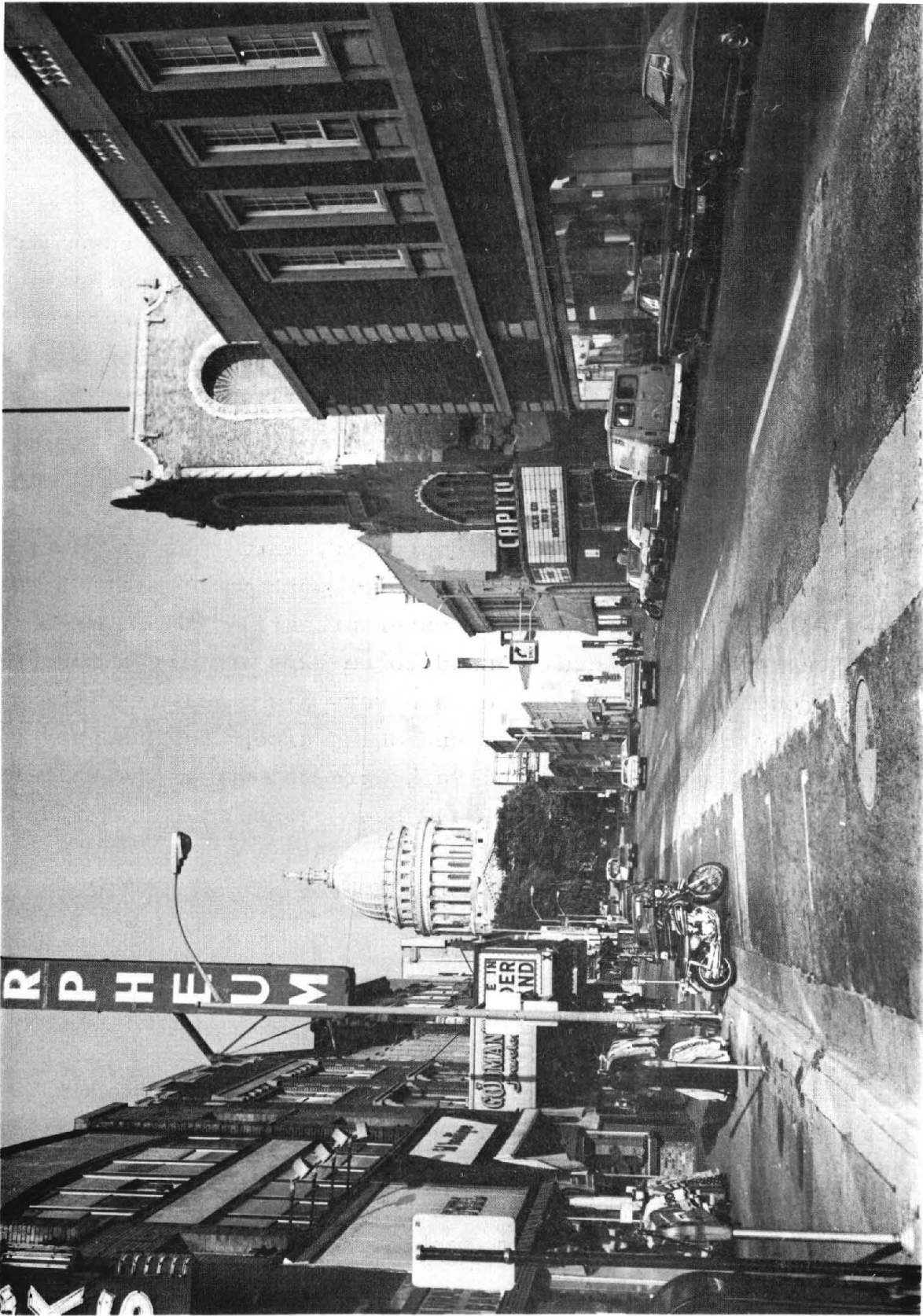
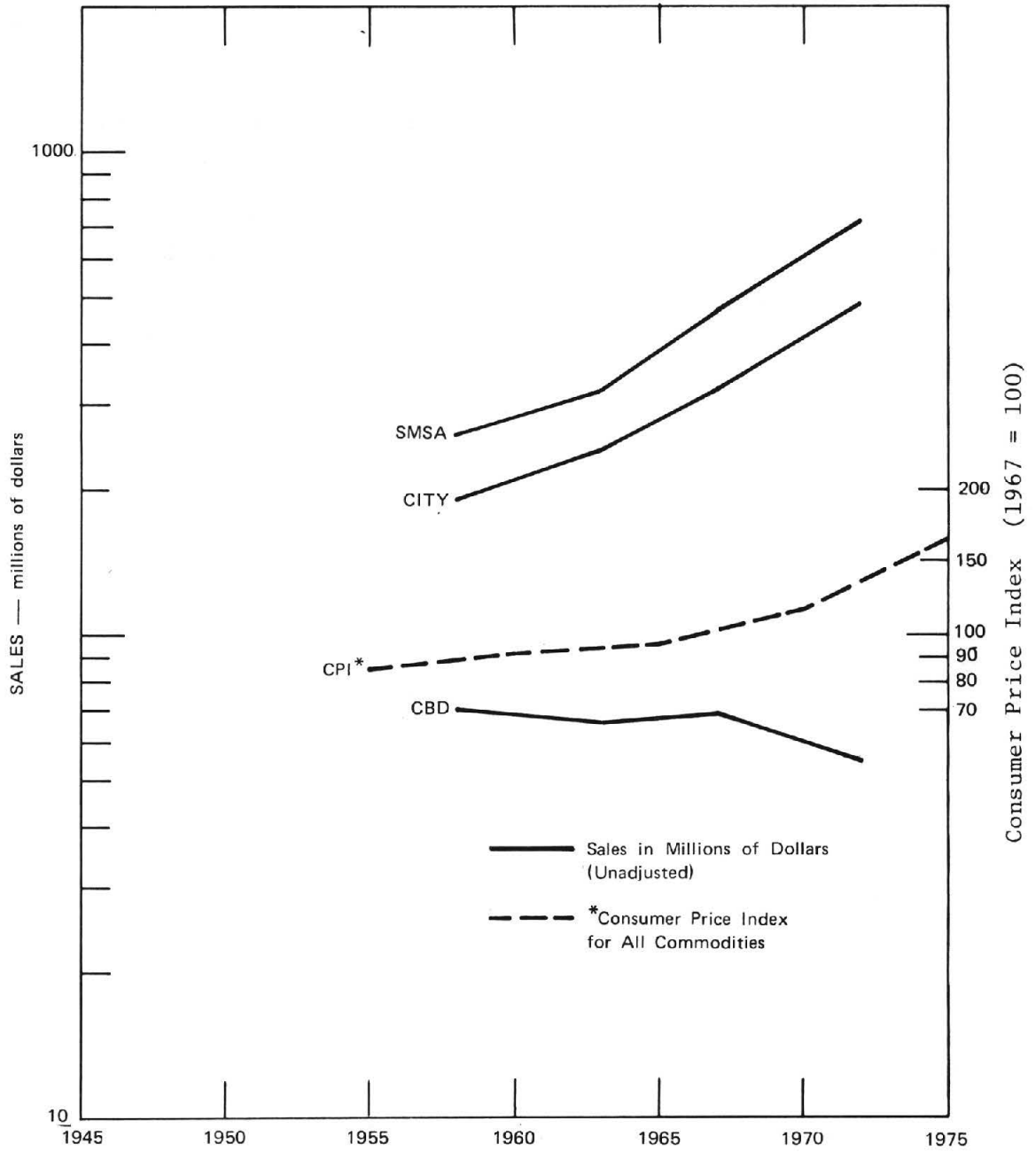


FIGURE 7-3. UPPER STATE STREET



SOURCE: U.S. Department of Commerce, Census of Retail Trade

FIGURE 7-4. MADISON RETAIL SALES

are particularly active and appear to function as an extension of the university campus (see Figure 7-5). Indeed, most structures here are University owned and operated, including a classroom building. There are no private retail outlets.

Despite the retail statistics, Madison, and even central Madison, is growing. Between 1962 and 1970 central Madison employment grew by nearly 68 percent with a stable population, probably due to the influence of the state government and the University; out of total 1970 employment of 119,000 in the Madison urban area, 38 percent was located in central Madison (Reference 7-1).

7.3 TRAFFIC AND TRANSIT - GENERAL

Although Madison is an overwhelming auto-oriented city, there is a significant commitment to building up transit service and encouraging non-auto modes of travel. Local transit service is provided by Madison Metro, which is managed by a private corporation under contract to the City of Madison Transit Utility, which acquired the bus system in 1970. Beginning in 1968 ridership began to grow, reversing the post-war decline that brought annual ridership to 5.5 million in 1967. Since public takeover, ridership growth has accelerated, with rates in the neighborhood of 10 percent annually since 1971. By 1975, ridership was 8.9 million; the bus fleet included 159 coaches with an average age of 10.0 years, compared to 90 coaches with an average age of 17.7 years in 1970. New routes and route-miles have been added so that now approximately 90 percent of Madison residents live within a quarter mile of a bus route. Marketing has been improved substantially. In 1974, the City contributed \$498,000 from property tax revenues toward operating losses, with the State of Wisconsin contributing \$711,000 (Reference 7-9).

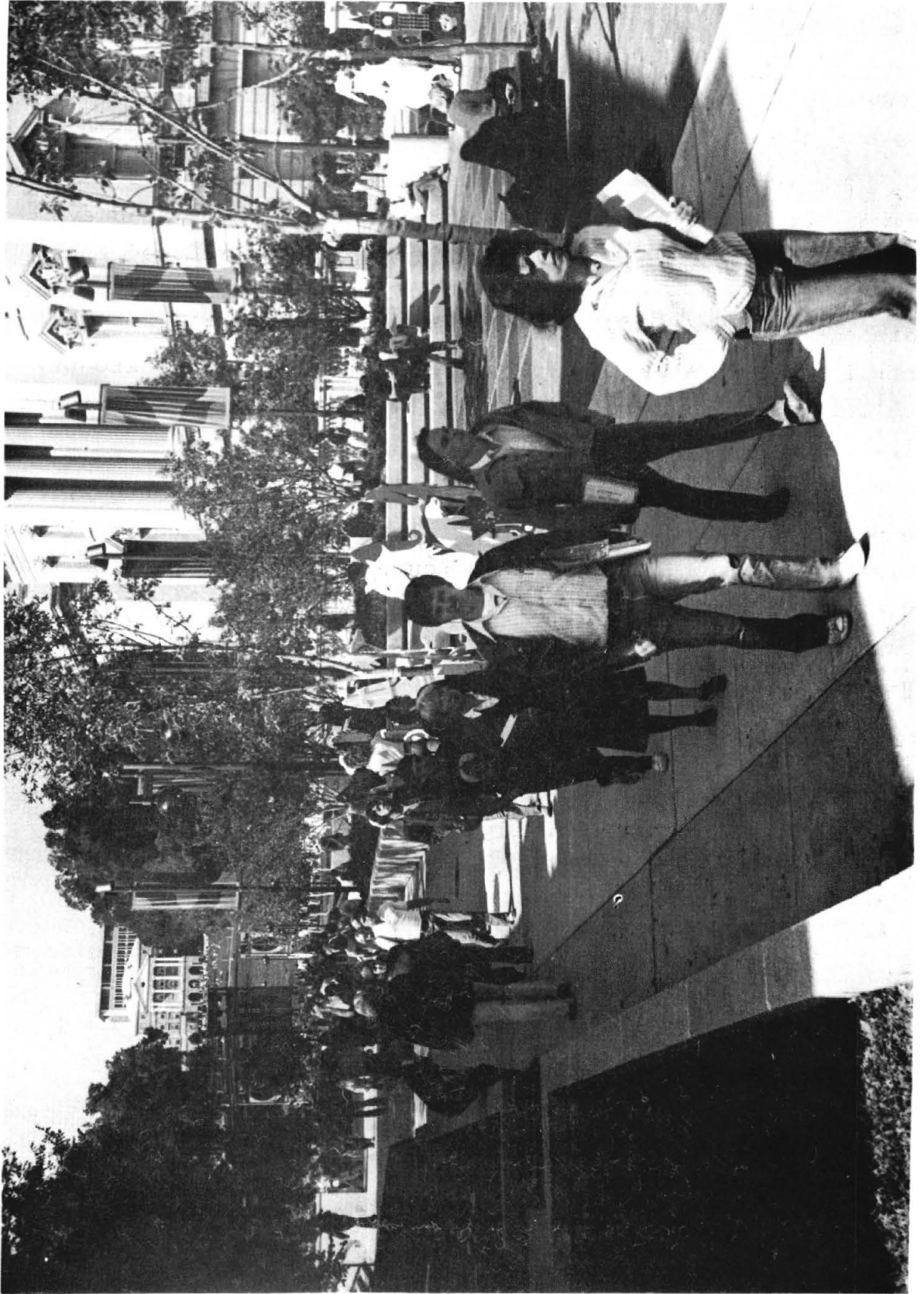


FIGURE 7-5. STATE STREET PEDESTRIAN MALL

Virtually all routes converge on Capitol Square, and all but one of these operate on State Street as well, including the popular State Street shuttle, with a 5 cent fare. Madison Metro also operates an on-campus shuttle bus under contract to the University. Basic adult fare is 25 cents, plus a 5 cent zone charge or a 10 cent express charge. Peak-hour headways for most routes are 15 minutes, scheduled to be reduced to 10 minutes. Transit accounts for about 5 percent of all internal Madison area person travel, about 14 percent of all internal central Madison-oriented person travel, and about 30 percent of all internal central Madison-oriented work trips (Reference 7-1).

Traffic patterns in Madison are largely conditioned by the peculiar location of the central area between the two lakes. It is often impractical to use a route around downtown, as that would imply driving all the way around one of the lakes. Nevertheless, congestion is not severe, although queues do appear at some intersections in the peak periods and volumes on the major arteries are quite heavy. The main routes through downtown are the Johnson/Gorham Streets one-way pair, with daily weekday volumes over 20,000 vehicles in places; Washington Avenue, with 15,000 to 20,000 vehicles daily; and John Nolan Drive along Lake Monona.

The City of Madison has a monopoly on the operation of public-use off-street parking lots and garages, providing around 2600 metered spaces, most of which are for short-term (1 to 5 hours) parking. Although some of these facilities are used to capacity at midday, others have considerable space available. Provision of parking by stores and offices is limited by an ordinance which places maximum limits on parking spaces per square foot of floorspace. There are no plans at present to build any additional parking, although the outer ring reversal project described subsequently resulted in a loss of 80 off-street spaces, and the Parking Utility is required to develop

5 percent of its property into tree islands by 1978.

Madison has an active planning process which reflects a general concern with environmental problems and overdominance of automobile transportation. "Objectives and Policies for the City of Madison," adopted by the Common Council (the city's governing body) in October 1975, includes, among others, the following objectives which are particularly relevant to the State Street Mall project:

1. Minimize conflicts among different forms of transportation such as pedestrian, bicycle, automobile, transit and service vehicles.
2. Coordinate the transportation system with land use and integrate it with the functional, social and visual patterns of the city.
3. Minimize the need to use private automobiles and maximize the availability and encourage the use of public transportation and alternative forms of private transportation such as taxis and bicycles, particularly for commuter travel.
4. Provide safe, convenient and comfortable pedestrian circulation within the intensively developed portions of the city.
5. Discourage automobile traffic from traveling through the central area.
6. Create patterns of land use that will encourage the use of a mass transportation system.
7. Maintain the Madison CBD as the center of government, financial and professional office activity, and as a specialized retailing complex serving the region as well as the general retail needs of downtown residents, workers and students.

Notable recent projects include exclusive bus and bicycle lanes on University Avenue (first a contraflow inbound lane and recently an outbound lane as well, which allows bicycles and right-turning cars); an extensive bikeway planning program; construction of landscaped barriers to prevent use of certain residential streets by through traffic, except for buses; and reversal of traffic flow on the "outer ring" of streets around Capitol Square to reduce traffic on the square (Reference 7-2).

7.4 PROJECT STREETS BEFORE MALL

Before any construction began, State Street was eight blocks or about 3600 feet long extending from Park Street to Capitol Square. The roadway is 44 feet wide, with parking on both sides and one lane of traffic in each direction. The sidewalks on both sides are 11 feet wide. The street rises about 35 feet toward the capitol, which sits on a low hill dominating the central isthmus area. The street and sidewalk are both in very poor repair. Capitol Square consists of segments of four streets, surrounding the state capitol building, two blocks or roughly 800 feet on a side. Sidewalks on the outside of the square are 17 feet wide; a narrower sidewalk on the inside is separated from the street by mature elm trees. The roadway is 65 feet wide, with parking on both sides and four lanes of traffic moving counterclockwise, of which the outer lane is a right-turn-only lane. Existing conditions on State Street are shown in Figures 7-3, 7-6 and 7-7.

State Street is not a major through route for automobile traffic. Before the closing of the lower two blocks to traffic, it carried around 10,000 vehicles daily; traffic assignments show that most of this traffic travels only part of the length of State Street, entering or leaving on Johnson or Gorham Streets. Capitol Square carried some 14,000 vehicles per day in 1973. This has probably been reduced somewhat by the outer ring reversal, which was designed to encourage traffic to use these outer ring streets rather than the square itself. There are 82 thirty-minute metered parking spaces on the six blocks of State Street open to traffic. These cost 10 cents per hour, and are completely taken, with some illegal parking, at midday, except in the two blocks closest to the capitol. Parking on the streets nearby is also used to capacity. Most businesses on State Street and Capitol Square obtain deliveries from the front; there are few alleys (Reference 7-5).



FIGURE 7-6. LOWER STATE STREET



FIGURE 7-7. CAPITOL SQUARE - CARROLL STREET

The concentration of bus service on State Street and Capitol Square results in peak-hour two-way bus volumes of about 60 buses per hour. During 1971-73, 21 percent of all accidents involving Madison Metro buses occurred on State Street or the Capitol Concourse (Reference 7-8). There are many bicycles on State Street during the day. Total estimated bicycle volumes on all streets in the campus area were 5,000 to 10,000 per day in 1971 (Reference 7-5).

7.5 PROJECT STREETS AFTER MALL

In the fall of 1975, 6-8 months of work was completed converting the two blocks of State Street nearest the university, between Park and Lake Streets, into a pedestrian mall. The mall is connected to the campus by a pedestrian bridge over Park Street and functions as an extension of the campus. Construction costs of \$500,000 were paid for by the City (50 percent) and the abutting property owners, principally the State (50 percent). The center areas of the mall are dominated by several raised structures with planters, patios, benches and a fountain which can be used as a performing stage. There is also a chess board, with squares made of different colored paving material and large wooden pieces that can be wheeled around by players. A part-time "mall master" coordinates activities. A maintenance budget of \$70,000 per year has been proposed, to be divided between the City and abutting property owners. Buses which formerly entered and left State Street on Park Street now use Lake Street.

By the fall of 1976, plans for Phase II, reconstruction of Capitol Square and the upper two blocks of State Street, were approved. Bids were taken and construction began in spring 1977 (no work can be done in the winter.) Plans call for outside sidewalks to be widened by 15 to 21 feet to a width of between 32 and 38 feet. The remaining 44 feet of roadway will have a 21-foot outside lane for buses,

bicycles, right turns, and curb access (pick-up and drop-off); an inside lane for general traffic; and capitol parking along the inside curb. Streets entering the Capitol Concourse will be "necked down", or narrowed at the point of intersection, particularly those at the corners of the square. Also, at these corner intersections, the sidewalk on the concourse will be narrowed from 38 feet to 32 feet to allow for bus cutouts. Traffic signals will be set to make it difficult for cars to leave the concourse, which they will be permitted to do only on the four streets intersecting the sides of the square. Loading will be provided by improving and creating rear alleys and by permitting curbside loading from bus zones during certain hours. Loading volumes on the square are considered very light. All traffic will move, as it does now, in the counterclockwise direction.

The upper two blocks of State Street, between Johnson Street and Capitol Square, will be rebuilt as a transit mall. The roadway will be 22 feet wide. There will be one bus stop per side on each block. This will leave space for sidewalks 22 feet wide. The overall design will be linear in order to emphasize the view of the capitol building. No automobiles will be permitted on the mall. Plans for loading are not yet settled. On upper State Street and on the Capitol Concourse, the new sidewalks will be of brick and decorative concrete; there will be extensive tree planting and street furniture, including bus shelters.

Construction of Phase II is expected to take about a year and cost some \$5.4 million. An UMTA capital grant will pay for 80 percent of eligible costs, which amounted to 12 percent of the total cost according to an estimate in 1975. The local share will be paid for partly out of city-wide property taxes (50 percent on State Street, 75 percent on Capitol Square) and the remainder by a special assessment district which will extend 264 feet out from the building line along the affected streets, a distance which includes all businesses between the inner and

outer ring of streets around the capitol (see Figure 7-8, Reference 7-4). Assessments will be by square feet of land area; properties in Area 1A in Figure 7-8 will pay 70 percent and those in Area 2 in the figure 30 percent as much as those properties in Area 1. The funding formula was drawn up by a special Citizen Advisory Committee, created by city ordinance under existing state enabling legislation.

Phase III will comprise the remaining four blocks of State Street, between Lake and Johnson Streets, which are to become a transit mall with the same design as the upper two blocks. Final design is expected to begin once work on Phase II is underway. Construction costs were estimated at \$1.9 million in 1975, of which 80 percent of eligible costs, or \$559,000 was to be paid for by UMTA. The local financing formula described above applies to Phase III as well as Phase II. Construction is expected to take about a year.

The completed State Street Mall will allow cross traffic to continue as it does now. Bicycles will probably not be permitted on the mall; however, there will be special provisions for bicycle storage. Loading will probably be allowed from the rear and from side streets only. Bus operations will continue unaltered, except as called for by continuing service improvements. If headways on major routes are reduced to 10 minutes, peak-hour two-way bus volumes would increase from about 60 per hour to about 70 per hour.

7.6 PROJECT HISTORY

Proposals related to the current plans for improving State Street have a ten-year history in Madison. In 1966, the City Planning Department conducted a Downtown Planning Study, which examined various projects to improve downtown, including State Street. The study was initiated by the planners and was coolly received by the business community. Pro-

posals by the organization of downtown business interests (the Central Madison Committee) during the same period, focused on architectural renewal and possible location of a new civic center on State Street. A 1967 attitude survey of business people in the State Street area showed a belief that major problems at that time were lack of convenient parking and the area's unattractive appearance (Reference 7-5). Although the Planning Department continued its interest in State Street, the mayor at that time gave the project no support.

The late 1960's saw a period of political changes and continued problems on State Street. Student activism led to some city wards electing student aldermen. The current mayor, a former student alderman, was instrumental in keeping the possibility of some kind of mall on State Street alive. In 1968, demonstrations led to violence on State Street. As a result, interest in improving the street waned for awhile.

The City Planning Department continued to promote the mall idea, proposing in January 1969 a complete pedestrian mall on the lower four blocks of State Street (Park to Gilman Streets) and a "semi-mall" on the upper four blocks (Gilman Street to Capitol Square). The semi-mall concept involved removal of on-street parking, widening and landscaping of sidewalks, and cut-outs at bus stops. Cross streets would have been kept open across the pedestrian mall. Buses would have been detoured around the pedestrian mall. This proposal is contained in the Planning Department's "Downtown: Proposals for Central Madison," published in April 1970, which reported that the proposal, having been reviewed by State Street business people and other city departments, might be modified to make the lower four blocks a semi-mall also, with the two blocks between Park and Lake Streets restricted to use by buses. The Madison Department of Transportation has maintained a consistent opposition to plans for any detouring of buses from their original routes using the entire

length of State Street. The same report contains less specific proposals for improvement of Capitol Square, focusing on widened sidewalks and a possible pedestrian area on the north side of the square. These proposals were not acted on.

By late 1972 attitudes toward State Street improvement had improved. The Executive Board of the Central Madison Committee authorized their director to work on plans for a mall, the outer ring traffic reversal and other improvement projects. The merchants and State Street property owners remained skeptical, however. The possibility of a full pedestrian mall, in particular, was too scary for most. In early 1973, at the initiative of the current mayor, then an alderman, the lower two blocks of State Street were temporarily closed to traffic, as an experiment.

A turning point was the election as mayor in April 1973 of Paul Soglin, the former student alderman who had been a consistent supporter of a State Street mall. To bring together various points of view and establish support, a series of public meetings, studies and working sessions called the State Street Charette was held in October 1973. The Charette involved the active participation of numerous city and state officials and staff, business people, students, the University, a citizens' committee appointed by the mayor, and knowledgeable individuals. The Charette considered three design concepts for State Street, ranging from an elaborate pedestrian mall to low-cost street beautification. The Charette recommended a transit mall on the upper six blocks and a full pedestrian mall on the lower two blocks of State Street and asked the City to select a consultant to conduct further investigations.

After the election and holding of the State Street Charette, opposition to traffic removal on State Street seems to have subsided. There is still a demand, however, by establishments in the middle blocks of State Street for the creation of replacement parking.

A team of consultants was selected to prepare plans for State Street and the Capitol Square. The consultants began work in January 1974, embarking on a six-month design process, including considerable citizen participation. After briefly considering the full range of alternatives, the consultants concentrated on a generalization of the Charette recommendation, dubbed a "balanced community street." Options analyzed were then: (1) no change, (2) semi-mall, (3) transit mall, and (4) full mall. It was not until this time that formal goals for the project were spelled out. These were:

1. Improve State Street and the Capitol Concourse as a place for people. Promote environmental quality, character, safety, comfort, interaction and flexibility of use. Reduce air and noise pollution.
2. Insure commercial-retail viability by increasing the area's attraction as a shopping and entertainment center.
3. Strengthen the imagery of downtown Madison in accordance with functional need and citizen desires. Capitalize upon the unique physical and symbolic attributes of the City, Capitol and University (Ref. 7-5).

The maximization of the street's transportation functions was then considered as subsidiary to these main goals, in effect, as a constraint on the design.

The consultants' report recommended a transit mall for the upper six blocks of State Street, a full pedestrian mall for the two blocks nearest the University, and an exclusive bus and bicycle lane around the outside of the Capitol Concourse, separated by a planted median from restricted automobile lanes around the inside of the Capitol Concourse. Parking would have been allowed on both sides of the automobile lanes. The inside lane would have been for circulating traffic, the outside one for turning traffic. The signal timing would have been set to make entry and exit difficult. The report recommended that only shuttle buses be allowed on the lower three blocks of the transit mall (Lake to Gorham Streets), with main line buses being re-routed to enter and leave State Street on Gorham and Johnson

Streets. The transit rerouting was opposed by the City Department of Transportation, which felt that it would be disastrous for transit service, particularly since the intersection of State and Park Streets was one of the major loading points for the bus system. The Planning Department understood the transportation objections to the consultants' plan but pushed to keep the two blocks at the end free of traffic. This was the design that was approved and it formed the basis for the City's grant application.

The consultants' report also recommended the phasing plan which is being used. Since Phase I, the Park to Lake Streets pedestrian mall, involved no federal funding, design work on it began immediately. Construction was completed ahead of schedule in the fall of 1975. During 1975 work proceeded on detailed design for Phase II, the Capitol Concourse and upper State Street, using the recommended concept just described. In August 1975, the outer ring traffic reversal was put into effect, following \$600,000 in construction. This project, designed to divert traffic away from the Capitol Square itself, is separate from the State Street project, and was funded 70 percent by the Federal Highway Administration (FHWA). It was not until March 1976 that merchants on Capitol Square, seeing the plans, realized that automobiles would not have access to their store fronts and demanded that changes be made. A compromise was worked out by the Common Council, which called for no physical separation in the roadway and provision for autos to use the outer lane (now 21 rather than 18 feet wide) for pick-up, drop-off and right turns. Although new plans were drawn up within a month, in hopes of starting construction before winter, failure to comply with certain legal technicalities delayed construction through the winter.

Construction of Phase II started in the spring of 1977. Final design work will start on Phase III, linking the two ends in late summer, 1977. Numerous details in this section remain to be worked out, the most potentially troublesome being provision for loading and replacement parking.

In early 1977, merchants along the Mifflin Street portion of the Capitol Concourse requested permission to block off Washington Avenue at Mifflin Street, in order to construct an uninterrupted two-block arcade over the Mifflin Street sidewalk. All costs would be paid by the merchants. The City appears receptive to the idea, and sees the plan as evidence of an improved investment climate since plans for the mall were finalized.

7.7 RESULTS

The only results to date are those from the creation of the Park to Lake Streets pedestrian mall. The area appears to be well used and very active. Buses are detoured around it, entering State Street on Lake Street instead of Park Street. No information is available to quantify the results of the change. The City's grant application claims that, with the completed transit mall, average travel times for buses on State Street will be reduced from 6 minutes to 5 minutes. Traffic volumes on Capitol Square, it is hoped, will decrease by 50 percent. The net savings in travel time are to be applied in expanding route coverage (Ref. 7-8). The transit operator regards the primary potential benefits of the project as improved on-time performance, as a result of eliminating unpredictable traffic delays; the possibility of increased ridership due to the attraction of the mall and a reduced number of accidents.

NEW YORK

Section 8

NEW YORK DATA

<u>GENERAL</u>	<u>CITY</u>	<u>SMSA</u>
1970 population:	7,896,000	11,529,000
1970 employment:	3,191,000	4,607,000
Area:	299.7 sq. mi.	2,136 sq. mi.
Population density:	26,346 per sq. mi.	5,397 per sq. mi.
Employment density:	10,647 per sq. mi.	2,157 per sq. mi.
Service area mode split to downtown:	90 percent	

PROJECT

Name: Broadway Plaza

Status: Beginning detailed design, construction to start in 1978.

Cost: \$4.5 million, est.

Funding: Combinations of local, UMTA Capital Grant, UMTA Demonstration, Federal Aid Urban System, Community Development Revenue Sharing

Financing of local share: City capital budget

Primary backers: Planners

Type of transit: Standard transit buses, special loop buses, tour buses, airport buses

Pre-plaza Pedestrian volume: 7,500/block side/hr., peak hour on major block

Pre-plaza Traffic volume: 18,000 on Broadway, 30,000 on 7th Avenue (one-way, daily)

Bus volumes at peak hour: 60-76 on Broadway, 22-32 on 7th Avenue (one-way)

Dimensions: 9 blocks (2000 ft. by approx. 100 ft.)

Dimensions of Transitway: One block, 20 ft. wide

Cost per foot: \$2370

Cost per sq. ft.: \$23

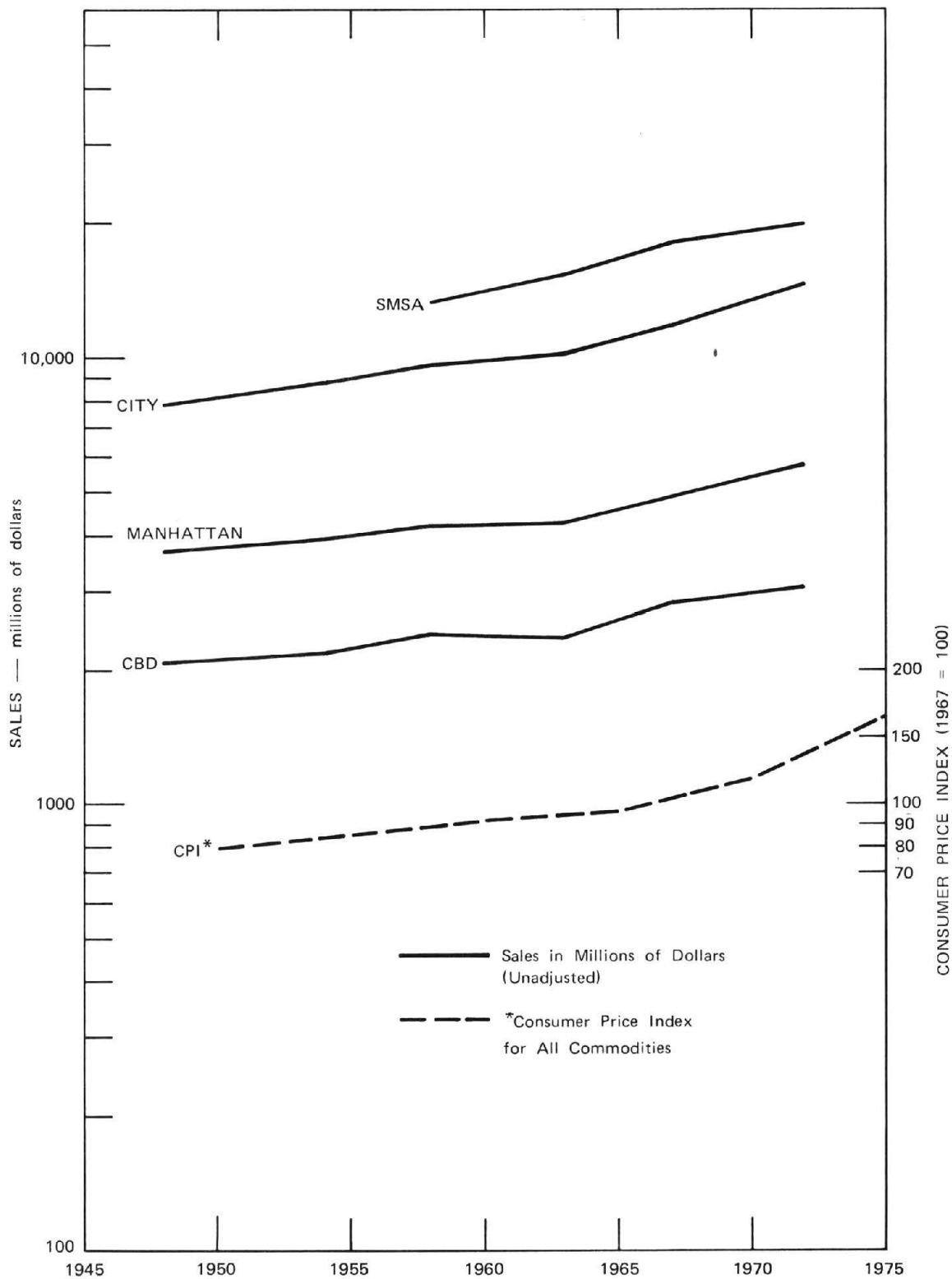
8. NEW YORK

8.1 INTRODUCTION

A unique project, sharing many features with transit mall projects, is being planned for midtown Manhattan in New York City. The Broadway Plaza project will involve progressively widened sidewalks on Broadway for five blocks south of 54th Street, leading up to a one-block transitway and three blocks of pedestrian plaza ending at Seventh Avenue and 45th Street (Times Square), in the heart of the Theater District. The project is currently in an UMTA-funded design stage; construction will not begin before 1978. The total estimated construction cost is \$4.5 million to be funded by the City and a variety of federal programs.

8.2 SITE DESCRIPTION

New York City is the largest city in the United States, with a 1970 population of 7.9 million; the New York SMSA included 15 million people. The focus of the project is Times Square and Midtown Manhattan. The Times Square area, between Sixth and Eighth Avenues and 39th and 52nd Streets, includes the Theater District to the west and the Rockefeller Center to the east. Immediately to the south is the Garment District. Times Square is formed by the crossing of Broadway and Seventh Avenue. The area attracts more than 500,000 tourists, theater-goers, shoppers and office workers each day. Although a very active area, economic conditions are now considered weak, after a period of brisk development in the late 60's and early 70's. Some areas of Times Square are characterized by pornography stores, novelty shops, and fast-food outlets. As the census figures show (see Figure 8-1), downtown New York, which includes Times Square, has fared better than most central cities as a retail center.



SOURCE: U.S. Department of Commerce, Census of Retail Trade

FIGURE 8-1. NEW YORK RETAIL SALES

8.3 TRAFFIC AND TRANSIT - GENERAL

New York is simultaneously the most transit-oriented city in the United States and the site of some of the worst automobile congestion in the country. The Metropolitan Transit Authority (MTA) operates most of the rapid-transit trackage in the United States, as well as a vast network of bus routes. Although ridership has dropped in recent years, primarily due to rapid fare increases, the MTA still carried some 6.5 million passengers on an average weekday in 1975 (Ref. 8-7). Most travel to the Times Square area is by transit (91 percent for work trips, 87 percent shopping, 93 percent social, 75 percent recreation) (Ref. 8-5). Taxicabs are an important mode of travel in Manhattan, accounting for 34 percent of the vehicles on Broadway and 44 percent of the vehicles on Seventh Avenue in the Times Square area (Ref. 8-3).

In the Manhattan grid system, virtually all streets are one-way. The major arteries are the north-south avenues. Travel on the east-west streets, which are spaced about 260 feet apart, is more difficult. They are narrower and signals are set to aid movement on the avenues, which are wider and less frequently spaced. Broadway runs at a diagonal, primarily southward (it is one-way southbound); Times Square is the wide area formed by its intersection with Seventh Avenue at 45th Street. Broadway is relatively unimportant as a traffic carrier, with 18,000 vehicles per day compared to 30,000 on Seventh Avenue and 35,000 on Ninth Avenue, both of which also run southbound (Ref. 8-3).

Walking is a very important mode of travel in Manhattan; pedestrian flows are heavy enough that lack of sidewalk space impedes foot travel on most blocks in midtown at midday. The heaviest volumes are on Fifth Avenue, two blocks east of the project area, with 15,000 people per hour at midday on some blocks. Most north-south blocks in the immediate project area carry several thousand pedestrians an hour at midday as well as in the evening. Conditions crossing Seventh Avenue

and Broadway on 47th Street are more crowded than average in the area (Ref. 8-8).

Although no policy of discouraging auto use is being followed in Manhattan, there is a definite policy of attempting to create pedestrian areas. In 1961 zoning incentives were introduced to encourage the development of public plazas and pedestrian circulation systems. There are now several privately developed mid-block pedestrian ways in the Times Square area. The Rockefeller Center office and retail complex includes an extensive pedestrian network. Broadway Plaza, it is said, will "function as a bridge between Rockefeller Center's pedestrian network and the major streets of the Theater District." (Ref. 8-5).

8.4 PROJECT STREETS BEFORE PLAZA

Broadway and Seventh Avenue are both 60 feet wide in the project area, except where they cross at Times Square, where Broadway narrows to 33 feet and Seventh Avenue to 31 feet. Both streets are one-way southbound. Sidewalks in the area are approximately 20 feet wide. The service, entertainment, and light retail land uses on Broadway do not generate much truck activity, so there is metered parking on both sides of Broadway between Central Park and 47th Street. The street is relatively free of congestion, with average speeds between 12 mph and 18 mph throughout the day. Seventh Avenue operates at a lower level of service than Broadway, with average speeds between 10 mph and 14 mph, which is still better than other avenues in midtown, with average speeds between 10 mph and 12 mph. Despite its width, Seventh Avenue generally has fewer than four moving lanes of traffic, due to loading at the hotels north of 50th Street, combined with frequent double parking. Farther south, the neck-down at Times Square constrains traffic flow. It is difficult for Seventh Avenue traffic to cross

Broadway, and traffic on Broadway is prohibited from crossing Seventh Avenue at Times Square (Ref. 8-3). Thus, at Times Square, Broadway traffic diverts to Seventh Avenue, and most Seventh Avenue traffic diverts to Broadway.

Broadway is more important for the transit system than it is for automobiles. Two bus routes operate on Seventh Avenue, diverting to Broadway at Times Square. Three routes operate on Broadway, diverting to Seventh Avenue at Times Square; these three routes account for 60 to 76 buses per hour. Figure 8-2 summarizes the regular bus service in the project area. Times Square is also a focus for special bus operations, including tour buses, airport buses, and the Transit Authority's "Shopper's Loop" and "Culture Bus" routes (Ref. 8-5).

8.5 PROJECT STREETS AFTER PLAZA

Broadway between 45th and 48th Streets (about 800 feet along the western building line) will be closed to all traffic and repaved and furnished as a series of three pedestrian plazas, separated by the cross streets, which will remain open. North on Broadway, between 48th and 49th Streets, sidewalks will be widened to 40 feet and landscaped, leaving a one-block transitway open to buses and taxicabs; between 54th and 49th Streets, sidewalks will get wider going south approaching the transitway. Some kind of priority treatment for buses will be established in this area, encouraging private vehicles to divert to Seventh Avenue as far north as possible. Most remaining private vehicles on Broadway will divert to Seventh Avenue at 50th Street, although some may exit west on 49th Street. Buses and taxicabs will continue on the transitway and be rerouted to Seventh Avenue at 48th Street. Buses and taxis will have a reserved right-of-way on 48th Street between Broadway and Seventh Avenue and along the western edge of Seventh Avenue adjacent to the plaza area. The neck-down of Seventh Avenue at Times Square will be eliminated,

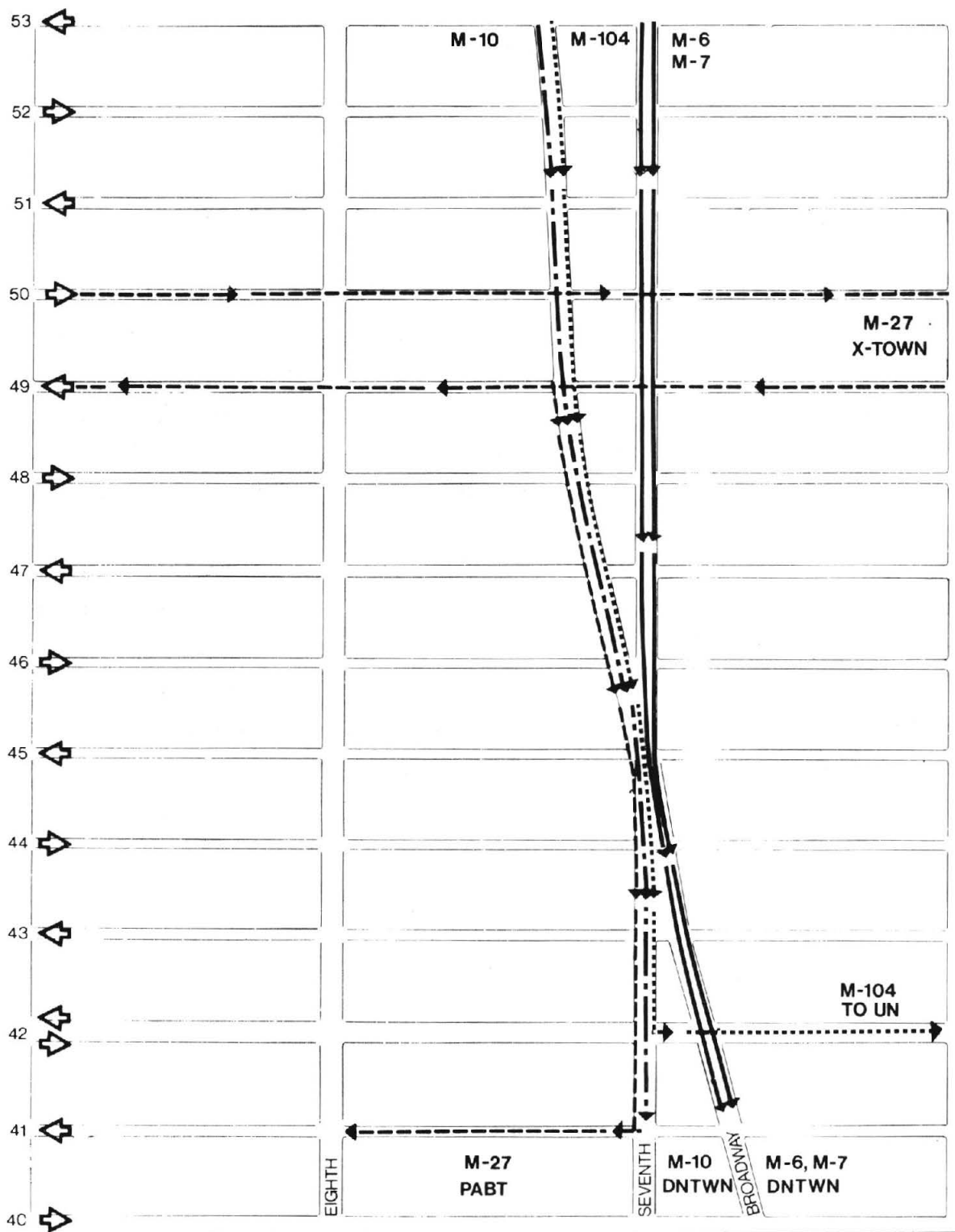


FIGURE 8-2. EXISTING BUS SERVICE



BROADWAY PLAZA

OMPD

with a width of 60 feet being maintained throughout. The overall scheme is illustrated in Figure 8-3, in which the shaded areas represent pedestrian plazas or sidewalks. Figure 8-4 is a montage by the Office of Midtown Planning and Development showing the future appearance of Times Square and Broadway Plaza.

The eastern edge of the southernmost plaza, between 45th and 46th Streets along Seventh Avenue, will be cut back to create a special taxi loading area. This design element was important in obtaining the support of the taxi industry, which the project now enjoys. Between 46th and 47th Streets, there will be a similar loading area for buses. The combined Broadway and Seventh Avenue bus volumes using this loading area will exceed 100 buses per hour at peak periods (Ref. 8-5). In this middle plaza there are plans for a transit, theater, and tourist information center to be built on a platform which can double as a stage for outdoor theatrical previews. An existing popular feature of Times Square that will be included in this plaza is the TKTS Booth, a cooperative venture of the City and the Theater Development Fund, which offers theater tickets half-price for performances on the day of purchase.

The design phase of the project is expected to cost \$300,000, of which 80 percent will be paid by an UMTA capital grant. This will result in construction documents, from which work may begin in 1978. The first phase of construction is budgeted at \$750,000, with 80 percent UMTA funding, and will involve the realignment of Seventh Avenue (including the bus and taxi cut-outs), relocation of a subway ventilation system, and traffic diversion measures. The second phase of construction will fill in the pedestrian areas, starting at 45th Street and working north to 54th Street. No grant application for either phase has been filed yet, although a pre-application for first-phase UMTA capital grant money is expected in fall 1977. Also in the fall of 1977, some initial, first phase

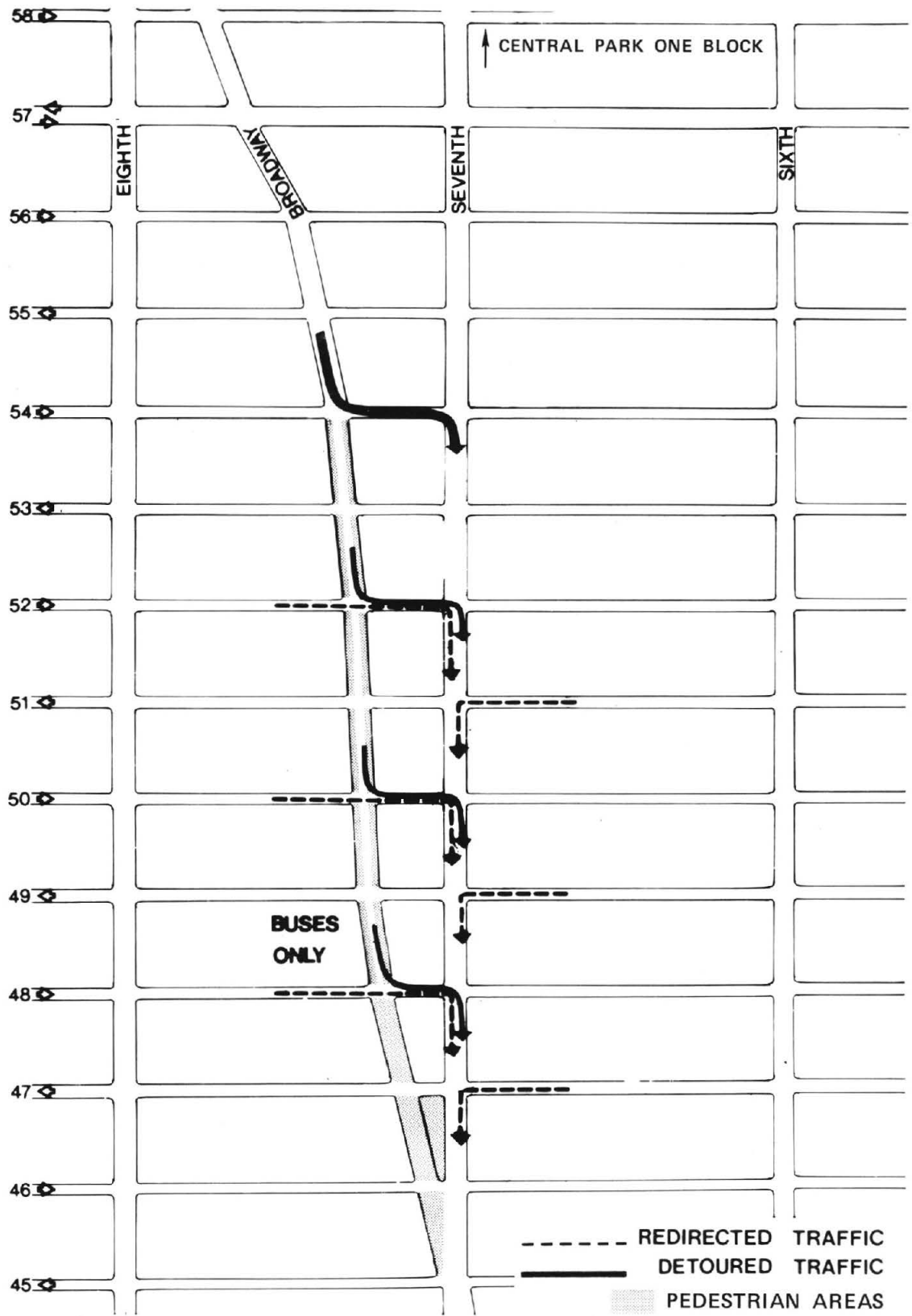


FIGURE 8-3. DIVERSION OF BROADWAY TRAFFIC TO SEVENTH AVENUE

Scale 1" = approx. 300'

BROADWAY PLAZA



FIGURE 8-4. MONTAGE OF BROADWAY PLAZA

construction work, using city funds, is expected to begin. Funding for the second phase is expected to involve some combination of UMTA capital grants, community development revenue sharing, and Federal Aid Urban System money.

Concurrent with these construction activities will be an UMTA-funded Service and Methods Demonstration project, for which a grant application in the amount of \$500,000 has been filed by the Administration and Management Research Association of New York City (AMRA), a nonprofit corporation. This two-year demonstration project will monitor all traffic, transit, and pedestrian characteristics before, during, and after construction; design and implement traffic management plans (including bus priority schedules); and design and implement boarding areas for transit and taxi passengers. The boarding areas will be constructed with money from the demonstration grant as soon as the realignment of Seventh Avenue and redirection of traffic from Broadway is complete. An evaluation of this demonstration program will be carried out according to UMTA's usual third-party evaluation procedures.

8.6 PROJECT HISTORY

The Broadway Plaza project has its roots in a 1969 study for the Office of Midtown Planning and Development (now the Mayor's Midtown Action Office) by a consultant. It resulted in a comprehensive framework for open-space and pedestrian-oriented transit development. As an outgrowth of that plan, a proposal was made in 1971 to convert 15 blocks of Madison Avenue in Midtown into a pedestrian and bus mall. Although an experimental two-week street closing between 12:00 noon and 2:00 PM was enormously popular, the project generated intense opposition from garage owners and taxi interests and was abandoned (Ref. 8-6).

At that time it was already realized that a plaza at Times Square would be a much more accomplishable project. Preliminary planning began in 1973, culminating in a Traffic Impact Report (August 1975), the conclusions of which are outlined in the following section. Preparation of this report was important to the process of obtaining support for the project. It was out of this phase that suggestions originated for widening Seventh Avenue, improving bus and taxi access, providing cut-outs for bus and taxi loading, and permitting certain turns that are now prohibited. As a result, garage owners and taxi interests, which opposed the Madison Mall, are supporters of Broadway Plaza. The Community Planning Board for the area (Board 5) voted its unanimous approval.

As of the spring of 1977, a grant application for the demonstration program and a final grant application for the architectural and engineering design phase had been filed. Favorable action is expected on both.

8.7 ANTICIPATED RESULTS

It is hoped that the Broadway Plaza effort will be a key element in bringing about a rejuvenation of the Theater District and Times Square. The Plaza is intended to provide needed pedestrian space in Midtown and become a landmark and meeting-place for theater-goers, tourists, and office workers (Ref. 8-5). The 500,000 people who come to the area each day form a large existing market to whom Broadway Plaza must appeal. The mall is not primarily oriented toward expanding this market or competing with suburban shopping centers. Speakers at a public hearing on the project expressed concern, however, that the plaza could have a negative impact unless zoning controls are created to support "upgrading" the uses in Times Square and a rigorous program of 24-hour maintenance and security is maintained to discourage "the 42nd Street element". Several speakers were optimistic, however, that the Broadway Plaza symbolizes the City's commitment to future upgrading of the area (Ref. 8-2).

The primary way in which the project is expected to help transit is by creating a pleasant environment and stimulating activities that will draw more transit riders. Detouring buses around the three plaza areas could cause increases in bus-travel times from one to five minutes during the morning peak hour (Ref. 8-3). One purpose of the demonstration project is to use bus priority arrangements on Broadway north of 49th Street to minimize the overall delay in bus trip times. The transitway between 48th and 49th Streets and for two blocks on Seventh Avenue has the same purpose. The project is also intended to improve boarding conditions and transit information services, especially for tourists and others unfamiliar with the transit system.

Automobile traffic will be adversely affected by the project, although the extent of the adverse impact is not clear. Higher volumes on Seventh Avenue have been calculated to imply delays of from one to four minutes between 57th and 42nd Streets, reducing average speeds to 6-10 mph (Ref. 7-3). However, the elimination of the neck-down at Times Square ought to have some positive effect. Automobile traffic now using Broadway will be delayed between two and four minutes; traffic on cross streets used by cars and buses diverting one short block to Seventh Avenue will also experience delays. Minimization of these negative impacts is an objective of the demonstration program.

DENVER
Section 9

DENVER DATA

<u>GENERAL</u>	<u>CITY</u>	<u>SMSA</u>
1970 population:	515,000	1,228,000
1970 employment:	213,000	493,000
Area:	95.2 sq. mi.	3,660 sq. mi.
Population density:	5,409 per sq. mi.	336 per sq. mi.
Employment density:	2,237 per sq. mi.	135 per sq. mi.
Service area mode split to downtown:	20 percent in 1972, probably higher now	

PROJECT

Name: Sixteenth Street Mall
Status: Plans in design state
Cost: Under study
Funding: Now 100 percent local, federal funding sought
Financing of local share: RTD revenue
Primary backers: Downtown business leaders
Type of transit: Shuttle buses to serve mall area only
Pre-mall pedestrian volume: 15,500 (two-way 12-hour estimated)
Pre-mall traffic volume: 14,000 to 20,000 (one-way, 24-hour)
Pre-mall bus volume at peak hour: 60 buses per hour one-way
Dimensions: 9 blocks (3200 ft.) by 80 ft.
Dimensions of Transitway: 12 ft. wide, would share sidewalk
area
Cost per ft.: \$1,094
Cost per sq. ft.: \$14

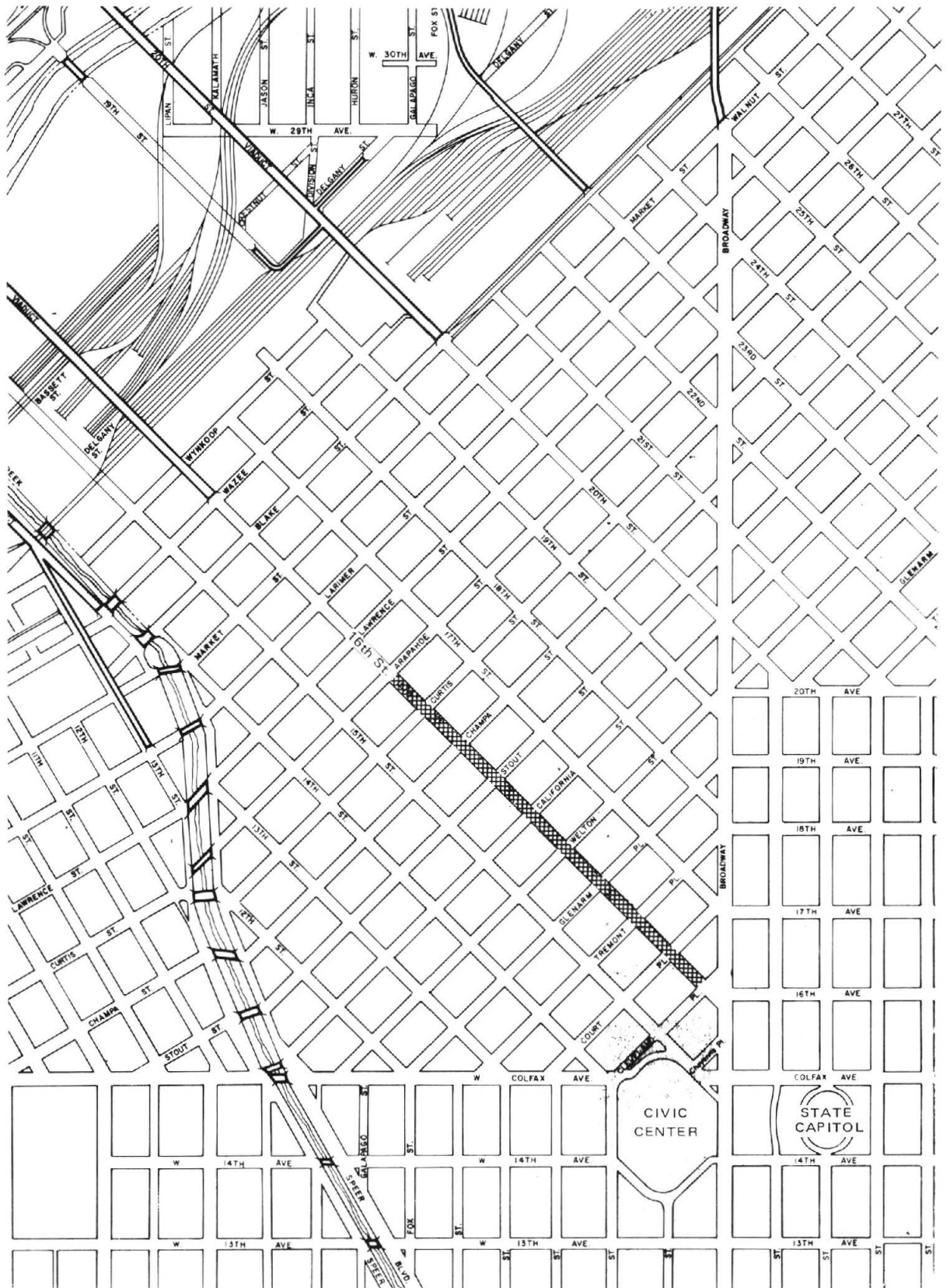
9. DENVER

9.1 INTRODUCTION

Plans to build a shuttle-only mall on 9-10 blocks of Sixteenth Street, in the retail core of Denver, are in the planning stage. Design of the new mall is financed by the Regional Transit District (RTD) and should be completed by late 1977. Construction could begin in 1978. There is no construction cost estimate as yet, although funding is expected from RTD revenue, possibly with the addition of federal grants. The concept of a mall employing small shuttle buses replaces a rejected \$3.5 million plan for a mall with minibuses funded solely by property assessments.

9.2 SITE DESCRIPTION

Denver is situated in northeastern Colorado, on the edge of the Great Plains, within view of the Rocky Mountains. The city of Denver had a 1970 population of 515,000 and the Denver SMSA a 1970 population of 1.3 million. High density development is very localized, being concentrated along a few streets in the CBD. The CBD grid, consisting of numbered streets 400 feet apart and named streets 250 feet apart (plus 16 foot alleys between most named streets), is at forty-five degrees to the north-south east-west grid of the rest of the city. (See Figure 9-1). The two main streets are Sixteenth, which is overwhelmingly retail in use, and Seventeenth, which constitutes the office core of Denver. Further north and east are federal offices; to the south and east are the local and state offices, including the Colorado state capitol. Going north and west on the numbered streets, densities fall off abruptly after Curtis Street. Downtown is to be extended by urban renewal activity in this area, where there are still many vacant lots



Scale: 1" = 500'

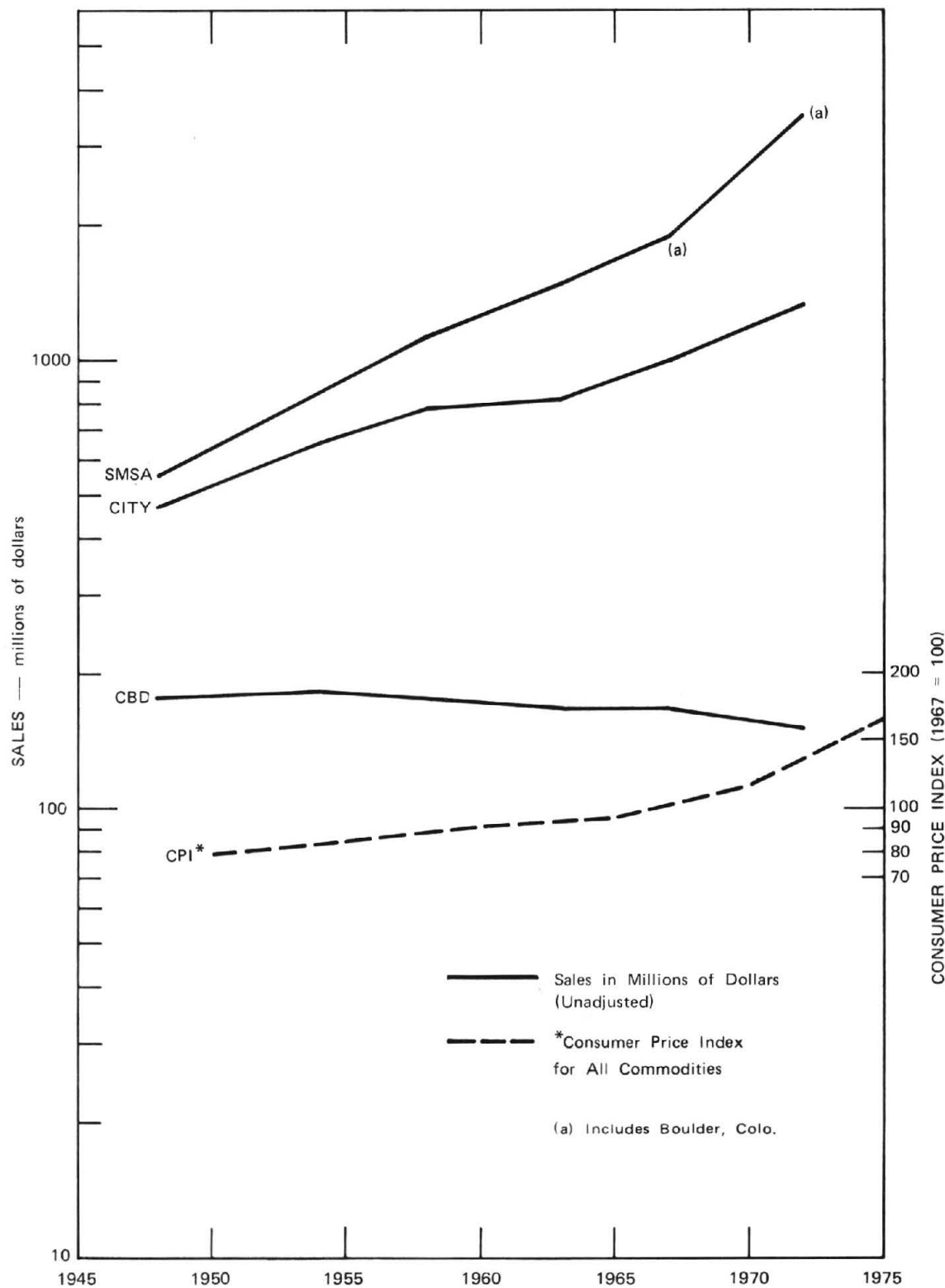
FIGURE 9-1. MAP OF DOWNTOWN DENVER

and parking lots. To the west, recent development has created a performing arts and convention center and the Auraria Higher Education Center. Downtown is separated from the rest of the city on the north and west by railroad yards, now largely unused. The railroad yards have been the subject of development proposals which appear dormant at this time.

The general economic picture is one of growth in downtown, especially in the office sector. According to figures compiled by the Denver Planning Office, total CBD employment rose from 61,000 in 1970 to 72,000 in 1975, a rise of 18 percent, while CBD floorspace rose 15 percent in the same period. Most of this growth in floorspace was for office and residential uses; retail floorspace declined very slightly. As the census figures show (see Figure 9-2), the trend in CBD retail sales has been steadily downward in the last twenty years. Local planners feel however, that the most recent figures may exaggerate this trend, and state sales tax reports suggest an improving picture.

9.3 TRAFFIC AND TRANSIT - GENERAL

Land use in the Denver metropolitan area has a very dispersed pattern, which makes it difficult for transit to compete with the automobile for most trips. However, downtown is not directly served by freeways. Five viaducts connect downtown to I-25 across the railroad yards and the South Platte River. Access from the south and east is provided by the arterial street grid and a few major radially oriented streets. Since the downtown street grid has a different orientation than the rest of the city, access is limited at some points. Fortunately, downtown streets are seldom a convenient route for through trips without any downtown trip end. Thus, the heaviest volumes on core area streets average 12,000 to 16,000 vehicles per weekday (on Sixteenth and Seventeenth Streets), with most being much less. Speer Boulevard, Colfax Avenue, and Broadway, which skirt the area of densest development, are more important as through routes.



SOURCE: U.S. Department of Commerce, Census of Retail Trade

FIGURE 9-2. DENVER RETAIL SALES

Transit service is provided by the Regional Transportation District (RTD), which recently acquired the city bus system, Denver Metro Transit, which in turn took over from the privately-owned Denver Tramway Corp. in 1970. Although Denver Tramway was efficiently run and had a fleet of modern buses, revenue and ridership declined through the 1960's. In 1970, 17 percent of travel to downtown was by bus, compared to 20 percent in 1959 (Ref. 9-6). Under public ownership, the fleet has been increased from 214 to 517 buses, downtown routes have been consolidated onto several one-way pairs, extensive peak period express service has been added, several downtown shuttle services have been introduced (recently made free), and an aggressive marketing program has been pursued. Ridership on Denver Metro Transit in 1974 was 73 percent greater than in 1970; growth is continuing under RTD (Ref. 9-7). By 1973, transit mode split to downtown was 20 percent and was 35 percent by 1976. In 1975, RTD carried nearly 24 million revenue passengers (Ref. 9-7). Long-range plans for some form of automated fixed-guideway transit have, for the present, failed to win federal approval for funding.

Core area bus service is now concentrated on three one-way pairs, of which the Sixteenth/Seventeenth Street pair carries the greatest volumes--approximately 60 buses per peak-hour in each direction, about half of which is express service. Two downtown shuttle routes, with a combined headway of 6 minutes, use this pair middays only. Sixteenth and Seventeenth Streets have exclusive bus lanes along the right-hand curb; hence, goods loading for that side must be done on the nearest side street. Additional loading zones have been added on named streets. There is adequate parking in downtown Denver; of some 30,000 spaces, over two-thirds is in surface lots. The parking rate structure favors all-day parkers who tend to use up the spaces closest to the center of the CBD (Ref. 9-2). In 1970 the maximum accumulation of parkers was 24,000 cars (Ref. 9-6).

A distinctive operational feature of downtown Denver is the widespread use of an all-way walk phase at signalized intersections; known as a "Barnes dance," this phase is allotted one-third of each cycle and permits pedestrians to cross in any direction, including diagonally. Vehicle speeds are kept low, since the signal progression downtown is set for about 14 mph.

A set of Policy Statements, adopted by the Denver Planning Board and numerous public institutions and agencies in January 1976, includes the following statements:

1. Denver - the Central City - must have high quality environment, transportation, employment, public safety, recreation, and public facilities to assure a quality of life adequate to attract and hold the people upon which its long term success depends. The Central Business District must continue its development as Denver's most important resource.
2. Increased transit ridership to and from downtown should be encouraged and accommodated with improved waiting facilities, added bus routes, park and ride facilities, provisions for exclusive bus lanes, and planning for the integration of future transit guideways.
3. Internal pedestrian movement downtown should be developed with higher standards of design for walkway areas, street furnishings, planting, and surfacing, and the careful placing of added plazas, arcades and pedestrian bridges.
4. ...the efficiency of auto movement and related parking should be increased by routing major high volume traffic volumes around the high density CBD core areas...
5. Air quality is a growing problem in the life of the metropolitan area. Every effort should be made to improve air quality and improve emission controls (Ref. 9-4).

9.4 PROJECT STREET BEFORE MALL

Sixteenth Street in the project area has an 80 foot right-of-way, with approximately 15-foot sidewalks, a parking/loading lane on the left hand side, three lanes of general traffic, and

an exclusive bus lane on the right hand side. All traffic is one-way moving northwest. Pedestrian volumes in the center of the project area frequently exceed 1500 people per hour on each side of the street at midday (Ref. 9-9). Loading zones and the exclusive bus lane leave very little on-street parking space. There are no hotels or parking lots with access only on Sixteenth Street; use of Sixteenth Street by taxicabs is very light. All the major stores front on Sixteenth Street, which has 74 percent retail frontage between Broadway and Arapahoe Streets. Figures 9-3 through 9-5 show existing conditions on Sixteenth Street.

9.5 PROJECT STREET AFTER MALL

The current proposal would develop Sixteenth Street as a shuttle-only mall between Broadway and the Skyline Park area, a distance of about nine blocks or approximately 3,200 feet. Express bus service would be routed to terminals in "staging areas" at either end of the mall. All other regular bus service would be moved to nearby one-way pairs (14th/15th Streets and 17th/18th Streets). Three streets would need to be reversed (Cleveland Place and 14th and 15th Streets) and one reverse lane would be developed on the south side of Court Place. A study of the mall's traffic impact on the entire downtown area is underway. Sixteenth Street itself will be repaved and amenities added (a consultant has been hired to design the mall and express transit terminals). Small shuttles will operate two-way within defined lanes, probably without curbing. The cost of the project will be paid by RTD, possibly with federal grants. There will be no special assessment district for the mall itself, although improvements proposed on cross streets will be paid by the property owners.

This proposal replaces a similar plan rejected in August 1975. In terms of design, the previous plan differed mainly in its lack of a commitment to express bus staging areas.

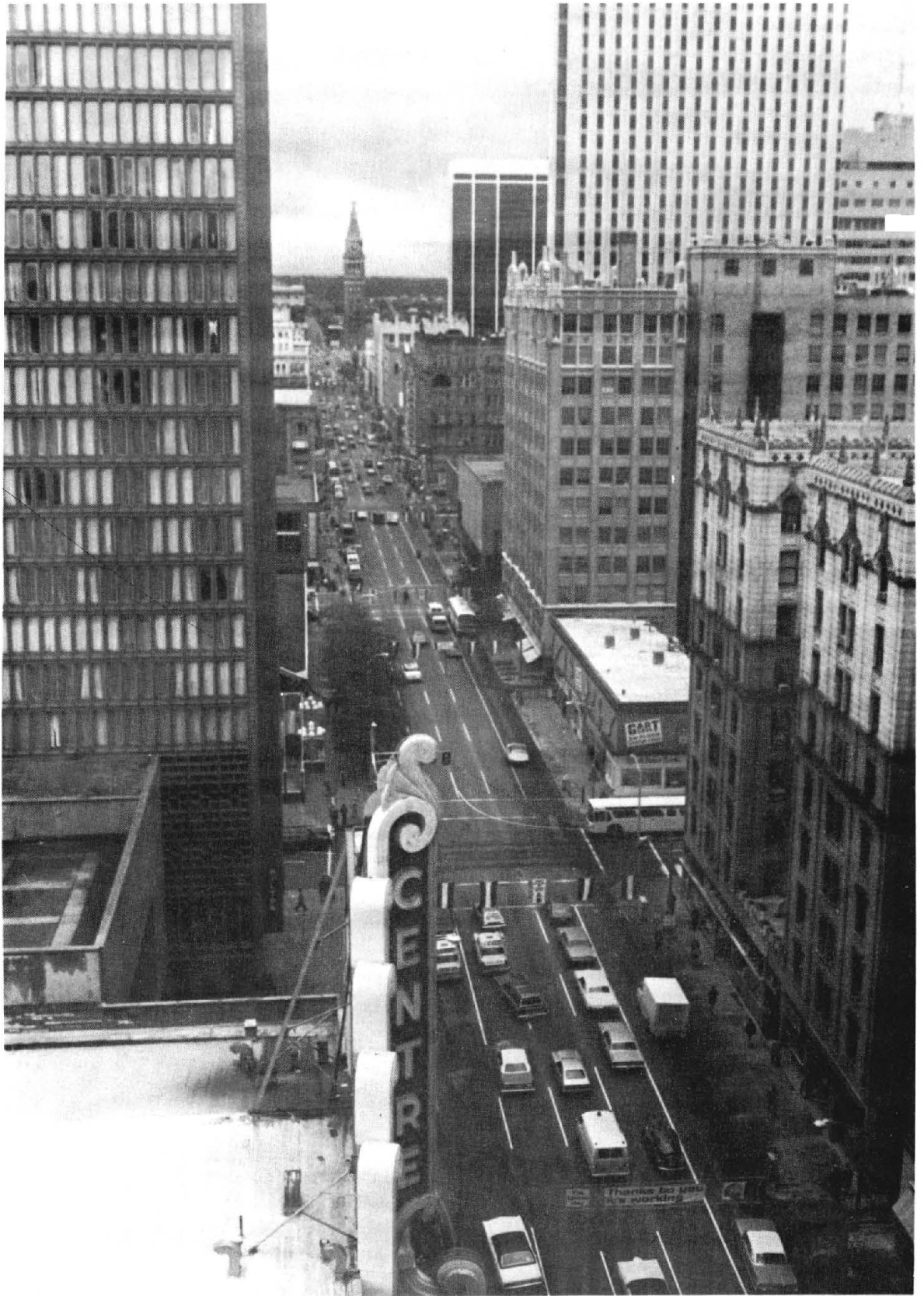


FIGURE 9-3. SIXTEENTH STREET: AERIAL VIEW



FIGURE 9-4. SIXTEENTH STREET: "BOARD HERE"



FIGURE 9-5. SIXTEENTH STREET: BARNES DANCE

Thus the new proposal is clearly integrated with the regional transportation system, and uses this as a selling point. The previous plan, estimated to cost \$3.5 million, also differed in its funding mechanism. The original proposal was largely to be paid through assessments on benefiting property owners (based on assessed value of property plus modifications).

9.6 PROJECT HISTORY

General interest in the idea of a mall in downtown Denver goes back about fifteen years. Current proposals originated in 1970 and coincided with a general renewed interest in downtown planning and redevelopment in Denver. Denver was one of five medium-sized cities included in the Center City Transportation Project (CCTP). The CCTP report on Denver, published in September 1970, included many recommendations which have been generally pursued. The report recommended a system of second-level pedestrian distribution, or a people-mover, on Sixteenth Street; a network of "sky bridges" throughout the CBD; and a three-block pedestrian mall on California Street between Fifteenth and Eighteenth Streets. These proposals are included in a section on "Long Range Conceptual Approaches" and refer to the period after 1980 (Ref. 9-6).

At the same time as the CCTP was in progress, the possibility of a mall was being explored by the Denver Planning Office and Downtown Denver, Inc. (DDI). DDI is an influential organization of downtown business interests, including banking, insurance and the larger retailers, which plays a semi-official role in downtown politics; the executive director of DDI, Philip Milstein, was also the chairman of the Denver Planning Board. An initial feasibility study considered malls on Sixteenth, Seventeenth and California Streets. The experience of Minneapolis with its Nicollet Mall was important at this stage.

In May 1971, the Board of Directors of DDI approved the concept of a mall on Sixteenth Street. In 1972, trips to Minneapolis were arranged for business and civic leaders, to further promote the idea. A consulting firm was retained to study effects of a mall on traffic circulation. In January 1973, a pamphlet titled "Downtown Denver Pedestrian Transit Mall Proposals" was published jointly by the Denver Planning Office and DDI (Ref. 9-3). This pamphlet presents two proposals:

1. A mall on Sixteenth Street with a two-way transitway;
2. Malls on Sixteenth and Seventeenth Streets with a one-way transitway on each.

Both proposals included the streets from Broadway to Lawrence Street. The possibility of a mall on Seventeenth Street as well grew out of the consultants' study of changes to traffic circulation required by the mall. Broadway and Lawrence Street represent the limits of the built up core of downtown. They appear to have been accepted from the start, although the final proposal did cut off one block from the north-west end of the mall. The January 1973 pamphlet presents the following reasons for a mall, some stated in terms of assumed effects of a mall:

1. Ease of pedestrian movement is vital to Downtown....
2. The competitive position of Downtown Denver must be continually improved in terms of overall environment and ease of access....
3. The Downtown area would appear more compact....
4. More efficient use of the automobile can be realized... if the automobile-pedestrian conflict is minimized.
5. Additional space and improved waiting areas are required for transit users....
6. Denver Metro Transit bus service would be improved....
7. Higher standards of environment are being set by new shopping and office centers.

The pamphlet also spells out the financing scheme. As provided for in the Denver City Charter, a special assessment district would be established, extending well to either side of the mall to Fourteenth and Eighteenth Streets. Owners of property in the district would contribute in proportion to the assessed value of their property, paying off the cost of the project to the City over a period of twelve years. Properties close to the mall would bear a greater share of the total cost than those further away. No other sources of funds were considered at this time, except city payment of traffic signal costs.

The possibility of a mall on Seventeenth Street was not supported by some financial institutions and other large offices there, despite the fact that they would remain in the assessment district anyway. The Sixteenth Street mall, however, gathered support from all corners during 1973, including the membership of DDI, the mayor of Denver, the League of Women Voters and the Denver Post. In addition to the DDI and Denver Planning Office, the Traffic Engineering Division, the RTD and numerous other public and semi-public organizations participated in planning for the mall under the name Central Area Development Group (CADG). The Traffic Engineering Division cooperated on the project. CADG published a parking study in July 1973, concluding that there was adequate existing parking to serve a mall (Ref. 9-2).

In July 1973 a planning and design consultant was chosen for the mall, and in August a Sixteenth Street Mall Corporation was formed, operating in the offices of DDI. As work proceeded on design and promotion, a turning point came with the distribution of a questionnaire to establishments on Sixteenth Street. Although responses showed support for the mall, many people suggested that standard buses should not be allowed. After this, designs for a non-transit mall were prepared. A large group

of people visited Minneapolis again to observe the Nicollet Mall in operation. As a result, the consultants' report (dated February 1974 but released in April) recommended against the transit mall. This recommendation is based on statements that, with expected peak-hour two-way volumes of 150 buses per hour in the near future, a two-lane transitway would not provide adequate capacity or flexibility; bus service should serve a wider area of downtown; and buses would destroy the pedestrian environment. The recommended design proposal is described in the previous section. At this time the project cost was estimated at \$2.7 million plus another \$1 million in "related" and "participation" costs to be borne by the City or RTD (Ref.9-7).

The next several months were spent in presenting the plans to property owners and businesses in the mall area, refining the cost estimates with the city engineers, and conducting a formal Benefit Study to design the assessment district. The Benefit Study, completed in August 1974, limited the district to 100 feet past Seventeenth Street, 100 feet past Fifteenth Street, Arapahoe Street, and one block east of Broadway. The cost was to be apportioned as follows: 45 percent paid by owners of property within 100 feet on either side of Sixteenth Street; 20 percent in the next 100 feet; 15 percent in the next 100 feet; 12.5 percent in the next 100 feet, reaching to Seventeenth and Fifteenth Streets; 7.5 percent by owners of property in the 100 feet beyond Seventeenth and Fifteenth Streets (Ref. 9-5).

In September 1974, the project backers were ready to start on the official process of establishing the special assessment district by getting approval from owners of property with two-thirds of the assessed value in the district. The cost estimate at this time was \$3.5 million. When the deadline for the process passed in August 1975, approval had been obtained from owners of property with only about 35 percent of the assessed

value in the district. This failure to win approval appears to have a variety of explanations.

1. Several major merchants opposed the project vocally. However, others were for it and DDI's executive director still feels that owners of much less than a third of property value were initially against the mall.
2. Several large blocks of property were owned by interests not located in Denver; they were not actively for the mall and would not support it once controversy arose.
3. In April 1976, RTD approved plans for a light rail system that included a subway under Sixteenth Street. Although RTD did not actually oppose the mall, it was clear that building a mall would make it harder to tear the street up again for subway construction. After the subway plans were announced, DDI did not work actively to obtain approval for the mall.
4. Many property owners, although not opposed to the mall, did not want to pay for it.

Although the special assessment district failed to win approval, the backers of the mall, including DDI and various city departments were still convinced that a mall or some form of Sixteenth Street improvement had to happen eventually. In June 1976, UMTA turned down RTD's request for engineering and construction funds for the light rail system, encouraging a program of bus improvements instead. RTD would still like a fixed guideway system and has worked out a loan program with UMTA to preserve possible rights-of-way for such a system. In the fall of 1976, four mall/transit concepts were developed by the Central Area Development Group within a general framework for downtown transportation improvements. All four concepts required that an option be maintained for a subway under Sixteenth Street. In addition, the plans then under consideration all involve rerouting express bus service to staging areas on the edge of downtown. Sixteenth Street

would be either a pedestrian mall, a transit mall with shuttles to serve the staging areas, or a two-way exclusive bus street. A fourth alternative would create a pedestrian mall on Sixteenth Street and make Seventeenth Street an exclusive bus street.

In November 1976, the DDI Board of Directors unanimously endorsed the shuttle mall alternative. After discussions with the Denver Public Works and Planning offices, the RTD appears ready to assume responsibility for the project. Although RTD would seek federal funds, it was also prepared to fund the project itself, and no special assessment district would be needed. RTD hired consultants for urban design and traffic engineering in early 1977, and actual construction could begin in 1978. According to RTD Executive Director John D. Simpson, "the climate couldn't be better" for moving ahead on the mall. Some suburban opposition to subsidizing downtown transit development initially appeared; however, this subsided when the relationship of the shuttle mall to the regional transit system was explained.

10. PLANNING ANALYSIS

10.1 INTRODUCTION

This section presents a comparison of the planning framework for each of the six transit malls covered in this report. To a large extent this framework determines the special financial character and design of each mall reviewed in Chapter 3. Chapter 10 includes a discussion of the contextual elements of mall development such as existing transportation services and the economic and political climates. This section also includes a description of the planning process itself; the gathering of support and opposition, the selection of alternatives, and the appearance and resolution of "bottlenecks" in the process. Together, these contextual and planning elements constitute project histories which should prove useful to other communities considering the transit mall idea.

10.2 CONTEXTUAL ELEMENTS OF MALL DEVELOPMENT

10.2.1 Economic Climate

The most common motivation for building transit malls, pedestrian malls, and related projects is the hope that the completed facility will stimulate growth in downtown areas. Such growth may take the form of increased retail sales, more jobs, or greater private or public investment. Most of the cities in the study appear to be holding their own or even gaining downtown office jobs, a fact which may have generated optimism about the future of the core in general. Moreover, Minneapolis, Portland, and Denver have each advertised that their downtowns "lack the typical ills" associated with urban centers. In the area of retail sales, however, all of the

CBD's were clearly falling behind their suburban competitors, and all suffered an absolute decline in sales, if measured against inflation. Perhaps for this reason, all but one of the transit malls passes along a major retail street. The partial exception is Portland, where the mall cuts through the office core but also intersects the main retail district. A plan to have a second transitway through Denver's office core, on the other hand, was dropped for lack of interest. Thus it is usually hoped that the transit mall and pedestrian amenities will attract more shoppers. Mall promoters hope, in turn, that increased patronage will attract "higher quality" and more stable retail outlets, as may have occurred in Philadelphia, or at least encourage major downtown department stores to remain in the city and perhaps expand, as has happened in Minneapolis and Portland. It should be noted that merchants often fear the economic effect of a transit mall, due to its possible impact on pedestrian use or automobile and goods access. No project got off the ground until merchants and property owners were convinced it would be good for business.

In addition to stimulating new economic activity, transit malls are often developed to complement or reinforce ongoing redevelopment efforts. In Minneapolis, Nicollet Mall is integrated with the new IDS and Gateway Centers, and with a system of enclosed pedestrian skyways. An extension of the mall is planned partly to tie a residential development, now under construction, into the network of downtown developments. In Philadelphia's Center City there has been extensive restoration/redevelopment in nearly all directions from Chestnut Street, although the street itself, for the length of the transitway, was in the process of deterioration. In several cases, a mall's role as a "bridge", functionally, economically, or aesthetically, between other centers of activity may rival the economic advantages generated for the businesses in the immediate vicinity of the mall.

10.2.2 Transportation Services

A second critical factor in the climate for a transit mall is the condition of the transportation system. Only New York and Philadelphia can rightfully be described as "transit-oriented". The other cities are essentially auto-oriented in use and design. This is particularly true of use by shoppers as opposed to downtown office workers. Although all the cities are attempting to upgrade their public transportation systems, they vary widely in the degree and manner in which they see transit malls as a way to do this. In New York, the speed of bus service may be reduced, although planners hope that amenities on the plaza will attract new patrons. In Minneapolis and Madison, transit service has or will be improved by re-routing buses on to the malls and/or by reducing travel time. These benefits are considered secondary, however, to the benefits of an improved pedestrian environment. Philadelphia is a unique case that is difficult to classify. The project was originally designed both to attract shoppers and to ease a transportation "crisis" anticipated for the Bicentennial events in that city. Because of the narrow right-of-way (60'), Chestnut Street may not be as conducive as the other malls to a pedestrian/transit mix. However, there has been little re-routing of buses to take advantage of the transitway. Since the transit mall is paralleled by a subway line, the major transit advantage is seen as the reliability of bus service rather than increased speed. In Portland, the transit malls are clearly related to a general plan for improving transportation services. There is broad support for improved public transit as a means of reducing air pollution and encouraging a more compact metropolitan area. The project includes extensive re-routing of buses to take advantage of the twin malls. It is consistent with a recent re-classification of downtown streets according to future transportation use, and with such longer-range improvements as reserved bus lanes on area highways.

The arrangement and use of the downtown street network is also important. For example, Madison's CBD is located on a narrow isthmus which leaves little room for streets devoted solely to pedestrians or solely to buses. The "redundant" street system in Portland, on the other hand, makes it relatively easy to reduce auto use on some roadways. None of the transit malls are constructed or planned on a major automobile route. A possible exception is Philadelphia, although traffic usage on Chestnut Street had been falling for a number of years prior to transitway construction. Thus, potential auto congestion from diverted traffic is relatively slight. Philadelphia and New York have or plan to institute adjusted signal timings to ease congestion from diverted traffic.

10.2.3 Political Climate

When speaking of a political "climate" for a project, one refers to a number of intermingled factors: political issues and philosophies, the role of organizations and special interest groups, the availability and quality of leadership, and influences from groups or institutions outside the metropolitan area. This topic is sensitive and often abstract. Nevertheless, the cities in this report do have widely varying political climates and some appreciation of these differences is necessary to understand the success, or failure, of transit mall proposals.

Each of our cities has a generally "progressive" or liberal political image. For each city this image carries a different connotation and focuses on different issues. Yet each image or general political climate has an impact on the transit mall plan. New York and Philadelphia both exemplify "typical central city ills": declining tax base, rising taxes, and rising debt. New York is struggling to avoid bankruptcy and maintain its image as a world capital and center of

attractions, of which Times Square is one. Philadelphia is trying to overcome a poor image it has held for many years, partly by improving its sites of historical interest, including many in the vicinity of Chestnut Street. Minneapolis has long held a progressive image--Hubert Humphrey is a former mayor--and views itself as the economic "capital" of the northern plains states. Local leaders see a strong downtown core as critical to that role, and organized themselves to fight the movement of businesses to the suburbs. Madison, as the state capital and site of the University of Wisconsin, has a heavy concentration of government workers and students. The climate for public and private investment worsened during the 1960's, partly in response to student riots. However, the transit mall fits well with a strong environmentalist philosophy held in common by students and a large segment of the general public. Portland and Denver share a concern with preserving the natural environment and containing population growth and "sprawl". As a consequence, both cities share an emphasis on long-range planning, including improved transportation services. Economic expansion of the downtown core is seen not only as a benefit in itself, but as a development consistent with the broader objective of reducing industrial/commercial suburbanization. Minneapolis also has a strong growth policy, although this was not a major issue in the development of Nicollet Mall.

The development of a transit mall project occurs within an organizational framework. In several cities a key group is the downtown businessmen's association. Although as individuals their interests often span the city and even beyond, collectively on their own turf they function as a "neighborhood" group. Minneapolis' Downtown Council, Portland's Downtown Committee, and Downtown Denver, Inc. (DDI) are all examples of this. Philadelphia's bicentennial organization, Philadelphia '76, is similar, although it was an ad hoc group appointed by the mayor, and included political as well as

downtown business leaders. All of these associations have the influence and resources to organize studies, gather support, design projects, and seek implementation of their ideas.

In all of the cities, local planning agencies and transit authorities played a role in development of the transit malls. In some cases they worked hand-in-hand with the downtown group. The coordination of the Denver RTD, the Denver Planning Office and DDI is a case in point. In two cities the governmental groups tended to dominate. Madison's City Planning Department was the major sponsor of that city's mall, at least initially. In New York, the Mayor's Mid-town Action Office is primarily responsible for the planned Broadway Plaza.

A final factor in the organizational framework is the special interest group. In Madison and Philadelphia, local merchant groups (the Central Madison Committee and the Chestnut Street Association), which lacked the resources of a "downtown association," took on the "interest group" role. This appears to have included a potential veto-power, as well as the right to suggest modifications in design or funding. New York's taxi operators held a similar position with respect to the bygone Madison Avenue Mall and to the design of the Broadway Plaza. Philadelphia's parking lot operators, on the other hand, failed to halt transitway construction in that city.

To judge from the site histories considered, a critical element in the operation of the organizational framework is the emergence of "key personalities." These people provide the vigor, stability, and often the critical ideas necessary for relatively long-range projects. In several cities, these figures already held leadership positions in the downtown associations. In some cases these men held important posts both within the business group and within governmental bodies. In Madison, on the other hand, the leadership position clearly

fell on the mayor, Paul Soglin. The preceding mayor had given the mall no support. Madison is the only example of a city where a political upheaval changed the history of a transit mall.

A final element in the political framework consists of "outside influences." The state government was an important factor in Minneapolis, where enabling legislation was needed to establish the special transit mall assessment district. This turned into a very time-consuming bottleneck. Interestingly, Minneapolis' Nicollet Mall served as an outside influence on the other malls. Since its completion preceded the others by nine or more years, it has served as a model for communities interested in transit malls. In Denver, out-of-state companies that owned local property became an "outside influence." Although they did not openly oppose the 16th Street Mall, they withdrew their support when controversy arose over the project. An important outside factor, everywhere but Minneapolis, was UMTA itself. As a major supplier of funds, UMTA has considerable clout. This is particularly true in matters of project design. For instance, both Philadelphia and Portland were advised to reduce the amount of general traffic access in their plans in order to qualify for federal monies. Beyond this, actions by UMTA have directly and indirectly encouraged initial project development. UMTA provided planning funds to Portland. In Denver, UMTA action in rejecting a proposed light rail system with a subway link under 16th Street, encouraging bus improvements instead, may have been instrumental in RTD's reconsideration of the previously defeated 16th Street Mall. UMTA's major influence nationwide, however, has been to stimulate interest in transit malls by holding out the "carrot" of possible federal funds.

10.2.4 Objectives

Perceived transportation needs and the economic and political climates work together to determine the particular transit mall objectives in each community. There are four common objectives of transit mall projects: (a) improved pedestrian services, (b) improved transit services, (c) improved economic conditions, and (d) improved environmental conditions. These objectives may complement or conflict with one another, depending on the particular circumstances in each city. From the long list of possible civic improvements, transit malls are usually selected because they offer a potential way to balance these objectives, to make at least some progress toward meeting most or all of the objectives. Within this framework, however, most cities proceed to establish at least an implicit prioritization among the objectives based on the contextual factors examined earlier.

In Minneapolis, both transit and pedestrian services were improved. Transit service was improved by the concentration of bus routes on the mall. Pedestrian service was more important, however, as evidenced by the slower, serpentine roadways and a concern over exceeding the roadway "capacity" for buses. Both transit and pedestrian improvements were clearly aimed at attracting shoppers to better the downtown economic climate. Moreover, the mall was designed to complement, physically and economically, the existing network of redevelopment sites scattered through the downtown area.

Philadelphia's Chestnut Street Transitway has a relatively narrow right-of-way, and therefore had the greatest potential for conflict between transit and pedestrian uses. Actual transit improvements have been relatively slight to date, but at least for its first year of operation, there may have been a substantial improvement over the transportation "crisis" once anticipated due to bicentennial year tourism. As in Minneapolis, it was hoped that pedestrian amenities would improve retail sales

on Chestnut Street and also complement extensive, ongoing redevelopment/restoration efforts in the vicinity. Portland's double mall is the only example of a project in which transportation objectives predominate. This is seen in the concentration of bus lines, the reduction of pedestrian areas for a general traffic lane, and in the fact that the mall focuses on the office core, only intersecting the retail district for a few blocks. Much as Nicollet Mall and the Chestnut Street Transitway were integrated with the downtown redevelopment network, Portland's mall is integrated with regional transportation measures designed to encourage the use of public transit. These include a lid on downtown parking, a comprehensive program of bus re-routing and the development of reserved bus lanes on area highways. Improvements in transit service are usually related, in Portland, to the environmental issues of air pollution and urban sprawl. This environmental emphasis applies to non-transit improvements as well. For instance, pedestrian amenities are provided both to attract shoppers and to improve the "quality of life" of workers and other sidewalk users. Intensification of downtown land use is supported both for economic reasons and as a means of reducing the pressure for suburban sprawl.

In Madison, the balance again shifts to pedestrians. Two blocks of State Street will be a full pedestrian mall and Capitol Square will be ringed by a 38-foot outside sidewalk. It is clear that the major objective of the pedestrian emphasis is to upgrade the economic climate on the mall. However, largely in response to public opinion, an emphasis is also placed on the "quality of life" and environmental aspects of an auto-free or restricted access area. While transit service may be improved, the transportation function is subsidiary and acts more as a "constraint" on mall design.

New York's planned Broadway Plaza is also oriented toward pedestrians. Three blocks are a full pedestrian mall and

general traffic is discouraged on the remaining six blocks. These improvements are aimed at stimulating an economic resurgence in the Times Square area, although the mall also functions as a "bridge" between the theatre district and Rockefeller Center, and should complement both these areas as well. Facilities to improve transportation service, such as the taxi-loading area and new signal timings, are a secondary objective.

Plans now under study in Denver appear to strike an interesting balance between pedestrian and transit objectives. On the one hand, the mall itself is clearly to be dedicated to pedestrians. The roadway will be curbsless, and only small shuttle-type vehicles will be allowed. Running through the retail core, the primary aim of the mall is to draw patrons to area stores. However, the shuttle service will also be integrated with the regional transit system. The shuttles will run between "staging areas" for express buses, and can thus service both shoppers and workers who use standard transit vehicles to get to the edge of the CBD.

10.3 THE PROCESS OF MALL DEVELOPMENT

10.3.1 Project Initiation

As suggested in 10.2.3, each project developed a "sponsoring" organization, either a downtown businessmen's group and/or a public agency, along with a key personality who could lead the project to fruition. In most cases this was the same group which first generated the mall idea, sometimes with the assistance of consultants. The earliest version of the mall idea was often far from the ultimate design. For instance, Philadelphia first envisioned a trolley line on Chestnut Street. The important point is simply that the idea for some kind of mall was initially accepted and promoted by a sponsoring group.

The major reason for the transit mall idea attracting sponsors appears to be that the mall was simply a relatively speedy and inexpensive solution to a problem, such as economic deterioration, that was currently of concern to the sponsoring group. In several cases, the designated streets had been the subject of planning studies and improvement plans for many years. In addition, by the late 1960's most communities were familiar and comfortable with the concepts of pedestrian malls and bus priority treatments, and after 1967 they had the Nicollet Mall as an example of these concepts in combination. Finally, these cities may have been blessed with an unusually high quality of public or private leadership and staff talent.

10.3.2 Project Study and Selection of Alternatives

The next step in the planning process was usually the appointment of a special group or committee charged with investigating and promoting the transit mall idea. In Minneapolis, the group assigned to study Nicollet Avenue was a subcommittee of the Downtown Council. On the other hand, Portland's Downtown Plan Team, Denver's Central Area Development Group, and Madison's State Street Charette covered a range of interested parties, including local officials. Consultants were hired, or city departments used, to study the impact of the mall on traffic patterns and sometimes parking, loading, and economic conditions. An architectural design was commissioned. Where federal funding is requested, an Environmental Impact Statement (EIS) may have to be submitted by the city.

At some point during this process, certainly prior to the more expensive and detailed engineering studies, alternative proposals were considered. In most cases consideration of alternatives was a formal procedure, although the final project design tended to evolve over time. In four of the cities consultants were responsible for the formal presentation

of alternatives. In Philadelphia and Portland, the alternatives were limited to ones involving traffic and/or transit use. In both cities considerable study and discussion had preceded the consultants' reports. Indeed, the Portland City Council approved an alternative, close to the final design, over a year before publication of the consultants' report. In Minneapolis and Madison, a wider range of alternatives that included full pedestrian malls, beautification projects and, in the case of Madison, "no change" were presented. In Denver, the latest plan was selected from among four "concepts," developed within the DDI/DPO organization, that covered different mixes of pedestrian and transit uses.

In most of the cities, the decision to select a particular alternative was aided by either the consultants' presentation of formal objectives or by existing policy statements. For instance, in Madison the consultants' formal presentation of objectives made it clear that transportation functions were a subsidiary constraint. The design finally selected reflected this view with an emphasis on pedestrian use modified, where necessary, by the needs of the city Department of Transportation and local merchants. In Minneapolis, four stated objectives included both improved pedestrian circulation and better mass transit. The transit mall alternative was the only one which met all the objectives. In some cases, the consultants themselves recommended one alternative. For example, in Philadelphia the consultants' report noted that the two-way Chestnut Street Transitway would provide the best combination of pedestrian and transit service, while creating the least traffic congestion. Philadelphia accepted the consultants' conclusion.

The final mall designs came about through a process of evolution. In Minneapolis, this involved developing more specific designs which reflected the relative weight given to pedestrian and transit use. Inputs from merchants and

property owners, particularly in Philadelphia and Madison, affected the provision of access to parking and loading facilities and also (in Philadelphia) resulted in changes in the blocks to be included in the malls. In Philadelphia, and for an early Denver proposal, responses from affected businesses were gathered by means of a formal survey. As noted elsewhere, UMTA made certain design changes a pre-requisite for funding in Portland and Philadelphia. Most changes to the approved alternative can be described as "modifications." Occasionally, a change can significantly alter the character of the project. Portland may be an example of the latter, where a general traffic lane which allowed through-travel was re-designed to force traffic to turn off the mall at every fourth block.

New York's Broadway Plaza is a unique situation in which the project resulted from a process of trial-and-error. A 1969 consultants' report recommended greater emphasis on pedestrian and open space uses in the midtown area. As a result of this study, 15 blocks of Madison Avenue were made into a pedestrian and bus mall for two weeks. Plans to make the conversion permanent failed due to opposition from garage owners and taxi interests. Broadway Plaza, three blocks west of Madison Avenue, was proposed by the Office of Mid-town Planning and Development as an accomplishable substitute for the Madison Avenue Mall, with the constraints of transportation functions taken into account. Community input was arranged through public hearings, although no substantive changes from the recommended design proposal appear to have been suggested. Other city departments, however, did suggest changes which were incorporated into the design.

10.3.3 Bottlenecks

After the basic design alternative is selected, a project

may run into a number of bottlenecks that hamper, or stop, project implementation. In some cases, the transit mall may be inconsistent with the contextual elements for development. The lack of political support, among other factors, delayed the Madison project for several years. Philadelphia's Chestnut Street merchants had to be convinced that economic indicators pointed to long-term deterioration of the street. Also in Philadelphia, a consultants' report indicated that the transitway should be dependent on a proposed highway extension, if traffic congestion was to be avoided. The highway extension was defeated, and the transit mall delayed.

Easily, the most common bottlenecks concern parking and the loading of goods and passengers. While in one sense these are minor problems, they can generate intense opposition to a mall project by those individuals immediately affected. Each of the sites in this report has found a solution to these problems, although in the case of uncompleted projects these solutions remain untested. In several cities access to existing parking facilities became an issue. In Philadelphia, parking lot operators with entrances on Chestnut Street took legal action in an attempt to halt construction. The problem was resolved with the successful operation of a mixed-use lane on one block of the transitway, allowing access to two lots, and by the use of lot entrances on side streets. Portland set aside funds to compensate the owners of two buildings who would lose vehicle access to parking facilities. In Madison, the elimination of on-street parking has forced a consideration of new off-street parking in the vicinity of the mall. The provision of space for loading goods was a universal problem. Solutions included side street loading zones, loading from rear alleys, on-mall loading during off-peak hours on a regular basis, and on-mall loading during off-peak hours by special permission. The method or combination of methods selected depended on the particular design and use problems in each city. It should

be noted that the on-mall solutions are largely untested among the completed projects. In several cities provision has been made for taxi service. In New York, taxis are unrestricted except for the pedestrian-only blocks. A taxi-loading area is provided next to one of these. Minneapolis allows taxis to enter and leave only at the ends of the mall, and only in response to a call for service. Philadelphia allows taxi use on a single lane of one block that contains a major hotel.

The project construction phase may also generate problems. For instance, Philadelphia had to maintain a modest program of utility relocation, careful phasing of work, and long working hours in order to provide customer access to shops, and to complete the project before the Christmas shopping season. Even this careful planning was temporarily undermined by a strike. Minneapolis found that when it was unable to receive a bid for construction work at the desired cost, it had to act as its own general contractor.

Probably the most serious potential bottleneck is arranging funding. One basic division concerns the source of project monies--federal and state governments, regional agencies, city government, or property owners. A wide variety of federal programs have been used or suggested for transit mall projects. Nicollet Mall was partially funded with Urban Beautification and UMTA Demonstration grants. New York is exploring a combination of UMTA Demonstration, UMTA capital, Federal Aid Urban System, and Community Development Revenue Sharing grants. The local share for Brooklyn's Fulton Street Mall will come from federal Community Development Block Grant funds. Monies available under most of these programs are limited, however. Most contain special requirements. For instance, UMTA Demonstration grants now require fairly extensive project evaluation. Minneapolis discovered that its Urban Beautification grant required a city-wide beautification application, though the City had not

even approved guidelines for such a program. For these reasons, most communities have turned to the basic UMTA capital grant program, which pays for 80 percent of eligible costs. This program accounted for a majority of total project costs in Philadelphia and Portland, and a substantial share in Madison. UMTA capital grants also have regulations, of course, including the need (noted earlier) to show a transit improvement objective in the mall design.

Generally speaking, state agencies have not been active financial backers of transit malls. The major exception is Pennsylvania's state DOT, which contributed one-sixth of the funds for the Chestnut Street Transitway. In Madison, the state-owned University of Wisconsin contributed its share of funds as a "benefiting" property owner. Elsewhere, regional transportation agencies have sometimes been major transit mall backers. Portland's Tri-Met will absorb about 30 percent of total project costs. In Denver, the RTD is currently backing a revised 16th Street Mall project. Funding will be from RTD revenues, possibly with federal assistance. The RTD has already contracted for traffic engineering and mall design studies.

In Minneapolis, Madison, and the original Denver plan, the largest share of project funds comes from local sources. In Madison, the City's capital budget will assume the largest proportion of costs. In Minneapolis, and in the original Denver plan, benefiting property owners pay the most. Property assessments also account for a substantial minority share in Madison. The most serious bottlenecks, for locally-funded projects, appear to occur to those who opt for special assessment districts. This involves several problems of equity.

One problem is to determine the geographic limits of "benefiting" property. Minneapolis chose to have separate zones for properties abutting the mall and those between a half and a full block away. A further modification varies the assessment within zones according to distance from the center blocks of the mall. Both Madison and Denver followed Minneapolis with a two-zone system, although Denver's reduced-assessment "outside" zone included the functionally-distinct office core.

A second problem concerns the type of assessment base selected. Examples could include square footage of land, square footage of floor space, or assessed value. Minneapolis and Madison both chose to assess by square footage of land. Denver opted to use assessed valuation. The notion of transit mall "benefits" and equity with these and other measures can be quite complex. The choice could depend on the specific land intensity (value/acre) and type of land use in the area. For instance, low intensity uses, such as parking lots, might be disadvantaged by an assessment based on land area. On the other hand, depending on lot dimensions and other factors, such properties may gain the most in value if an improved economic climate encourages redevelopment. Even within similar land intensity categories, the type of use can make a difference in benefit. For instance, retail stores which gain new customers may have a greater benefit than office buildings, which may only gain a more pleasant worker environment.

Local property assessment practices and a determination of which formula can most easily gain approval and be implemented are also potentially important factors. One solution is to select one method and then modify it to get an equitable result. To some extent, this was done in Minneapolis. While its assessment is based on land area, the geographic modification resulted in the "full-share" sub-zone consisting of the most intensive retail users (three major department stores and the IDS Center).

10.3.4 Time Frame

The planning process and problems just described occurred within time frames that ranged between seven and nearly twenty years. It should be remembered, however, that the cities investigated were all "pioneers" in transit mall development. A community with strong leadership and a good private or public planning staff might reasonably expect a time frame, from initial proposal to finished product, of about five years.

In the cities examined here, the time span between the initial proposal and the decision in favor of a general transit mall alternative averaged about five years. Portland accomplished this in just two years, although the initial alternative selected bears small resemblance to the ultimate design. Minneapolis, in four years, and Madison, in five, were more typical. Denver and Philadelphia both selected an alternative within four years, although "bottlenecks" in the process forced the alternatives to be re-introduced years later. Community leadership, and the economic and political climates appear to be the most important factors in moving from proposal to alternative.

The phase between selecting an alternative and beginning construction ranged widely, largely because of the delays mentioned in Philadelphia and Denver. Minneapolis took about six years, with three years hammering out such problems as funding and the needed state enabling legislation. Portland and Madison each took about three years to develop final designs, gain funding, and begin construction (work has not yet begun on Madison's Phase III). It should be noted that Philadelphia, once the transitway was re-introduced and an alternative selected, took only about one and a half years to the start of construction. This speed can be attributed to both the groundwork laid in earlier designs, and to the fact that the community was "under the gun" to complete the project prior to the bicentennial celebrations.

The actual period of construction contributes the least amount to the overall time frame, up to a year or two for the largest projects. Philadelphia completed its project in less than a year, despite a strike by construction workers. In Minneapolis, a delay in beginning construction was created when no project bids were considered satisfactory, and the City decided to act as its own general contractor. Generally speaking, however, the length of the construction period appears to be a function of project size and complexity, phasing, and techniques used to maintain road usage and building access.

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