



*Center City Environment and Transportation:
Local Government Solutions*

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U.S. Department of Transportation
Urban Mass Transportation Administration
Office of the Secretary

Urban Consortium for Technology Initiatives

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The Urban Consortium for Technology Initiatives was formed to pursue actively technological solutions to pressing urban problems. The Urban Consortium is a coalition of 34 major urban governments, 28 cities and 6 counties, with populations over 500,000. These 34 governments represent over 20% of the nation's population and have a combined purchasing power of over \$25 billion.

Formed in 1974, the Urban Consortium represents a unified local government market for new technologies. The Consortium is organized to encourage public and private investment to develop new products or systems which will improve delivery of local public services and provide cost-effective solutions to urban problems. The Consortium also serves as a clearing-house in the coordination and application of existing technology and information.

To achieve its goal, the Urban Consortium identifies the common needs of its members, establishes priorities, stimulates investment from

federal, private and other sources and then provides on-site technical assistance to assure that solutions will be applied. The work of the Consortium is focused through ten task forces: Community and Economic Development; Criminal Justice; Environmental Services; Energy; Fire Safety and Disaster Preparedness; Health; Human Resources; Management, Finance and Personnel; Public Works and Public Utilities; Transportation.

Public Technology, Inc. (PTI), a non-profit, tax-exempt, public interest organization serves as Secretariat to the Urban Consortium. PTI was established in December 1971 by the Council of State Governments, the International City Management Association, the National Association of Counties, the National Governors' Conference, the National League of Cities and the U.S. Conference of Mayors. The staff of PTI provides both technical and organizational services to the Urban Consortium and its Task Forces.

**Center City Environment and
Transportation:
Local Government Solutions**

Prepared by
PUBLIC TECHNOLOGY, INC.
1140 Connecticut Avenue, N.W.
Washington, D.C. 20036

Secretariat
to the
URBAN CONSORTIUM FOR
TECHNOLOGY INITIATIVES

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U.S. DEPARTMENT OF TRANSPORTATION
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DECEMBER 1977



For many years, U.S. cities have been struggling with deteriorating downtown business districts and residential neighborhoods. This is perhaps the major problem affecting the American City and its future.

This brochure shows how seven cities—Buffalo, Detroit, Houston, Los Angeles, New York, San Francisco, and Seattle—are using innovations in transportation and pedestrian movement as major tools in downtown revitalization. Many of the projects are operational; others are being planned or are in the early stages of development. All are designed to provide better access to and mobility within the center city areas.

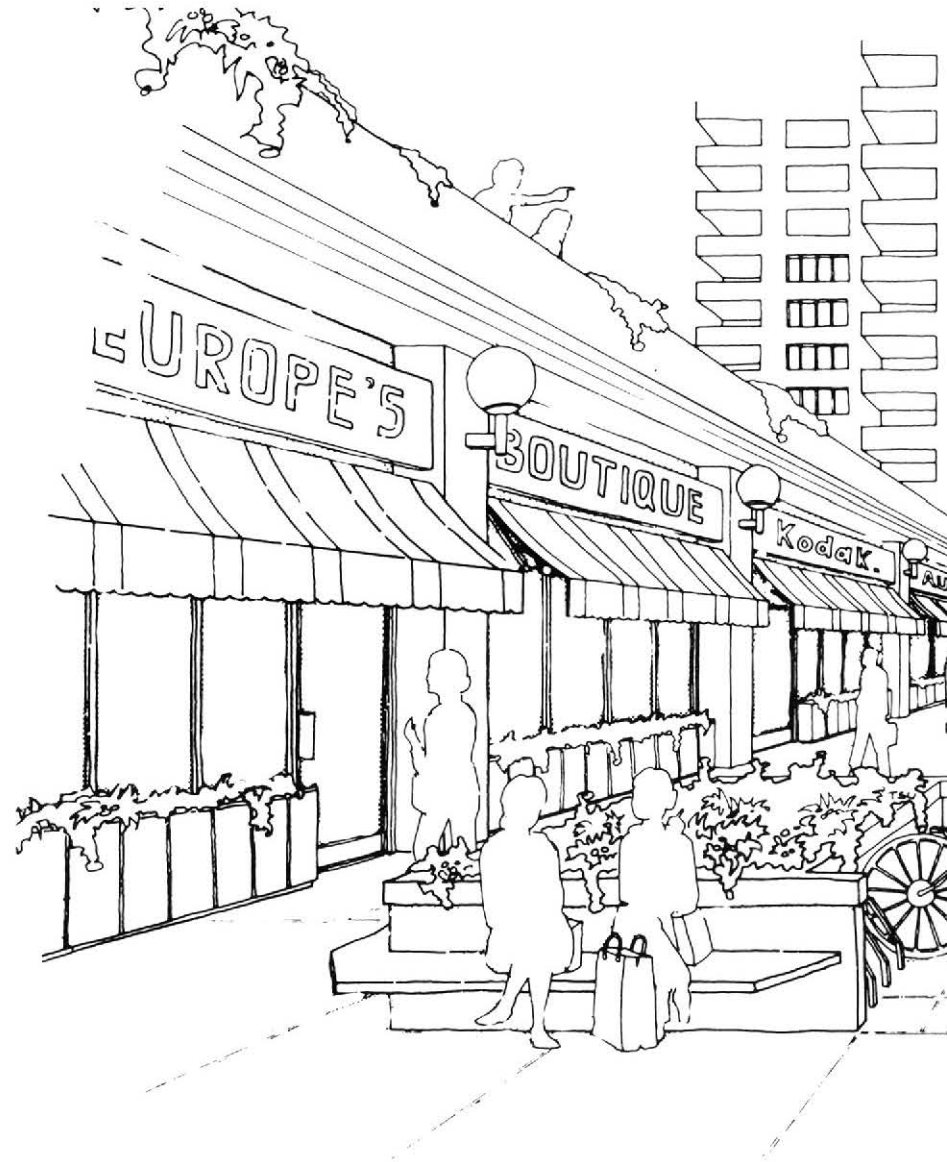
Because we think that you will find these examples stimulating and useful, the Urban Mass Transportation Administration asked the Urban Consortium for Technology Initiatives, working through the staff of Public Technology, Inc., to make them available for the use of local officials and citizens who are interested in using transportation as an instrument of urban revitalization.

Richard S. Page

Richard S. Page
Administrator
Urban Mass Transportation Administration
U.S. Department of Transportation

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This brochure has been prepared as part of a sharing process within the Department of Transportation whose goal is partnership and improved understanding between Federal and state/local transportation decision makers. Through two way communication with its constituents the Department seeks to ensure that the policies and programs it develops are practical and effective.

Prepared for the Department of Transportation with direct local government input and participation, this document is a result of our mutual concern over the future of the nation's cities. There are no simple solutions; but there are initial steps to be taken and small successes which can contribute to a beginning of the process of revitalization.

Since no technique works in exactly the same way in different environments, this document is intended to suggest rather than prescribe techniques. Points of contact in the cities themselves are included so that others may learn first-hand from what has already been accomplished.

The Department is pleased to have been involved in this intergovernmental activity and hopes that the information contributes to effective solutions for some of the problems of urban America.


Terrence L. Bracy
Assistant Secretary for
Governmental Affairs

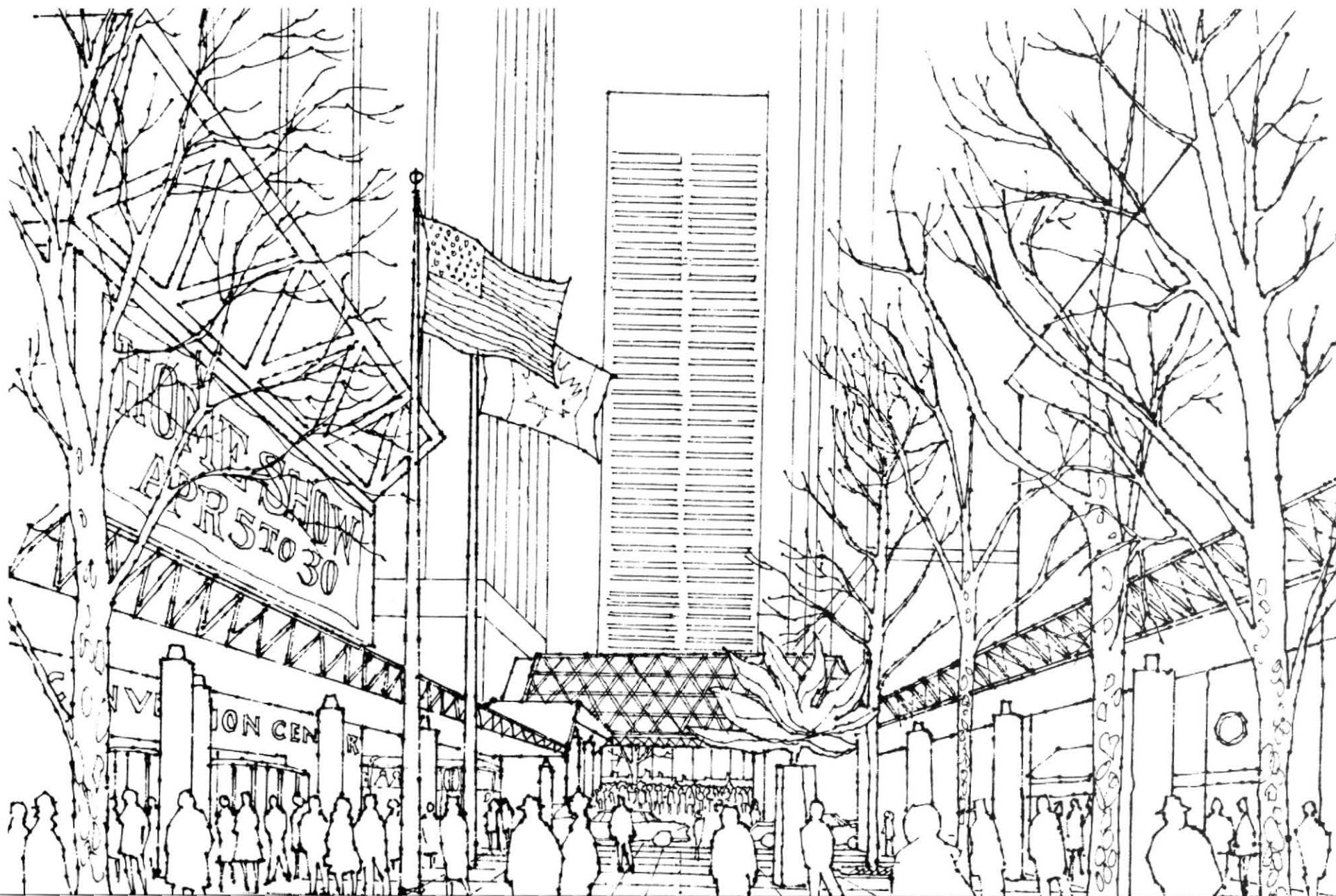


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Acknowledgements

Transportation Task Force members and other city staff members furnished background material for this brochure. Their help is appreciated.

Graphic Credits

The cities provided many of the graphics and maps. The Buffalo graphics are used with the permission of Wallace, McHarg, Roberts and Todd.

Transportation Investment Strategy— Detroit, Michigan

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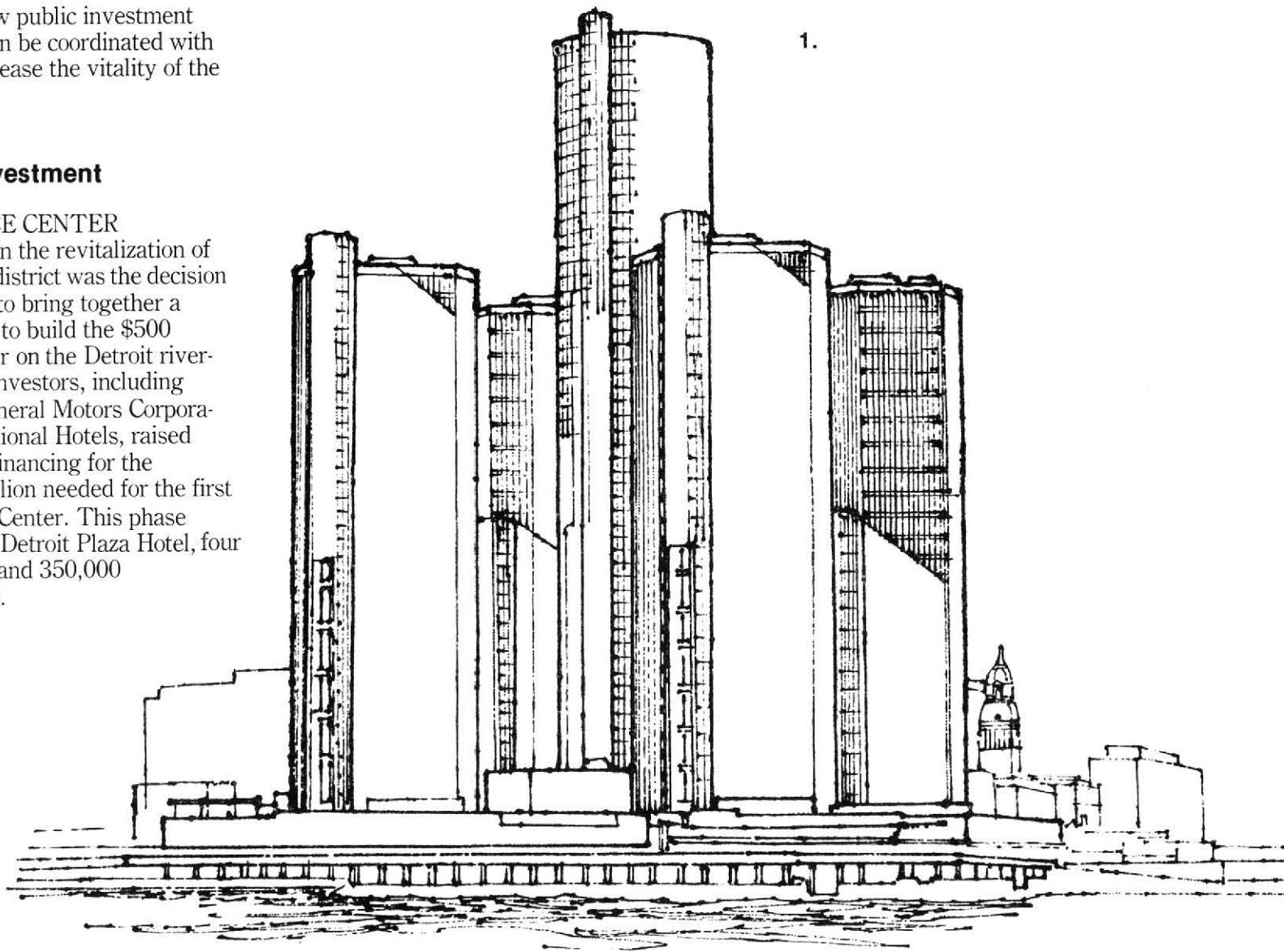
1. Renaissance Center

Detroit shows how public investment transportation facilities can be coordinated with private investment to increase the vitality of the center city.

Private Investment

RENAISSANCE CENTER

The major factor in the revitalization of Detroit's central business district was the decision in 1972 by Henry Ford II to bring together a group of private investors to build the \$500 million Renaissance Center on the Detroit riverfront. Forty-nine partner-investors, including Ford Motor Company, General Motors Corporation, and Western International Hotels, raised \$75 million and obtained financing for the remainder of the \$327 million needed for the first phase of the Renaissance Center. This phase consists of the 1400-room Detroit Plaza Hotel, four 39 story office buildings, and 350,000 square feet of retail space.



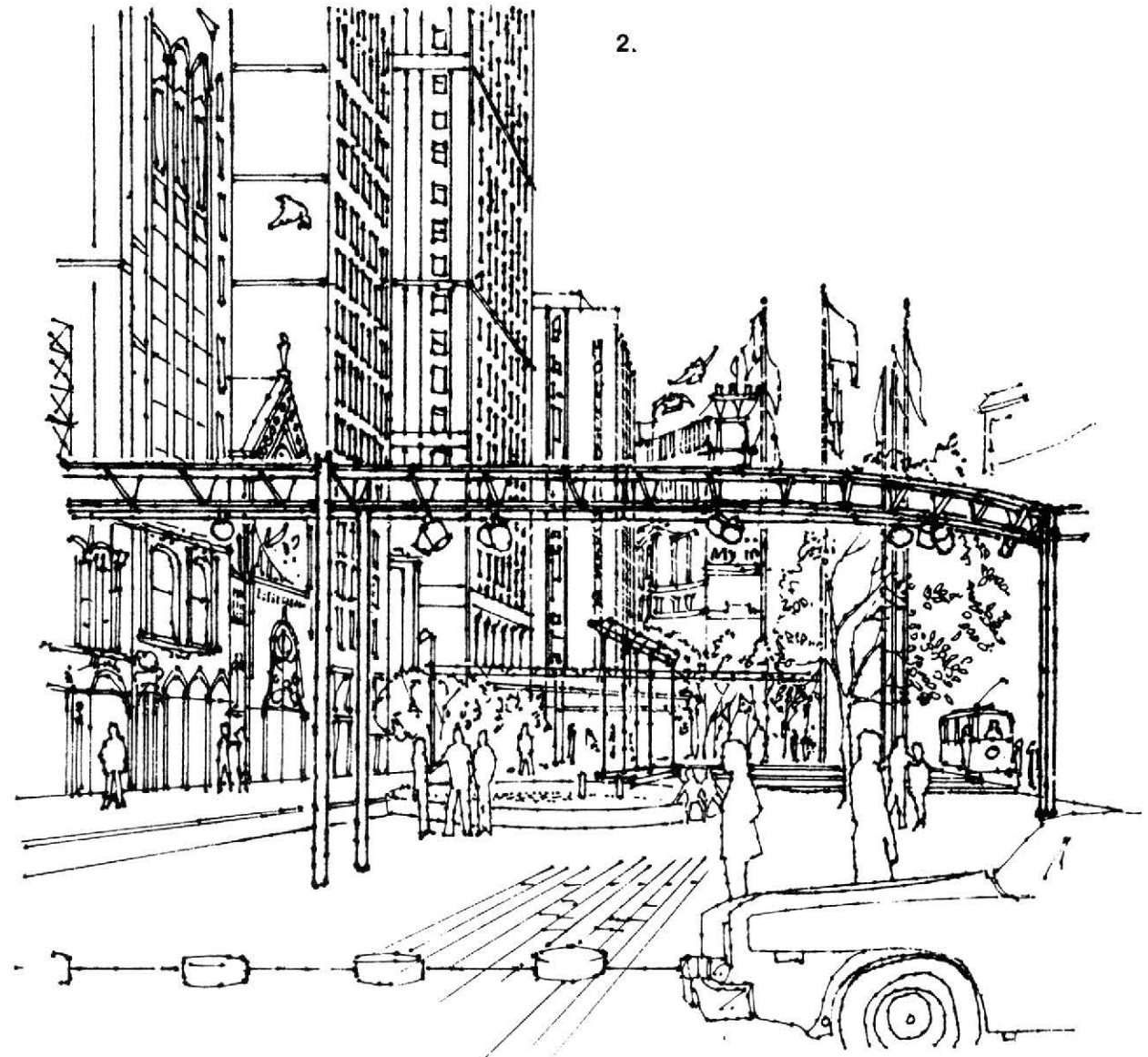
1.

Public Investment

With Renaissance Center as an anchor, the City of Detroit concentrated on providing the public transportation facilities that would tie together the rest of the downtown area. These include:

- Washington Boulevard Improvements
- Woodward Avenue Improvements
- Fixed Rail Facilities
- New Bus Terminal
- Skywalks
- Downtown People Mover
- New Commuter Railroad Station
- New Downtown Parking Facilities

This transportation system will link the Renaissance Center, the Civic Center, a new arena seating 20,000, the large hotels along Washington Boulevard, the retail core along Woodward Avenue, the municipal parking garage system, the financial district, and major downtown office buildings.



2.

Washington Boulevard Improvement Program

Washington Boulevard was once a major commercial street, lined with fine hotels, restaurants, and shops. As businesses closed or moved to suburban shopping centers, community leaders developed a program recreating an air of excitement along Washington Boulevard that is attracting people to the central business district.

A major improvement is the Washington Boulevard trolley, a fully functional nine-block trolley line running the length of the street.

The Detroit Citizen Railway, linking Cobo Hall convention center with several major hotels, has proven popular as transportation for convention guests, as well as an attractive "fun ride" for visiting adults and children.

Built at a cost of \$1.6 million, using U.S. Urban Mass Transportation Administration and State of Michigan transportation grants and \$500,000 in donated city services, the line features six restored 1890 cars bought from Lisbon, Portugal. The line is single-track with a bypass in the middle and shunt tracks at either end. A concrete and glass car storage barn is located at the north end of the line. The trolley operates between 7:30 A.M. and 6 P.M. on weekdays and between 10 A.M. and 6 P.M. on weekends and holidays, with a planned headway of 10 minutes. The basic fare is 25¢.

A second major element of the Washington Boulevard improvement program is a \$4.4 million pedestrian mall between Grand Circus Park and Michigan Avenue, which will

be financed by a grant from the Economic Development Administration. This project will restrict vehicular traffic to the present southbound roadway. The northbound roadway will be converted into a mall, with service areas for the hotels, activity centers, landscaping, and other pedestrian-oriented amenities.

Together, the trolley line and the pedestrian mall will make Washington Boulevard an interesting and exciting place for Detroiters and visitors and encourage the redevelopment of business and retail frontage.



DETROIT CITIZENS RAILWAY

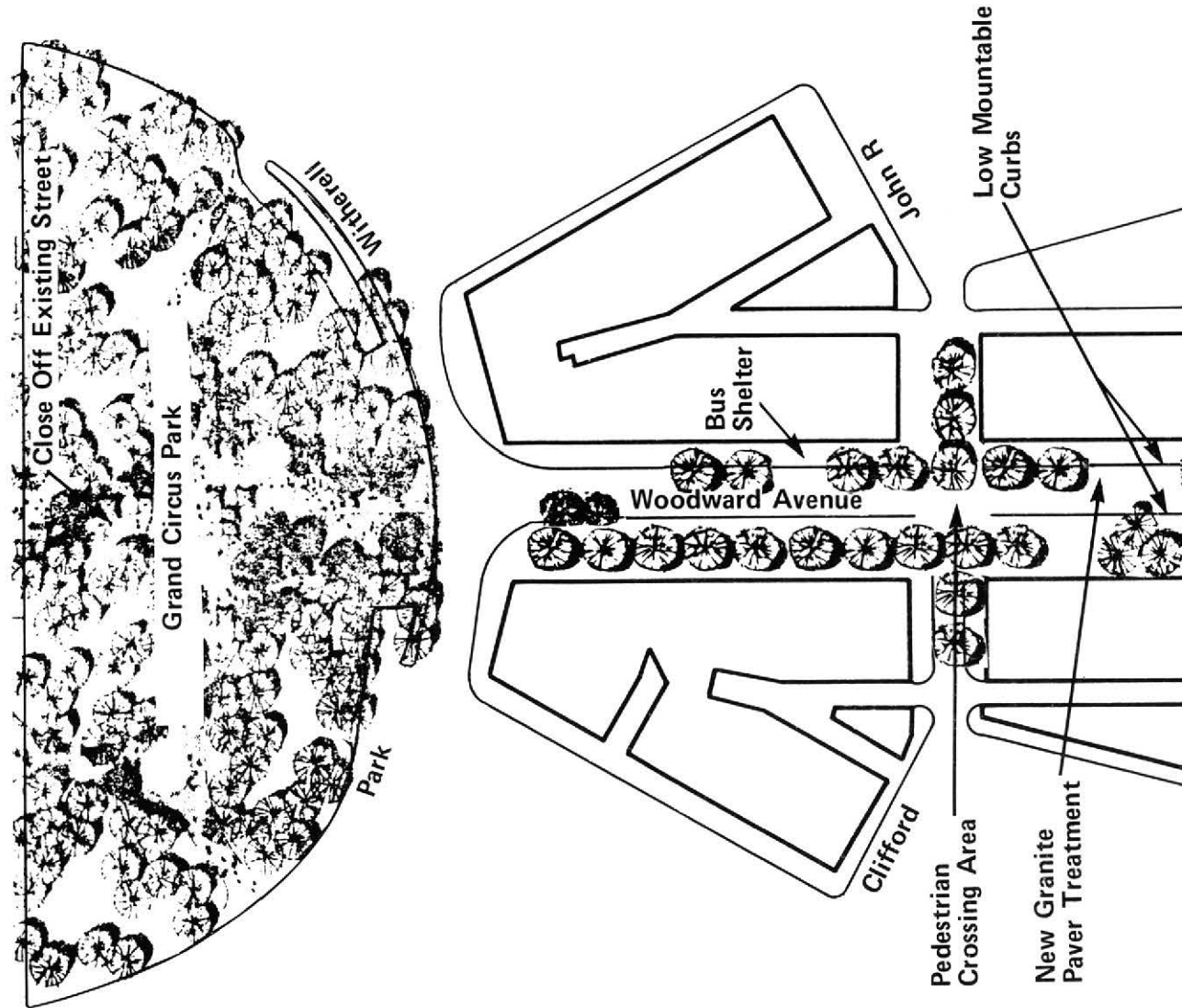
COBO HALL

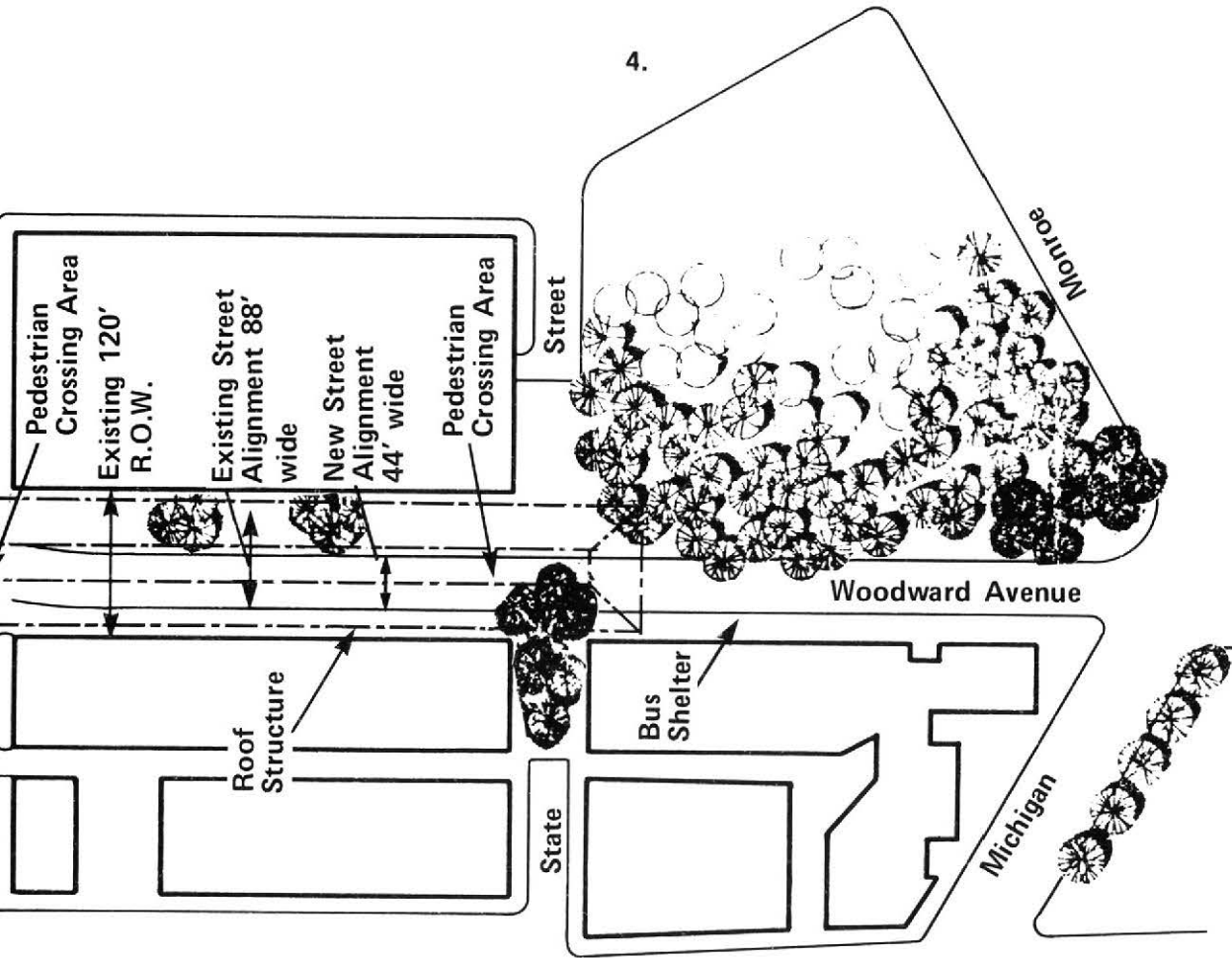
fare
25¢

Woodward Avenue Improvement Program

Woodward Avenue, Detroit's principal bus transit corridor, is the city's "Main Street" linking the central business district with the northern suburbs. The Woodward Avenue Improvement Program will enhance the established retail core by discouraging automobile and truck traffic, encouraging the use of public transportation, and providing a mall which will be attractive to pedestrians. Key elements of the program are:

- Four-block busway to facilitate the movement of transit vehicles.
- Wider sidewalks to allow more room for pedestrians.
- New plantings, bus shelters, kiosks, special paving treatment, and other amenities to create a pedestrian shopping mall.
- A roof over the key block between Grand River and State Streets to provide protection from the weather and create a covered shopping mall.
- Closing one block of Woodward Avenue (between Witherell-Park and Adams) to traffic so as to unite the two segments of Grand Circus Park and facilitate pedestrian movement.





With the development of the Woodward Avenue program, it was necessary to revise the traffic circulation plan for the central business district and coordinate that plan with plans for the use of existing and proposed public parking facilities.

The estimated project cost is \$10 million. Funding includes a grant from the Economic Development Administration for the construction of foundations for the roof structure and Community Development Block grants for construction of the busway. Both of these projects are under construction.

Additional Components of the Downtown Transportation System

Construction has started on both Washington Boulevard and Woodward Avenue. Several other projects, now in the planning and design stage, are integral parts of the total transportation investment program. These include:

- *Fixed Rail Facilities*—A high-capacity rapid transit line, which will loop through the central business district and extend along the Woodward or Gratiot Avenue corridors into the northern suburbs. The Urban Mass Transportation Administration attached an unusual condition to its \$600 million dollar Federal commitment: The Federal share must be matched on a dollar-for-dollar basis by new private investments in urban residential and commercial development along the route of the ultimate transit system. City officials are now studying the economic development impacts of 11 detailed alternative plans. This is a unique innovation in motivating joint public private investments.
- *New Bus Terminal*—A new bus terminal and 2,000-space parking garage directly across from Renaissance Center. The existing bus terminal area will be up-graded to make it more attractive and useful.
- *Skywalks*—A network of skywalks to provide for all-weather pedestrian movements between various downtown buildings.
- *Downtown People Mover*—A transportation system within the central business district designed to:
 - distribute persons arriving by bus, commuter railroad, and the future regional rapid transit system to their downtown destinations.
 - connect major parking facilities and activity centers within the central business district and support the development of park and ride lots on the perimeter of downtown.
 - facilitate movement between buildings and places within the central business district.
- *New Commuter Railroad Station*—A new commuter railroad station, closer to Renaissance Center and the central business district, to replace the existing east-side railroad terminal.
- *New Downtown Parking Facilities*—Two new parking facilities to reinforce the existing off-street parking system. One of these will provide short-term parking for shoppers; the other will serve Renaissance Center and the City-County Building.

San Francisco, California

Automobile Management in the Transportation System

San Francisco has established a *Transit First* policy, based on the freeway revolts of the 1950's and 1960's and the resulting realization that it was impossible to continue to build highways and other automobile-oriented transportation facilities in that city without destroying both center city residential neighborhoods and the downtown commercial district.

The *Transit First* policy affirms that public transportation will be the primary means of meeting the needs of residents and visitors for trips to and from the downtown area. In implementing this policy, the city has supported the development of the Bay Area Rapid Transit System (BART) and the Golden Gate Transportation System (buses, highspeed ferries, vans), which serves the northern commuter corridor. It also has modernized much of its own Municipal Railway (street cars, diesel buses, electric trolley buses, and cable cars).

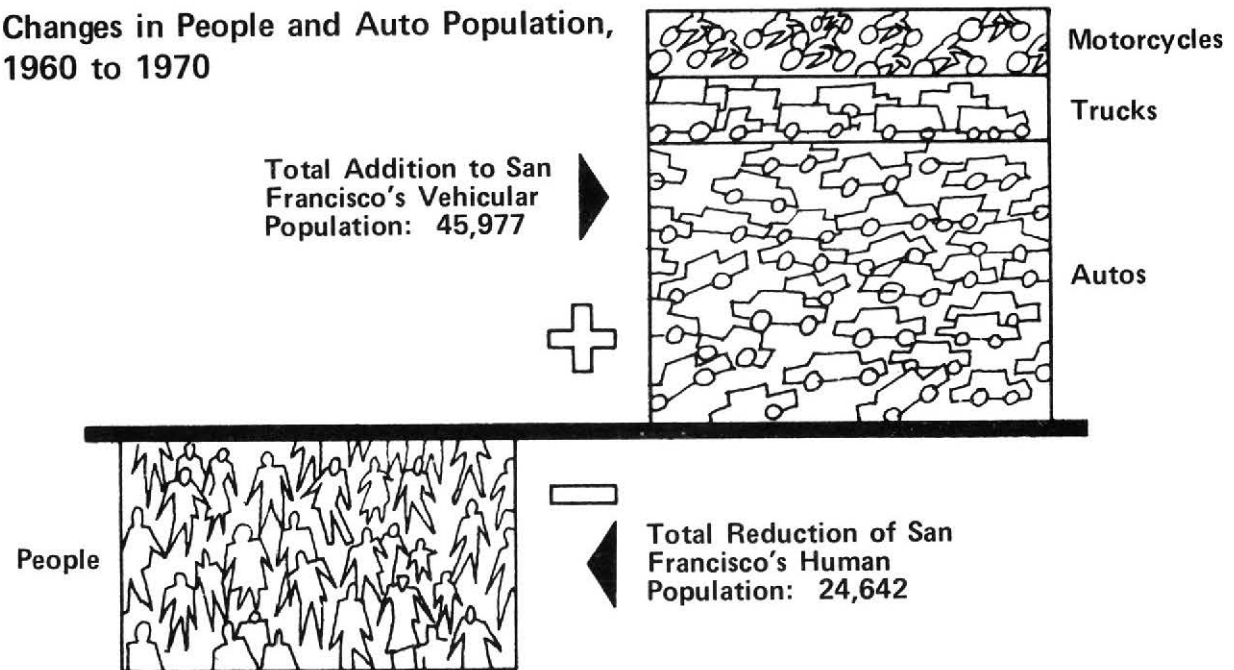
Transit ridership is up. San Franciscans' own travel patterns are exemplary: 59% of San Franciscans who work downtown take transit to work and another 12% walk. Nevertheless, automobile traffic throughout the city continues to grow. Much of the increase is attributed to vehicles coming from those suburban communities that are not transit-oriented.

The result is that San Francisco has decided that the simultaneous approach of improving transit service coupled with restricting the use of private automobiles is necessary to preserve the urban environment. Three areas in which San Francisco has taken specific action with respect to private vehicles are:

- A total parking policy for the city.
- Preferential parking for center city residential neighborhoods.
- A program to protect residential area neighborhoods from disruption by through traffic.

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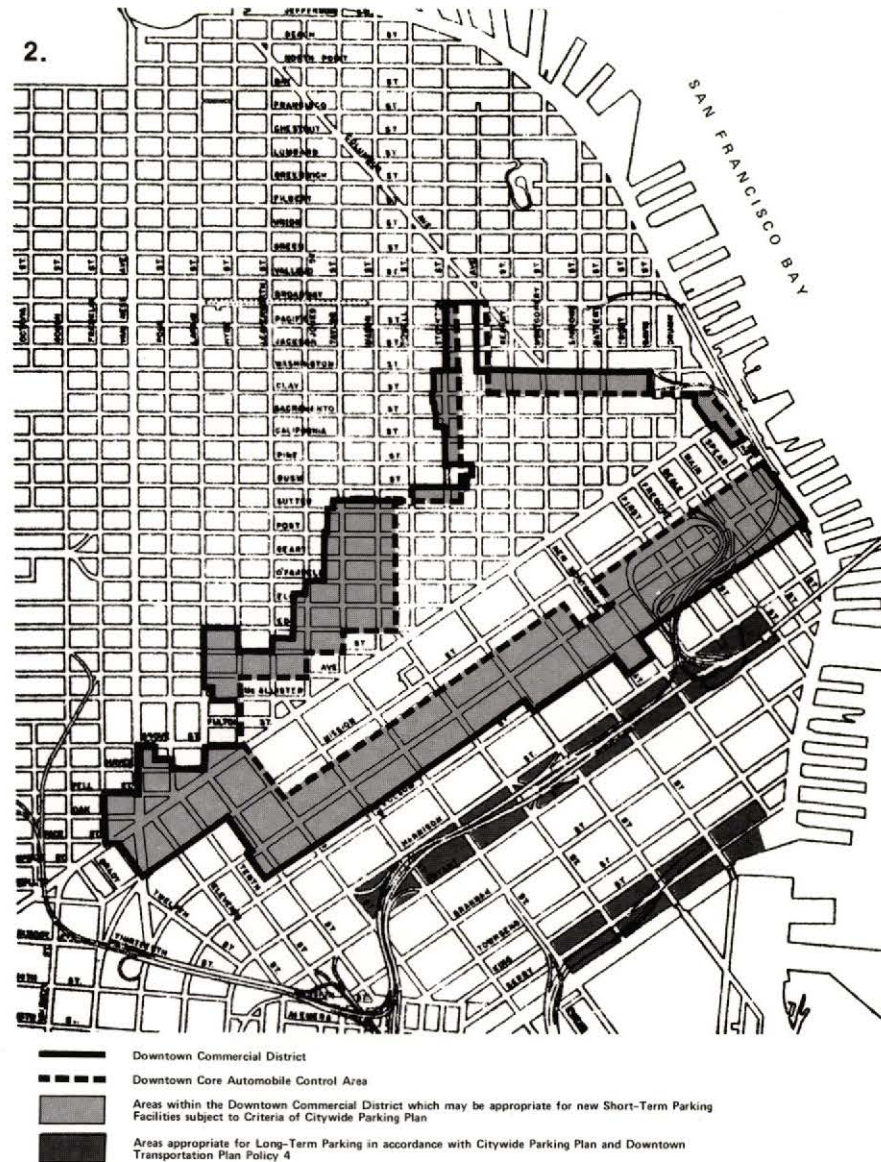
Changes in People and Auto Population, 1960 to 1970



Parking Policy

The intense development of the downtown commercial district of San Francisco and its high level of transit accessibility are recognized in the City Planning Code. Since 1968, developers in this area have not been required to provide off street parking, and where parking is provided not more than 7% of the gross floor area may be used for that purpose without approval of the City Planning Commission. Proposed major parking garages in the downtown commercial district require Planning Commission review. Provision of parking above the required number of off-street spaces in the Northern Waterfront area and the Washington-Broadway area also requires Planning Commission review.

A parking tax of 15% on the use of each for hire space has been instituted as a means of managing traffic and raising revenues.



Parking Policy (Continued)

In 1975, the Departments of Public Works and City Planning completed an inventory of parking conditions and trends in San Francisco and an analysis of policies and programs for parking management. Parking management can only be achieved equitably on a regional basis. In the absence of a regional plan, however, the City of San Francisco has found it necessary to develop and implement improved parking policies and programs on its own.

Revisions to the Transportation element of the Master Plan which implemented the parking study were adopted by the City Planning Commission in 1977. These revisions include:

1. Give priority to pedestrians and transit and service vehicles in the use of limited downtown street space and encourage the further development of the core area as an automobile control area.
2. Strengthen the policy of restricting the development of new parking facilities within the downtown core automobile control area.
3. Require the evaluation of new or enlarged parking facilities in the City under a set of comprehensive criteria, including a demonstration that the demand cannot reasonably be diverted to or served by existing transit service or transit service which could reasonably be provided in the near future.
4. Meet the additional demand for short-term parking through facilities in areas peripheral to the downtown core automobile control area. New long-term parking facilities will be concentrated outside the downtown commercial district in order to make shuttle transit service efficient and convenient.
5. Give priority in the use of parking space to carpools, vanpools, vehicles used by the physically handicapped, compact automobiles, and bicycles.
6. Regulate parking at medical and educational institutions, and provide guidelines for the development of parking at neighborhood shopping areas.
7. Provide for the protection of residential neighborhoods from the parking impacts of nearby traffic generators by giving preference in the use of on-street parking spaces to residents.

Preferential Parking: The Neighborhood Sticker Plan

Parking problems are common in residential neighborhoods that are near activity centers such as hospitals, universities, transit stations, and business districts. The residents of these areas suffer considerable hardship, not just in the difficulty of finding parking spaces reasonably near their homes but also in the deterioration of the residential environment caused by excessive traffic.

Studies show that increases of traffic in residential streets tend to inhibit social interaction among residents and to create a tense and inhospitable environment. This in turn has an important effect on basic regional goals, such as maintenance of quality in the existing housing stock and the deceleration of the flight of city residents to the suburbs.

The San Francisco plan for preferential treatment of residents in the use of on-street parking spaces is based on the belief that a person's ability to park near home has an important bearing on the quality of residential life. The plan is a necessary complement to the *Transit First* policy.

This is most graphically illustrated in neighborhoods around BART stations, which are inundated by commuters from the Peninsula and other parts of San Francisco who park their cars on residential streets and take BART to jobs downtown. Those neighborhoods immediately contiguous to downtown where commuters park and walk experience similar problems. Some neighborhoods are parked at

over 100% of their capacity (all the legal spaces are filled and many illegal spaces as well) for most of the day and part of the night.

In searching for a solution to this problem, conventional parking regulations were found to be inadequate. For example, while a parking time limit of two hours is effective in limiting parking by the average out-of-town commuter, it imposes a disproportionate hardship on neighborhood residents, including those who take transit to work.

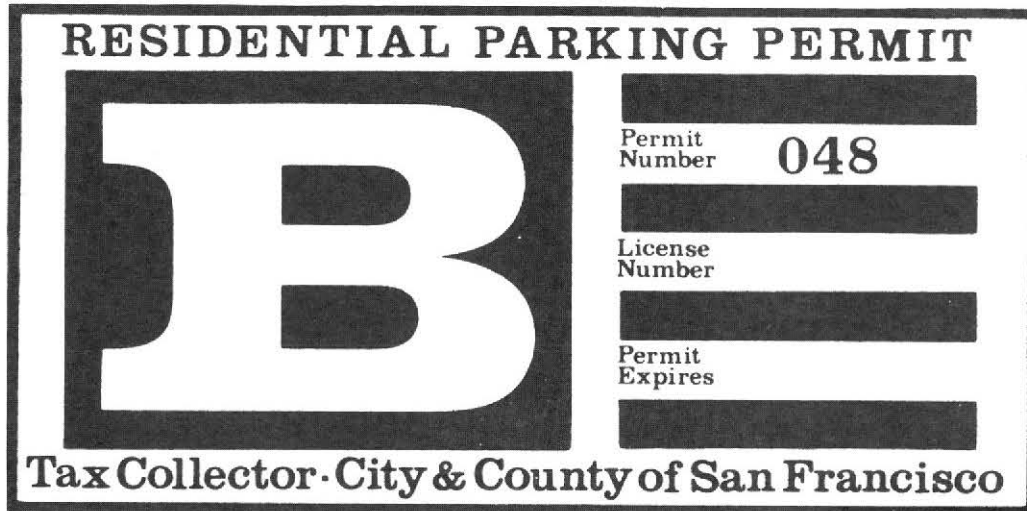
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Preferential Parking (Continued)

The San Francisco neighborhood sticker plan, developed by the City Planning Department and adopted by the Board of Supervisors, includes parking time restrictions, qualifications for exemption from the parking restrictions, imposition of a permit fee, and penalties for violations. The procedure for designating an area under the plan includes the filing of petitions, data collection, comparison of data against established criteria, public hearings, and designation by the Board of Supervisors.

Two neighborhood areas of San Francisco have been designated so far. Petitions for an additional six areas have been filed.



4.

Protected Residential Areas

Since the adoption of the Urban Design and Transportation elements of its Master Plan in 1972, San Francisco has had considerable practical experience in attempting to implement a policy common to both elements—the protection of residential areas from noise, pollution, and physical danger by diverting through automobile and truck traffic onto major and secondary thoroughfares.

The experience has been both frustrating and enlightening. Although many residential areas of San Francisco are already naturally protected from through traffic by topography, and although residents of streets available to through traffic have seen traffic volumes increase dramatically in recent years, there is strong opposition in many areas to the use of such techniques as barriers and diverters, which require changes in the established travel patterns of the residents.

General traffic and beautification planning was undertaken jointly by the Departments of Public Works and City Planning. Details of design, however, were often decided by employees who emphasize cost-cutting. The result was that the various devices used to effect control of vehicular traffic were substantially less attractive than residents had anticipated on the basis of sketches and discussions with city representatives.

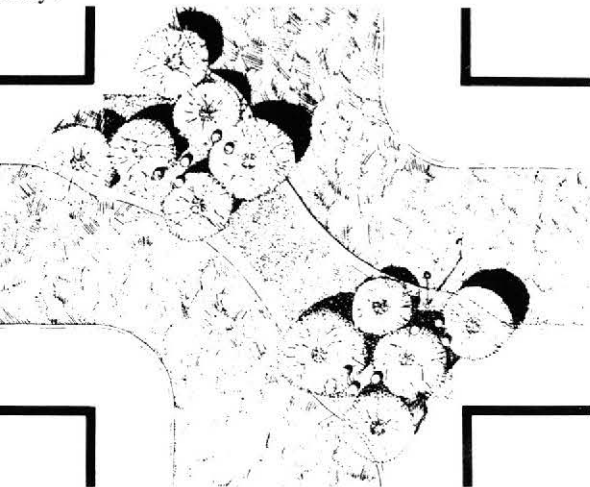
Plans have been implemented in two neighborhoods. A portion of the Duboce Triangle area was completed, with assistance from the U.S. Department of Housing and Urban Develop-

ment under the Federally Assisted Code Enforcement program. The Inner Mission protected residential stretching along two parallel streets was completed in 1976. A third area along a third parallel street in the Inner Mission area will be completed in 1977.

Sanchez Street improvements under the Federally Assisted Code Enforcement Program provide widened sidewalks with tree plantings, bollards, attractive paving, and more parking spaces for the residents.

Diagonal diverters provide useful open space and discourage through traffic. Similar devices have been used in Oakland for over 10 years.

However, implementation of the projected residential area plan in the inner Richmond area of San Francisco led to passage of a city-wide initiative measure that disapproves of traffic barriers as an instrument of the city policy.



Seattle, Washington Downtown Fare-Free Zone and Freeway Park

20

The Magic Carpet

Seattle's Magic Carpet—free service on all transit vehicles within a 105-block downtown area—reduces the use of private automobiles for short-distance trips on congested streets and makes it convenient for shoppers and others to move about in the central business district.

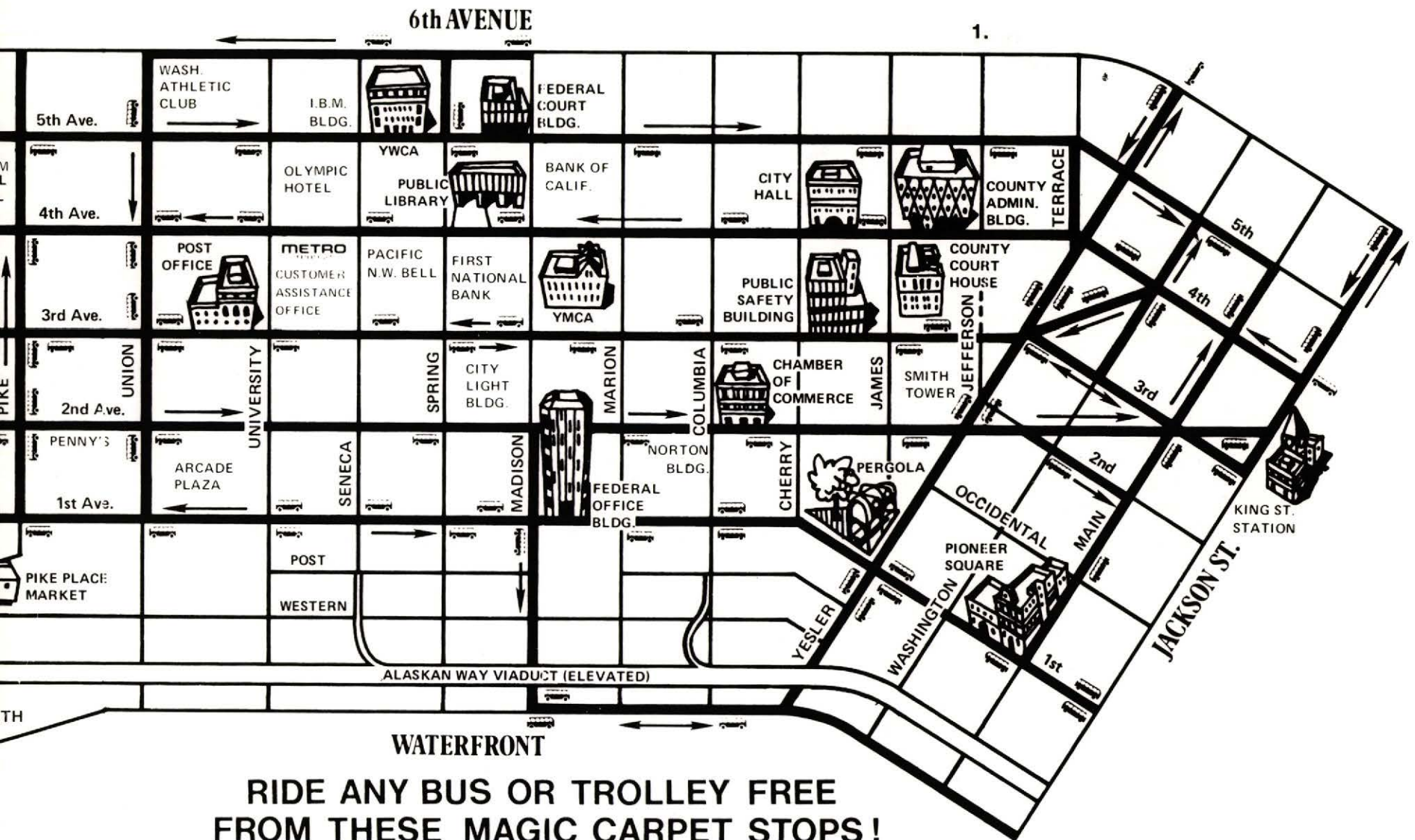
Magic Carpet service is available 24 hours a day, seven days a week. A rider can board any bus inside the free zone, and if he gets off before the bus leaves the zone there is no charge. Beyond the fare-free zone patrons pay their fares when boarding inbound buses and upon leaving outbound buses. There was little confusion, even at the start of the fare-free plan in 1973.

The objectives of the Magic Carpet service have been realized:

- A 199% increase in daily bus trips in the central business district.
- The elimination of 1000 daily automobile trips from the central business district.
- An estimated \$5 million increase in sales in the central business district. This represents a 1% increase in the total downtown sales of goods and services.
- Magic Carpet service has been a major marketing tool for the rest of the transit system.

The total annual cost of operating Magic Carpet is \$321,995. However, these costs have been offset by a \$138,132 savings on discontinuance of a Shoppers Shuttle. The net annual operating cost is \$138,132.





6th AVENUE

1.

**RIDE ANY BUS OR TROLLEY FREE
FROM THESE MAGIC CARPET STOPS!**

Freeway Park

Seattle's Freeway Park provides passive open space, where residents, shoppers, office workers, visitors, and the whole array of persons from varied backgrounds who make up the downtown population may come together to enjoy the social elements of a city park.

Mayor Wes Uhlman described the Freeway Park as "one more example of the kind of creative, innovative approach to problems that has made Seattle a quality city from its earliest days." A linear park has taken the place of an unusable canyon in the heart of the city and pedestrian access between First Hill and downtown, which was cut off when Interstate 5 was built, has been restored.

Located between 6th and 9th Avenues, the park is bounded on the north by Union Streets and on the south by Spring Street. To the east on First Hill, apartment buildings and retirement homes accommodate adult residents. Also located on First Hill are seven of Seattle's 16 hospitals and several churches.

To the west, the park overlooks the major financial center of the northwestern United States. The area has a dozen buildings of 10 stories or more, most with financial institutions as their major tenant. Government offices cluster to the south and the retail core is a few blocks to the north.

History

The idea of a park over Interstate 5 is as old as the freeway itself. Before the last link through the city was completed in 1966, public-spirited individuals and city, county, and State officials were talking about covering that portion of I-5 passing through downtown Seattle for use as a downtown park. The idea became a reality through the cooperation and financial participation of both public and private interests.

- In 1968, \$2.8 million in land bonds funds were approved for a downtown park. Federal and State highway funds were then made available to construct a cover over more than 400 feet of the depressed freeway.

- In 1970, R.C. Hedreen Co., a private developer, announced plans to build a major office complex located partially on the park site. In return for the relaxation of a number of development restrictions, the developer agreed to resite the building, pay part of the park development costs, and establish a maintenance trust fund.
- At the same time the city was looking for a site for a municipal parking garage. A location near the freeway was essential so the garage could intercept traffic on its way to the business core and thus reduce downtown congestion, noise and air pollution. Revenue bonds equalling \$4,200,000 were issued to construct a 630-car garage on the east side of the freeway as part of the development of the area adjacent to the park.



FUNDING

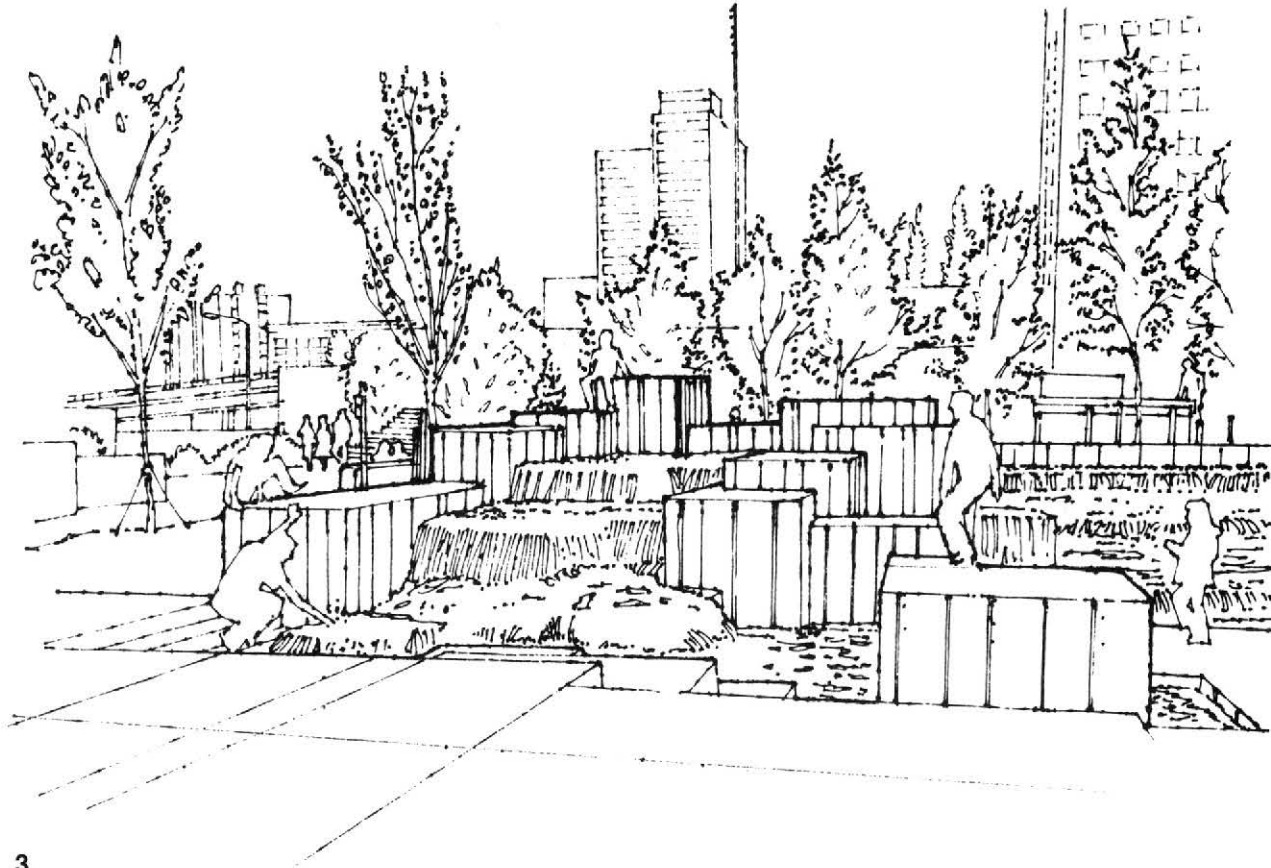
<u>Public</u>	In thousands
Cover over I-5	
Federal and State Highway Funds	\$ 5,527
Parking Garage	
Revenue bonds and bond interest	\$ 4,200
Freeway Park	
Forward Thrust Park Bonds	\$ 2,800
Community Development Block Grants	\$ 340
Federal-Aid Urban Systems Funds	\$ 60
Metropolitan Seattle Funds	\$ 19
Federal Aid Interstate Highway Funds	\$ 180
Housing and Urban Development Open Space Funds	\$ 209
Interagency Committee for Outdoor Recreation	\$ 424
American Legion	\$ 35
Total Freeway Park	\$ 4,067
Total Public	\$13,794

Private

R.C. Hedreen Co. invested approximately \$5 million in landscaping and improvements compatible with the park and permits the public to make full use of the privately-owned open space surrounding the office buildings.

Seattle's Freeway Park involved a combination of public and private investment. The

5-acre park cost the taxpayers less than the land alone would have cost to purchase and clear had it not been possible to use space over the freeway. The park enhances the value of a new office complex with a resulting increase in property tax revenues. The parking garage will benefit from its link with the park.





Downtown Buffalo, like many center cities, is faced with the challenge of capturing a portion of future regional growth in the downtown and retaining its competitive position within the region. Because community leaders felt that the Regional Transportation Study did not give adequate consideration to access to and circulation within downtown, the city engaged consultants to conduct a special study of this area. *A Comprehensive Plan for Downtown Buffalo, New York* was completed in April 1971. The plan built upon the work of the Regional Transportation Study but focused on ways in which transportation could be used to improve the economy and physical appearance of downtown Buffalo.

The transportation analyses were combined with a market analysis that identified the potential ability of downtown Buffalo to capture a portion of the regional office, housing, hotel, and retail trade market.

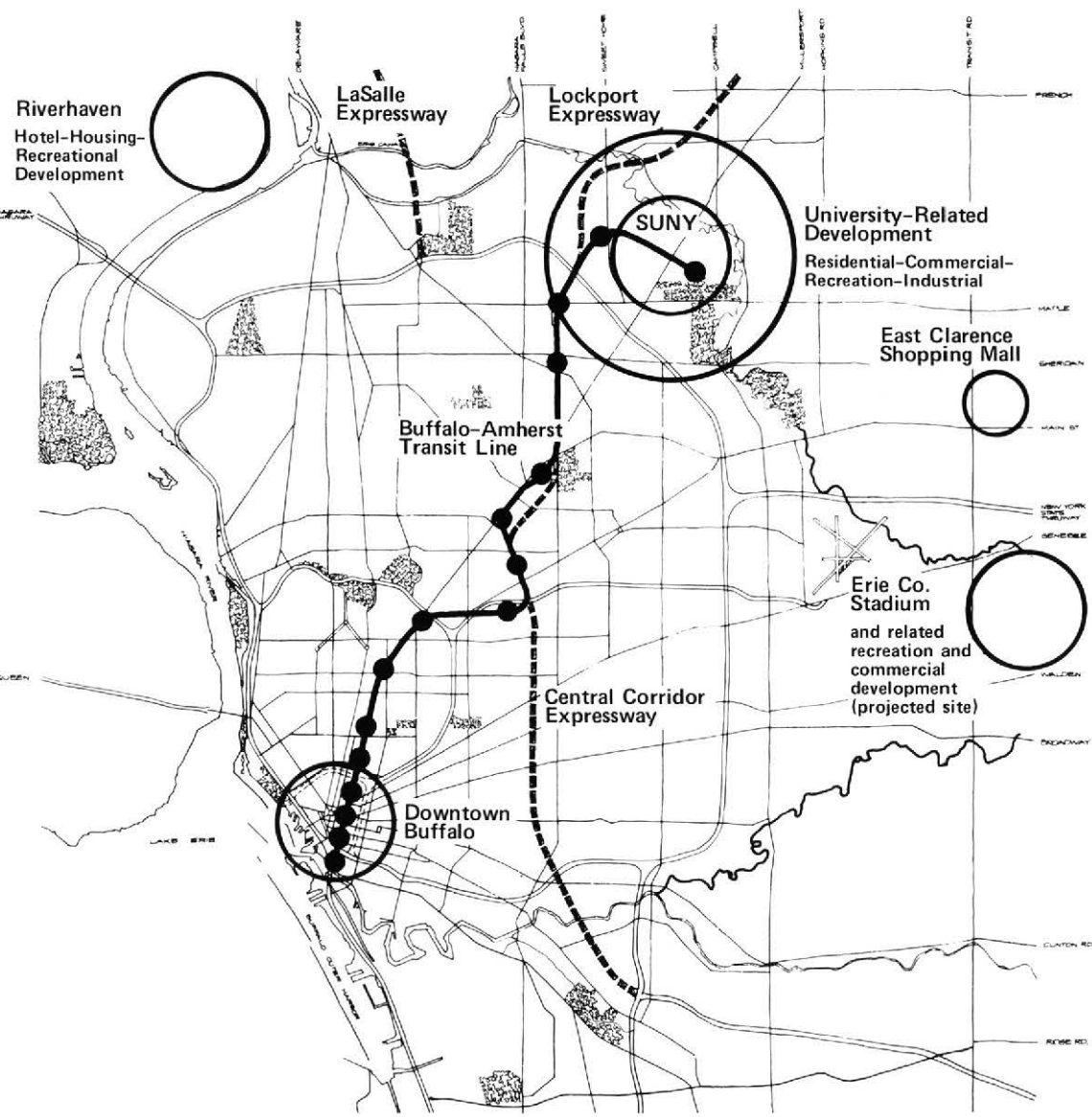
These studies provided the basis for a comprehensive downtown plan in which transportation modes are coordinated with each other and with existing and future land uses. Each mode is designed as a component of a system which will allow people to reach their destinations in a convenient, pleasant, safe, and timely manner.

Some of the elements of the comprehensive plan for downtown Buffalo are now being implemented. The plan provides a framework for decision-making and is flexible enough to allow for alternatives in the rapid transit corridor and for needed improvements in the highway network.

The plan established a comprehensive framework within which both public and private investment can occur. The major transportation elements of the plan are:

- A movement system integrating rapid transit, highway, and pedestrian traffic.
- A downtown Main Street pedestrian mall.
- A parking strategy.

1. Buffalo's Proposed Major Regional Developments



1.

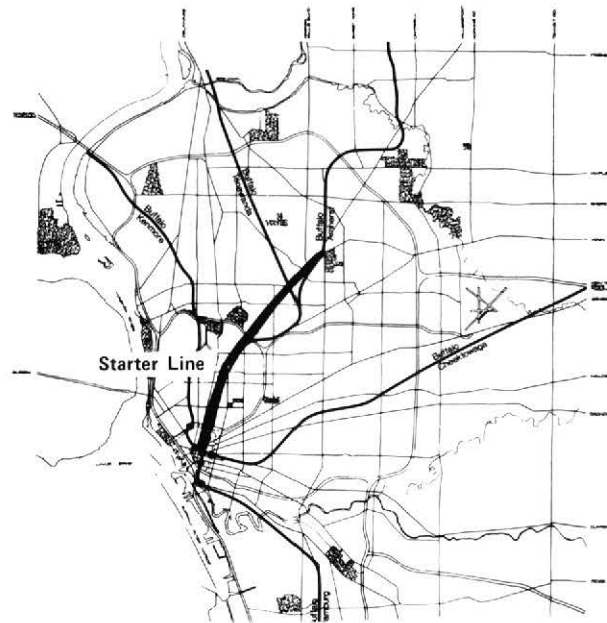
2. Buffalo's Light Rail System

Rapid Transit

A light rail rapid transit line is a major feature of the downtown plan. It is intended to reduce automobile traffic to and within the central business district.

The first phase will be construction of the Buffalo-Amherst line. The City of Buffalo has a commitment of Federal grant funds from The Urban Mass Transportation Administration, and design is underway.

The rail system will be completed by the construction of a Kenmore-Airport line.

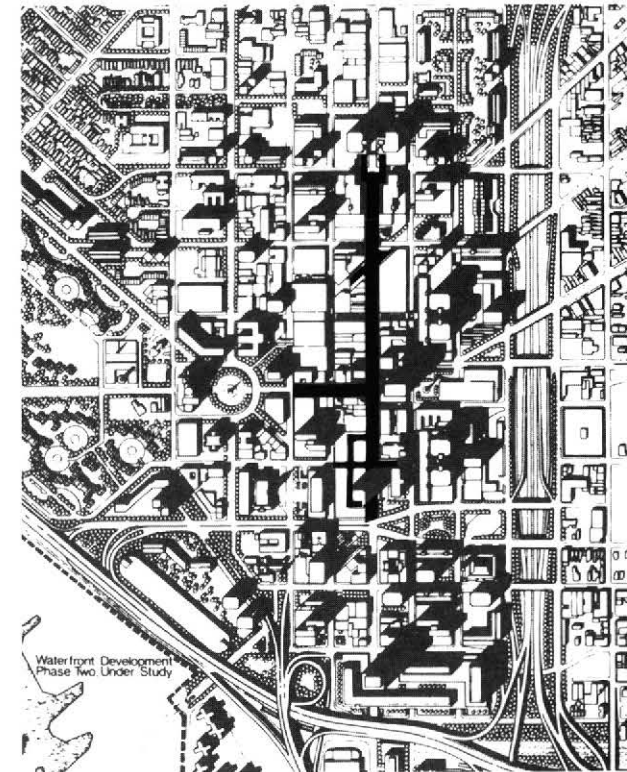


2.

3. Main Street Pedestrian Mall

Pedestrian Movement and the Main Street Mall

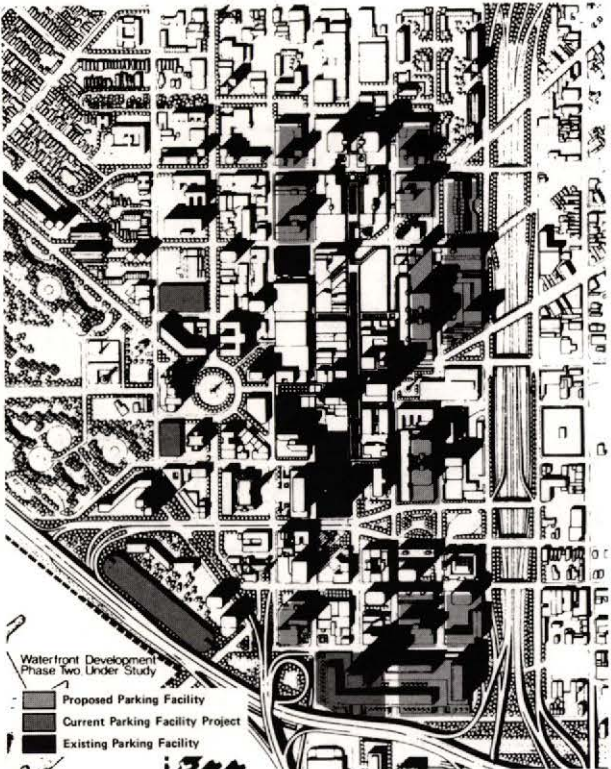
The Main Street pedestrian mall will provide a pleasant environment for shoppers and other pedestrians and will be the main connective element between rapid transit, parking, shopping, and offices.



3.

Parking

Downtown parking strategy is fully coordinated with the existing and proposed system of public transportation and highway facilities. New parking structures, built to keep pace with demand, will be located so as to intercept downtown-bound traffic before it penetrates the downtown street network.



4.

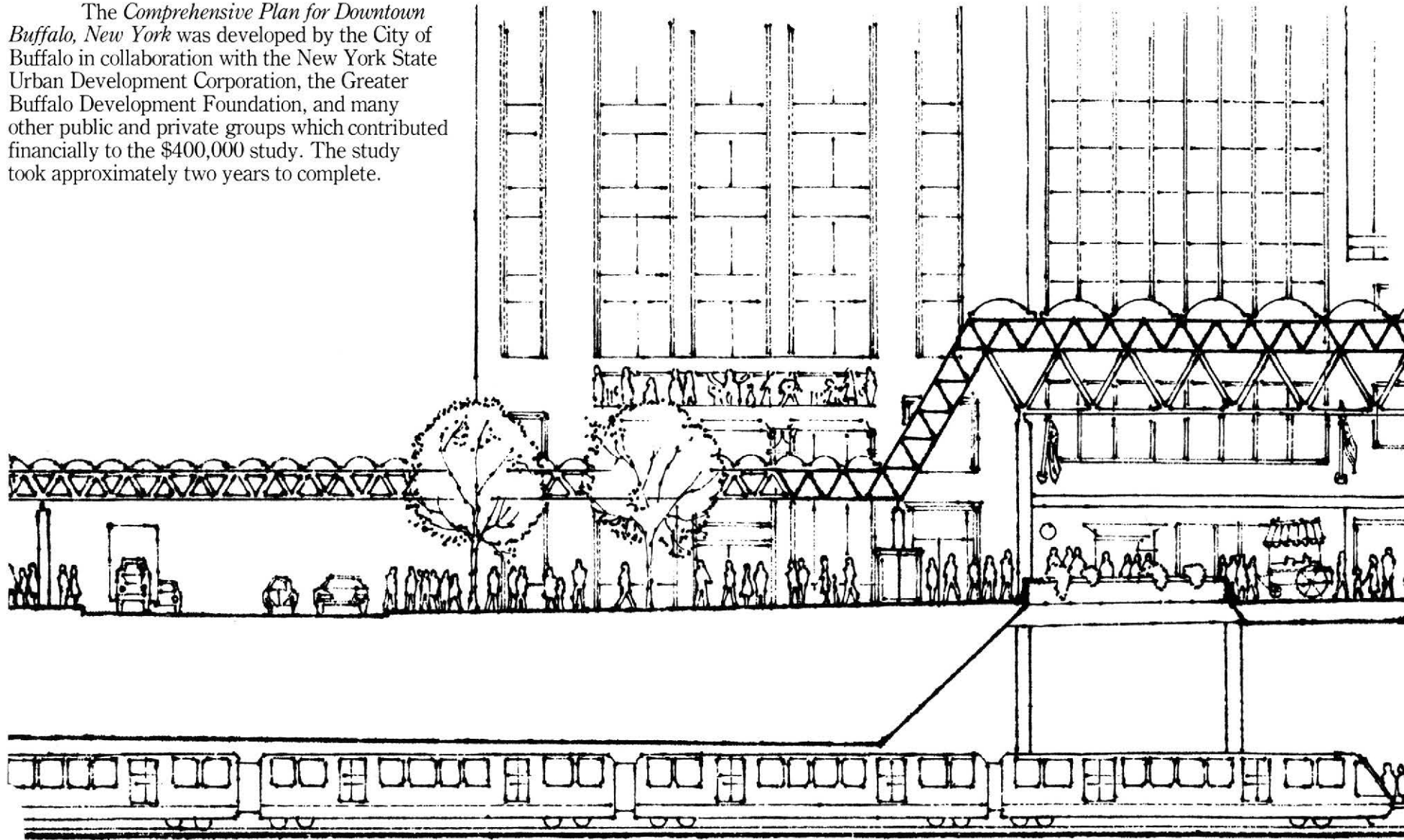
Highways

The highway and expressway system provides ready access to the central business district yet allows drivers wishing to by-pass downtown to do so easily. A depressed expressway on the east side of downtown, which was originally proposed in the Niagara Frontier Transportation Study, was re-examined as a result of the downtown study and a surface facility substituted for it at substantially less cost and no sacrifice of mobility.



5.

The *Comprehensive Plan for Downtown Buffalo, New York* was developed by the City of Buffalo in collaboration with the New York State Urban Development Corporation, the Greater Buffalo Development Foundation, and many other public and private groups which contributed financially to the \$400,000 study. The study took approximately two years to complete.



The *Comprehensive Plan for Downtown Buffalo, New York* has provided the incentive for renewed public and private investment. Construction has started on two new hotels; a third is being planned. A Convention Center is under construction. A privately financed Transportation Center, providing terminal facilities for several inter-city bus companies and local express bus operations, has been completed.

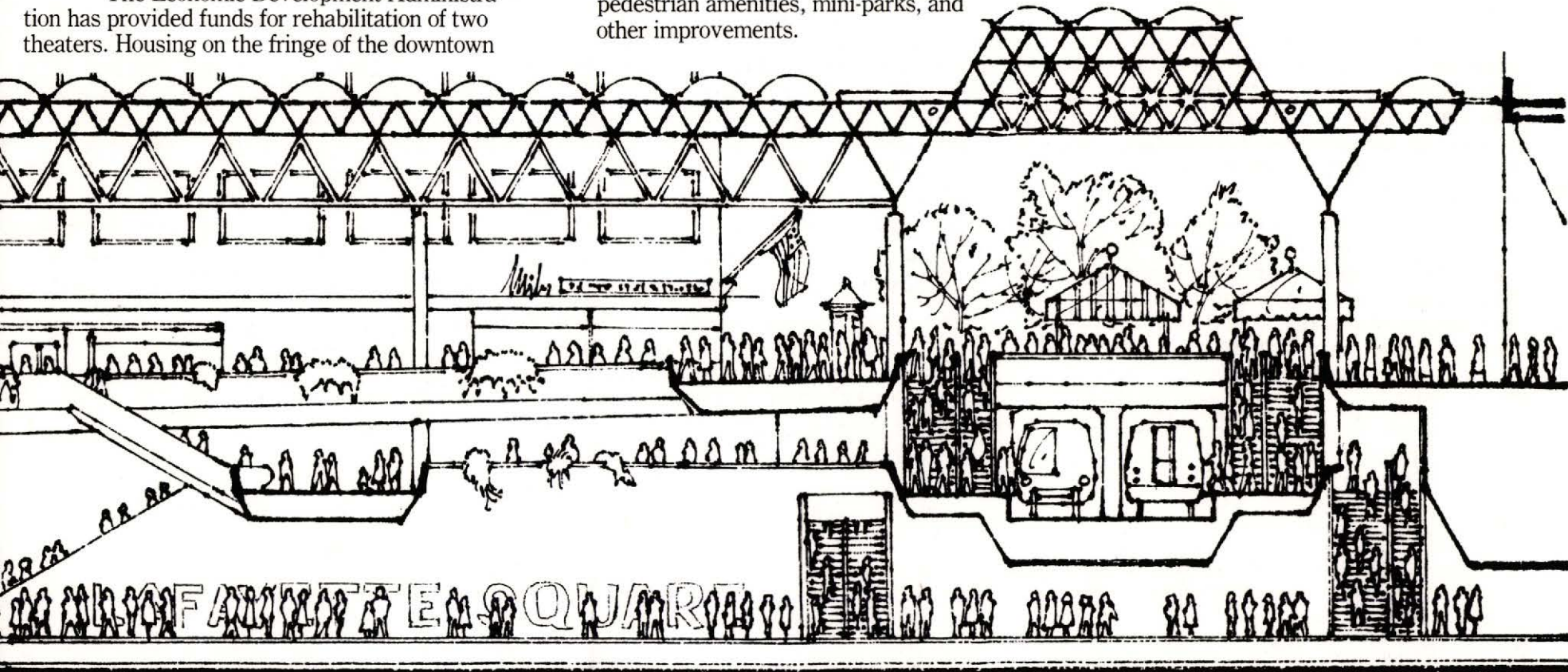
The Economic Development Administration has provided funds for rehabilitation of two theaters. Housing on the fringe of the downtown

is being rehabilitated through private investment. A mall on Erie Street was built through joint public and private investments.

The plan has had three beneficial side-effects:

- Significant reductions in the amount of land needed for street and freeway rights-of-way have been possible. This has afforded opportunities for the development of additional pedestrian amenities, mini-parks, and other improvements.

- Private participation and investment in downtown redevelopment has been stimulated.
- A framework has been provided for joint decision-making between public and private developers.



Houston is one of the nation's fastest growing cities. Growth has been facilitated by an extensive freeway network, which has enabled Houstonians to enjoy mobility, but has also reinforced personal reliance on the automobile.

Today Houston is faced with the realization that its growth and its dependence on the automobile are threatening to strangle the source of Houston's strength—its central business district.

The central business district contains more than 35 million square feet of office space, three times that which existed two decades ago. Over the next five years Houston will build another 6 million square feet of office space. Downtown employment, now 140,000, will increase to 160,000 by 1980.

Unless mobility within the central business district is improved and regional transit trips increases significantly, many public and private leaders fear that Houston will experience the decentralization from the core area and the kind of downtown decay that has beset many U.S. cities since World War II.

Challenge: Maintaining the Mobility Necessary to Accommodate Continued Growth

In 1975 the City's Office of Public Transportation was authorized by Mayor Fred Hofheinz and the City Council to study ways in which current and future transit technology might better meet Houston's downtown mobility needs.

The Downtown Houston Transit Needs Analysis was completed in March 1976 at a cost of \$120,000 with the aid of funds under Section 9 of the Urban Mass Transportation Act of 1964, as amended. The approach adopted combines planning with the simultaneous implementation of immediate transit improvements leading toward long range solutions. The following strategy was recommended:

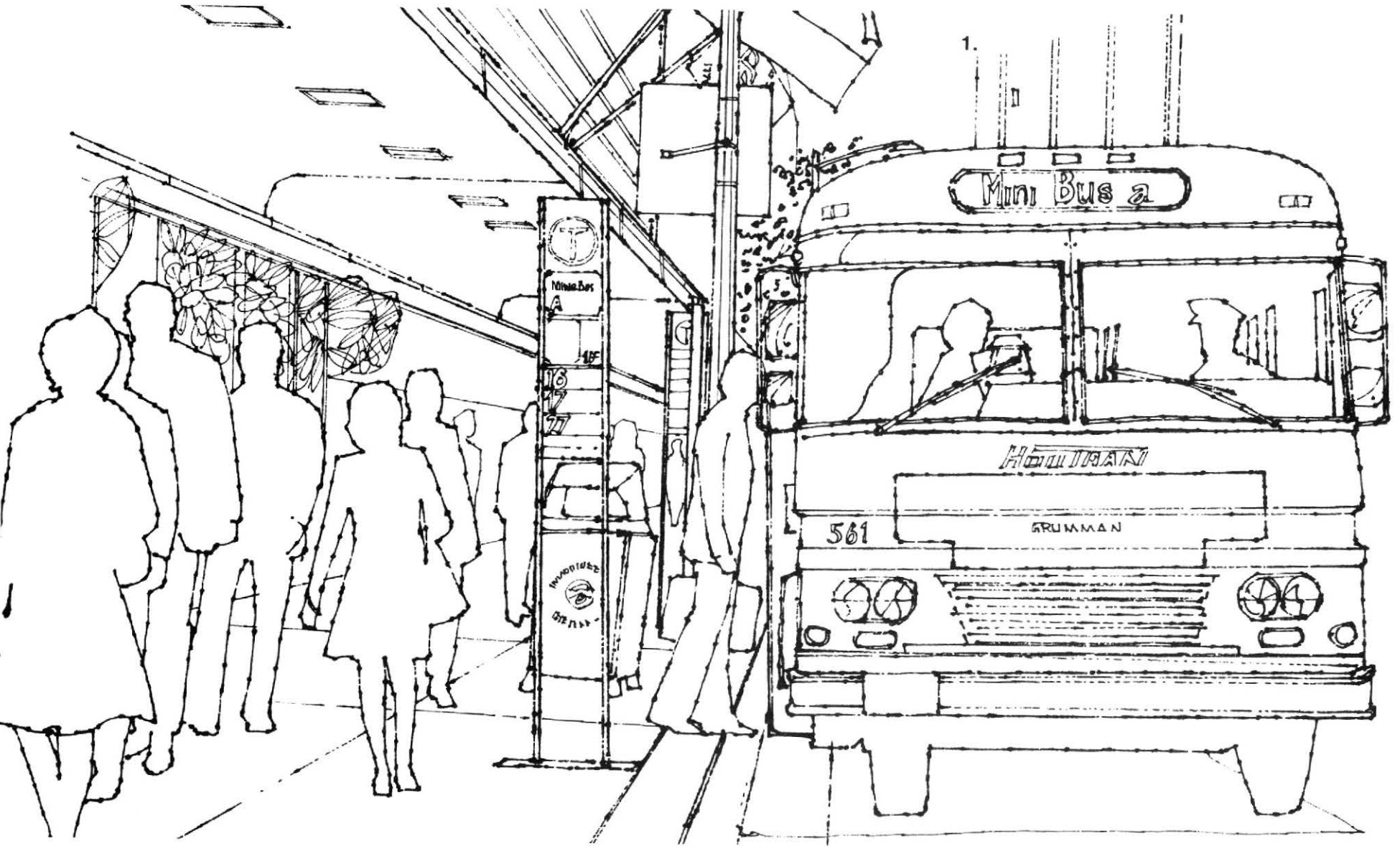
1. Immediate implementation of a downtown circulation system using small buses.
2. Expansion as soon as possible of the downtown circulation system to link up with peripheral parking facilities and regional express transit service.
3. Further study of long range downtown transit improvements to meet future needs.

Houston's Downtown Mini Bus System

The first phase of the system was inaugurated in October 1975. The initial system provided two routes through Houston's north-south core. In December 1975 two additional routes, in an east-west direction, were added. The system uses 10 lanes and 2 contra flow lanes. Routes, schedules, signs and marketing information are continually revised and updated to keep the system responsive to user needs. A 10¢ fare is charged.

Houston's Downtown Mini Bus System carries more than 5,000 passengers daily and touches the lives of 1 in 5 persons working in the downtown area at least once a week. It was the initial transit experience for 78% of the Mini Bus riders.

The system not only serves the mobility needs of the downtown area but also has made possible the development of new parking resources in fringe areas. Future expansion of Houston's Downtown Mini Bus System will occur as additional peripheral parking lots are developed.

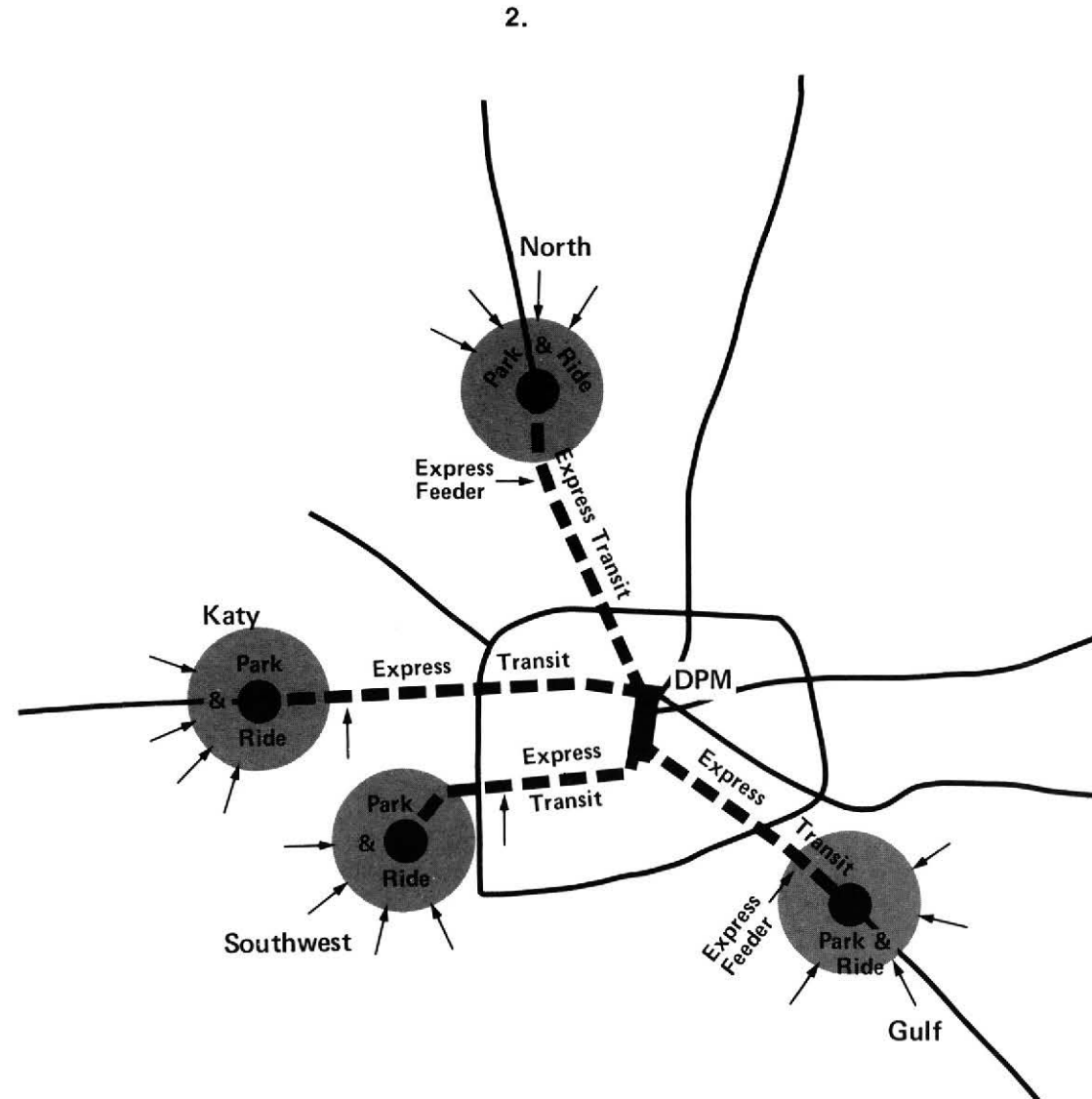


Interface of Downtown and Regional Transit

Long-range plans for improved access to downtown include the extensive use of suburban park and ride facilities, exclusive bus lanes on radial routes to and from the downtown area, expansion of commuter bus service, and specially designed suburban paratransit services. Car-pooling, on a regional basis, has developed in the Houston area through the Office of Public Transportation's CarShare Program. These programs make sense only if there is adequate mobility within the central business district.

Even though Houston is an auto oriented city, the success of Houston's first park and ride lot on the Gulf Freeway demonstrated that Houstonians will respond to a regional system which provides efficient, reliable, and safe public transportation. This lot began operation on March 28, 1977, as a joint effort between the private sector (Sage Department Store) and the City. It is served by 8 trips in the morning and 8 trips in the evening. After several weeks of operation, the lot reached its capacity of 220 cars. It serves an average of 350 passengers daily.

Houston's pursuit of a regional transit solution is highlighted by a cooperative effort between city departments and the State Department of Highways and Public Transportation to identify transit opportunities which can be made effective through the improvement of the existing highway network. The parties to this effort feel that continued local cooperation is essential if the region is to develop a transit system which will support the continued growth and prosperity of the central business district.



Houston's Downtown People Mover: Not a New Concept

Houston is participating in an Urban Mass Transportation Administration sponsored demonstration of downtown people mover systems using current technology.

Since 1969 the potential of a downtown people mover system has been analyzed and studied by the Chamber of Commerce, State Department of Highways and Public Transportation, City Planning Department, Houston-Galveston Area Council, and Office of Public Transportation. In each case an automated guideway system was recommended.

The principal purpose of the proposed system is increased accessibility to and mobility within the central business district. It also will be an integral part of the regional transit system. Local officials anticipate that the mobility afforded by the downtown people mover will stimulate additional growth and development in the central business district. During the project development and testing period a wide range of data on the system and its impact will be assembled.

The proposed alignment is a 1.098 mile north-south route on Milam Street, bisecting the office core. This alignment provides station stops within one block of 40% of the projected 1980 work population and connects directly with tunnel and bridge systems which will increase that coverage to 75% of the work population, 33% of the parking spaces, and 2200 hotel rooms, as well as to civic, cultural, convention, restaurant, and entertainment facilities.

The downtown people mover is expected to carry 24,000 riders a day by 1980. This estimate is based on experience with the current Mini Bus system, which handles 5% of all downtown trips. Patronage at this level would have a dramatic effect on downtown Houston and stimulate transit ridership throughout the area.

The annual 1980 operating and maintenance cost (in 1976 dollars) is estimated to be \$1.2 million. The annual income is, of course, dependent upon the number of revenue passengers and the fare structure. At an average 25¢ fare, the estimated 1980 revenue would be \$1.6 million.

3. Houston's People Mover

ESTIMATED SOURCES OF
CONSTRUCTION FUNDS

Federal grant	\$24.0 million
Federal loan	10.0 million
State funds	3.9 million
Local funds	2.1 million
TOTAL	\$40.0 million

DOWNTOWN PEOPLE MOVER
FINANCIAL BENEFITS

1. Operating cost savings to the existing bus system through the reduction of central business district mileage:	\$12 million
2. Out-of-pocket savings to motorists diverting to regional bus system:	36 million
3. Travel time savings for existing bus patrons at an average of 5 minutes per commuter trip.	12 million
4. Savings resulting from the elimination of need for additional parking facilities:	15 million
5. Value Capture assessments:	10 million
TOTAL	\$85 million over 20 years (1980-2000)

The downtown people mover will eliminate the need for over 6,000 additional downtown parking spaces and reduce the demand for new freeway construction. Since electric-powered vehicles will be used, the downtown people mover will also reduce air pollution. The major environmental issue, however, will be the inte-

gration of the system into the downtown environment in an aesthetically pleasing manner.

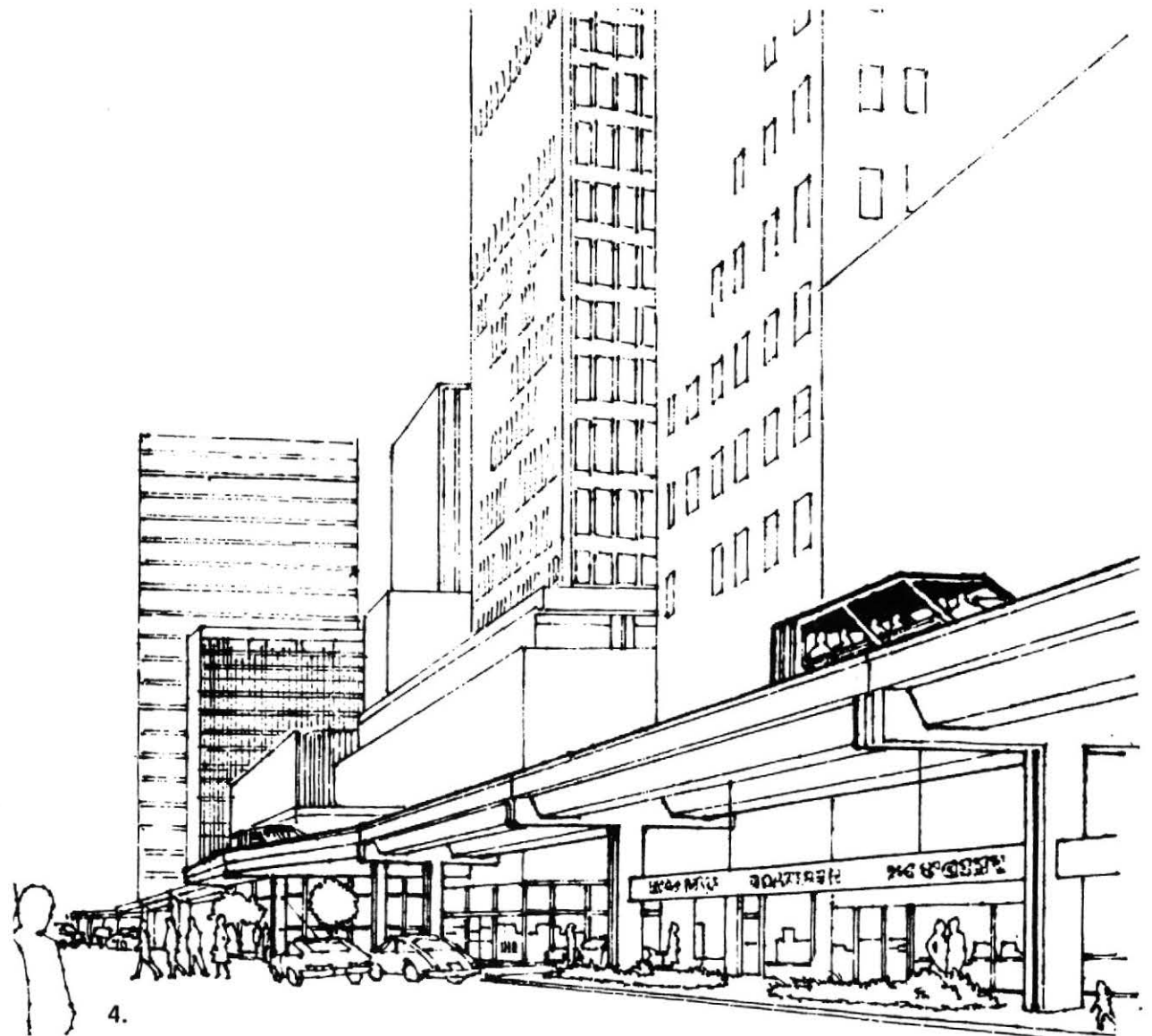
The City of Houston is now studying in detail the feasibility of actually constructing the people mover system. Federal approval of a Phase I Preliminary Engineering grant is providing funds to evaluate environmental and socio-economic impacts, complete preliminary engineering, and develop a community involvement program. The City will then decide whether or not to seek funding for construction.

Value Capture

In building the people mover system, the City of Houston will acquire two full blocks of land for regional bus terminals linking the downtown people mover system with the regional transit system. These sites are to be developed as value capture demonstrations.

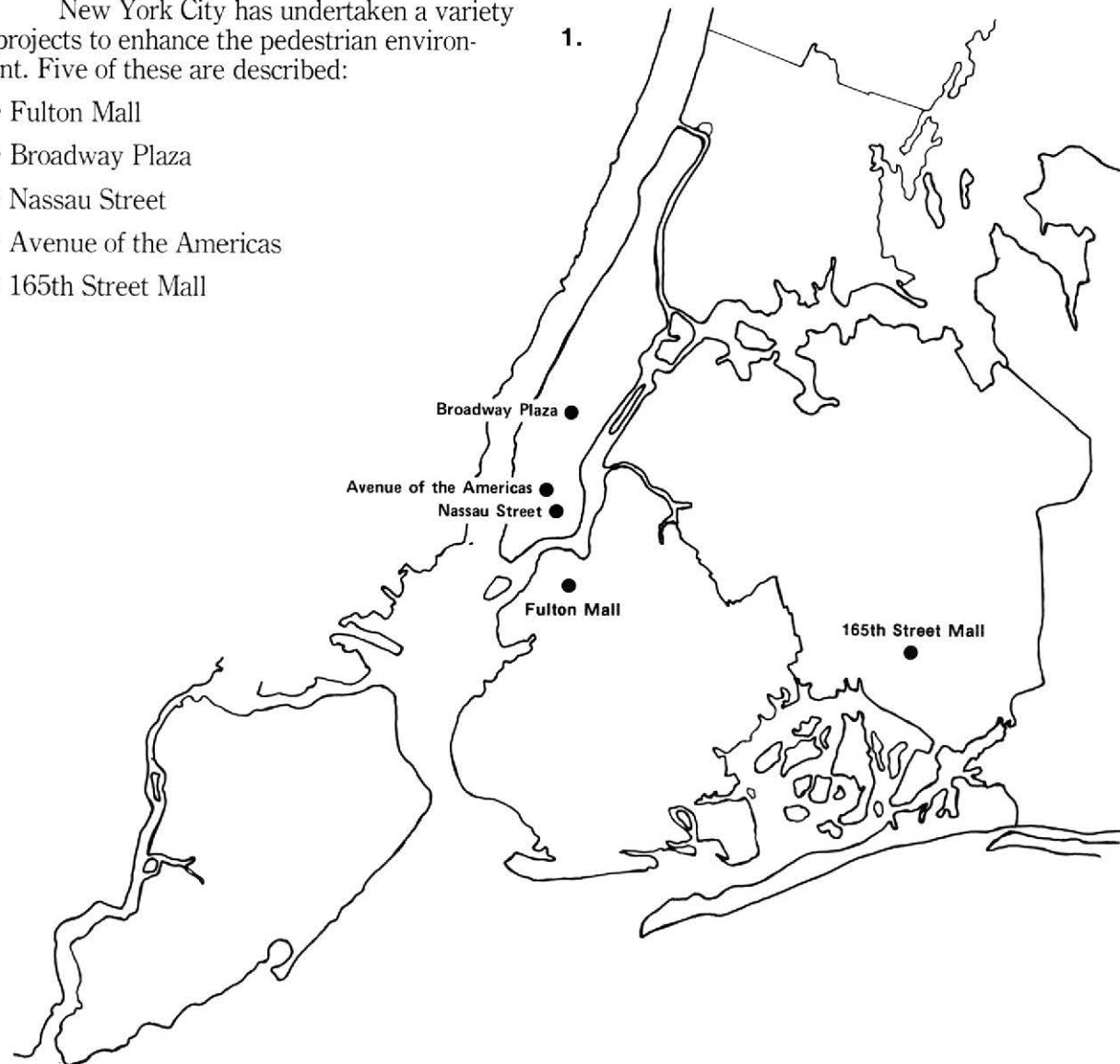
The development potential of the North and South Terminal station area will be enhanced dramatically. Construction of the North Terminal also will significantly influence redevelopment of the Market Square area of downtown. The South Terminal will reinforce the active growth already occurring near Cullen Center and Allen Center.

Given the proper conditions, it should be possible for the city both to magnify and capture some of the value created by these developments. Equity interest in air rights development, joint public and private land development, and lease back are some of the value capture potentials being studied. The City expects to recapture \$10 million from the value generated directly by the people mover project.



New York City has undertaken a variety of projects to enhance the pedestrian environment. Five of these are described:

- Fulton Mall
- Broadway Plaza
- Nassau Street
- Avenue of the Americas
- 165th Street Mall



Fulton Mall

Fulton Street, with 200,000 shoppers each day, is the center of downtown Brooklyn's busy retail area. Because of overcrowded sidewalks, conflicting traffic patterns, low vehicular capacity, and crowded bus traffic, accommodation for major pedestrian movement became a necessity.

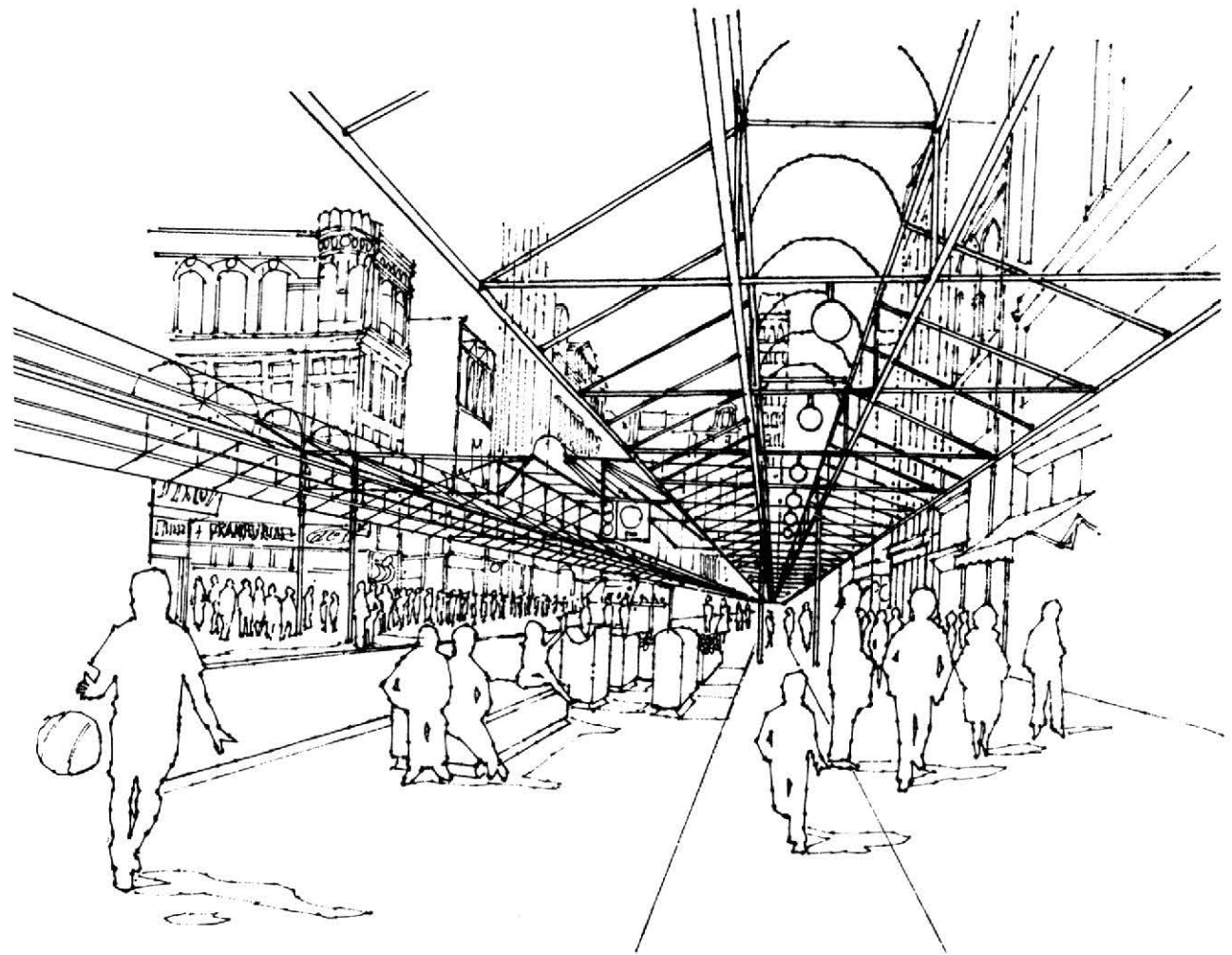
After traffic studies and consultations with local businessmen, the Office of Downtown Brooklyn Development produced a plan which includes:

- a widened sidewalk (from 18 to 28 feet).
- new paving, graphics, and street furniture to include kiosks, benches, and protective bollards in truck loading areas, large cylindrical markers at the major portals of the mall, and small markers at subway exits and bus stops.
- a 25-foot wide, 2500-foot long roadway for the exclusive use of five bus lines, emergency vehicles and, during specified hours, delivery trucks.

Phase I construction funding sources:

- 80% Urban Mass Transportation Administration (approximately \$3 million)
- 20% City of New York (\$750,000)
- City of New York is doing design work at a cost of \$400,000.
- Phase I sewer work is funded with \$300,000 from Community Development Block grant funds.

2.

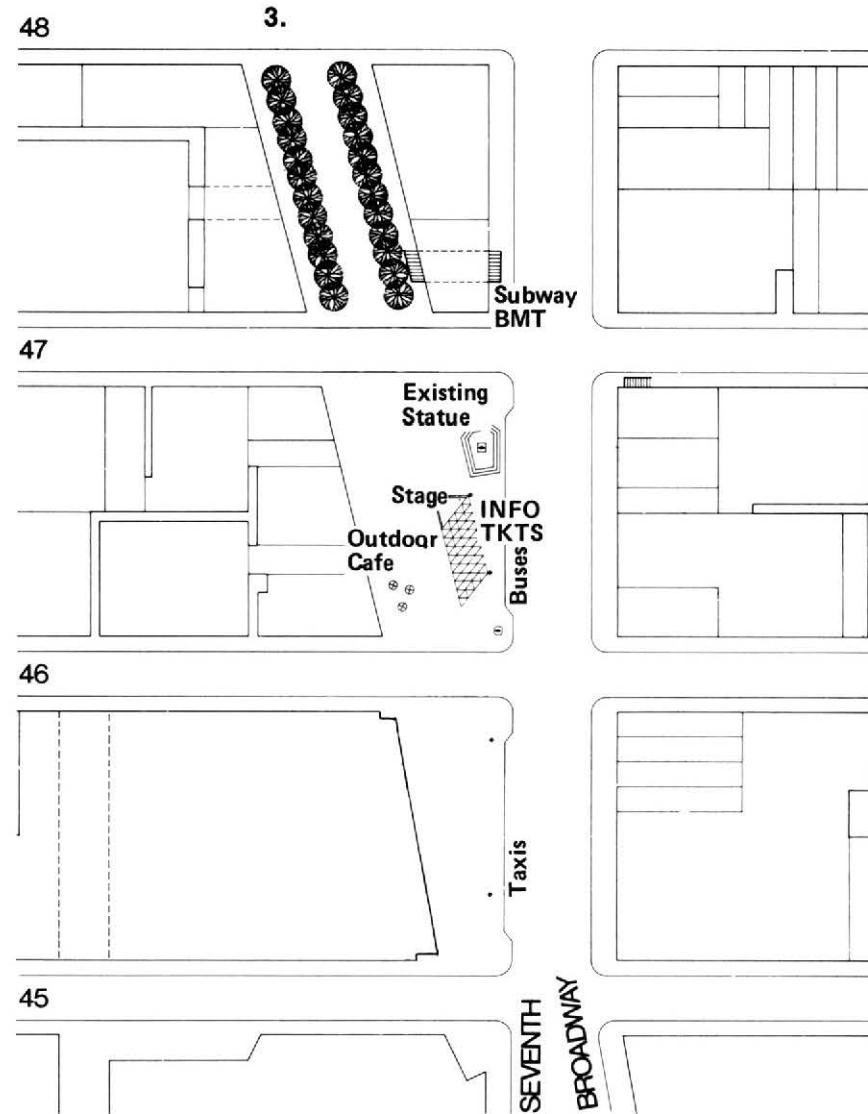


Broadway Plaza

Broadway Plaza will create two acres of open space in Times Square for pedestrians, outdoor cafes, and theater events. Zoning controls will insure that Times Square continues to remain bright with spectacularly-lighted signs and ground floor activities characteristic of the area's entertainment focus.

For many decades, Broadway and Times Square have been seen as places to stroll. As early as 1929 the Regional Plan Association proposed that Broadway be closed to traffic. In addition to the stream of theater-goers and tourists, Times Square is the scene of great gatherings and special events.

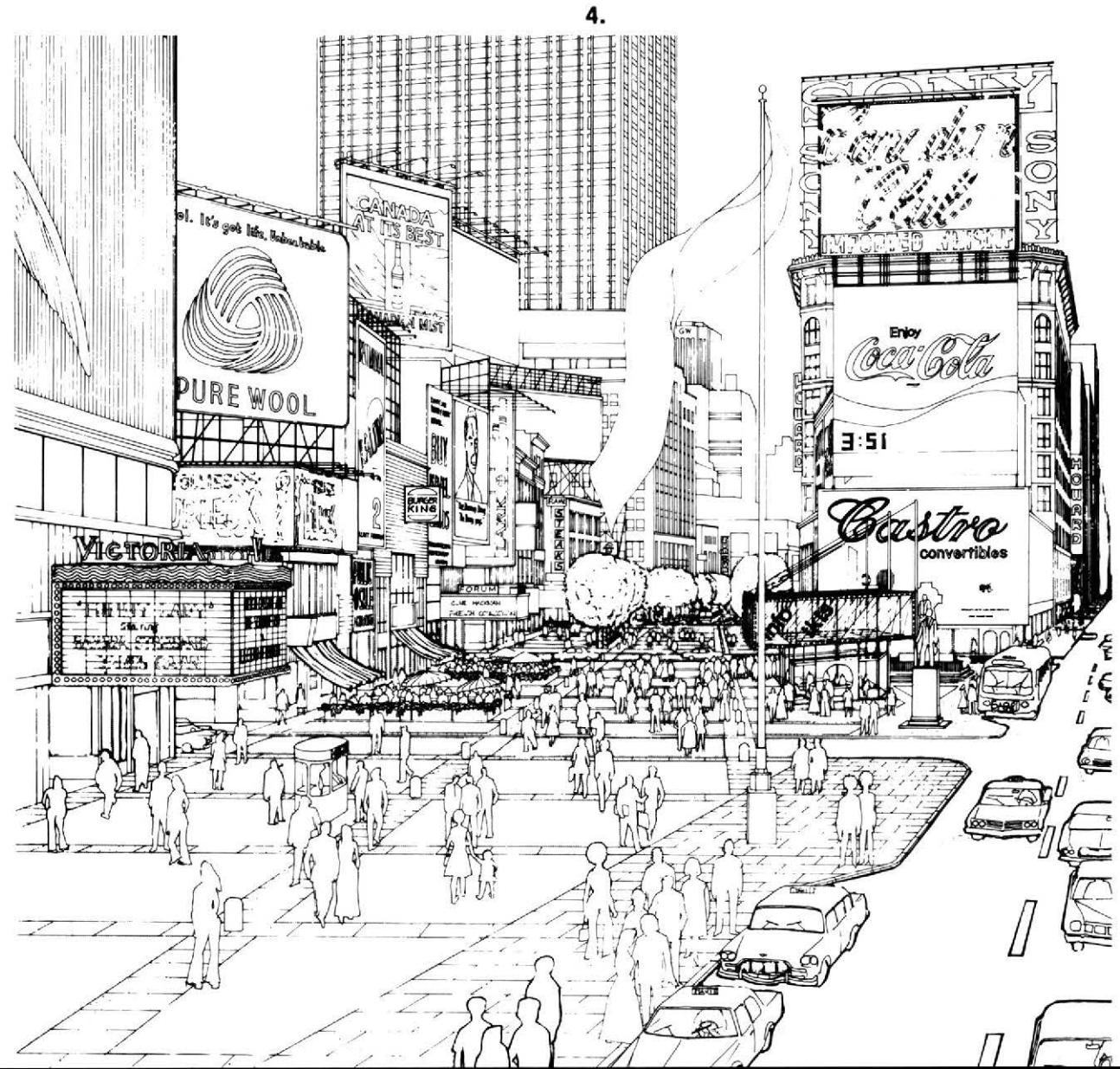
Although the image of Times Square has deteriorated in recent years, significant public and private efforts have brought about a renewed confidence in the future of "The Great White Way." Much of the credit goes to the Times Square Development Council, which was created in 1972 to bring together city administrators and the community.



The Broadway Plaza Project includes:

- Street closings, sidewalk widenings, and the designation of areas for transit and paratransit patrons.
- Operational and physical changes to give preference to the movement of transit and paratransit vehicles. The emphasis along the upper end of Broadway will be on operational and management strategies (signalization, enforcement, bus dispatching).
- Reservation of Broadway between 48th and 49th Streets, for transit and paratransit vehicles. Crosstown streets will remain open. Broadway south-bound traffic will be diverted to Seventh Avenue.
- Closing the Plaza area between 45th and 48th Streets to all but emergency traffic. Seventh Avenue will be widened at 45th Street to provide passenger boarding areas at the eastern edge of the plaza and the transitway of Seventh Avenue between 45th and 48th Streets.

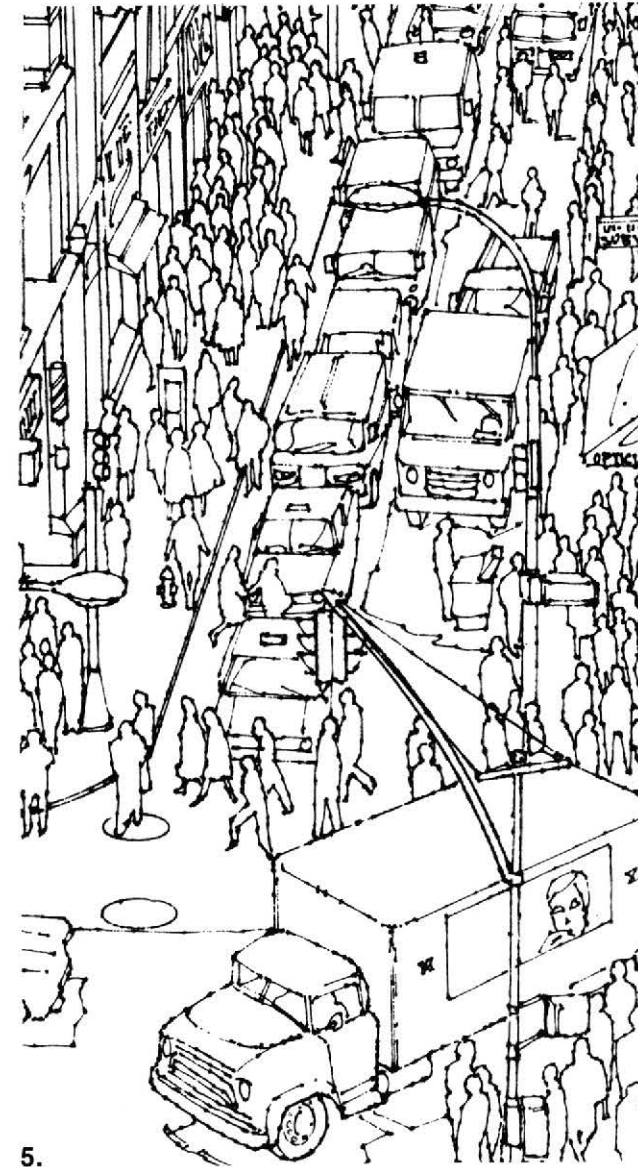
Estimated construction is \$4.5 million. Work is expected to begin in March 1978.

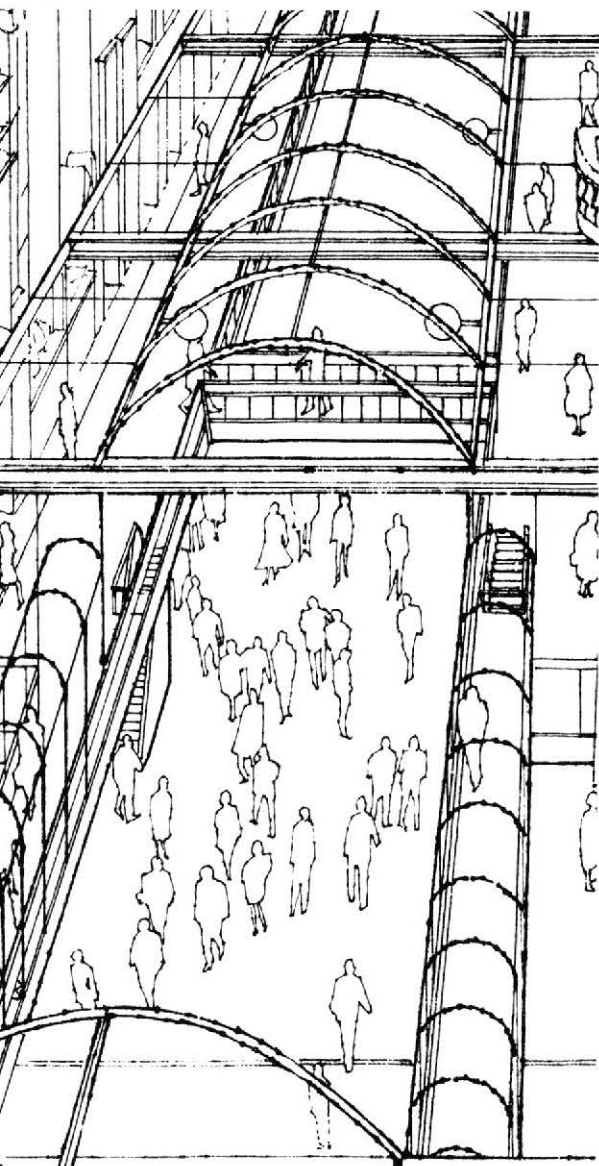


Nassau Street

Nassau Street, Lower Manhattan's most intensive retail shopping corridor, is a natural pedestrian mall. On a pleasant day, as many as thirty thousand shoppers crowd onto the street at noontime. The street itself is only 17 feet from curb to curb, causing a critical conflict among pedestrians, delivery trucks, and vehicles. During peak periods, curbs, hydrants, sign posts, and street light poles become hazards to pedestrians.

In May 1969, the City announced, in cooperation with the business community, the closing of four blocks of Nassau Street to all vehicular traffic between 11:00 A.M. and 2:00 P.M. for a 3-month experimental period. The trial closing proved to be so successful in facilitating pedestrian movement and access to the area that it has been extended indefinitely.





Full development of the Mall will take place in three stages.

- Phase I includes resurfacing, removal of obstructions to pedestrian movements, new lighting, and information graphics.
- Phase II involves the development of a special zoning district to establish sound design and planning guidelines for retail development.
- Phase III, still at a theoretical stage, would provide a second-level pedestrian system similar to the successful skyways in Minneapolis. Such a system, whether within the building facades or projecting over the street as a covered galleria, should make it economically possible to use the now largely unrented second-floor level of buildings.

Total estimated construction cost is \$670,294, to be obtained under the Local Public Works Capital Development and Investment Act of 1976. Phase I began in October 1977.

Avenue of the Americas

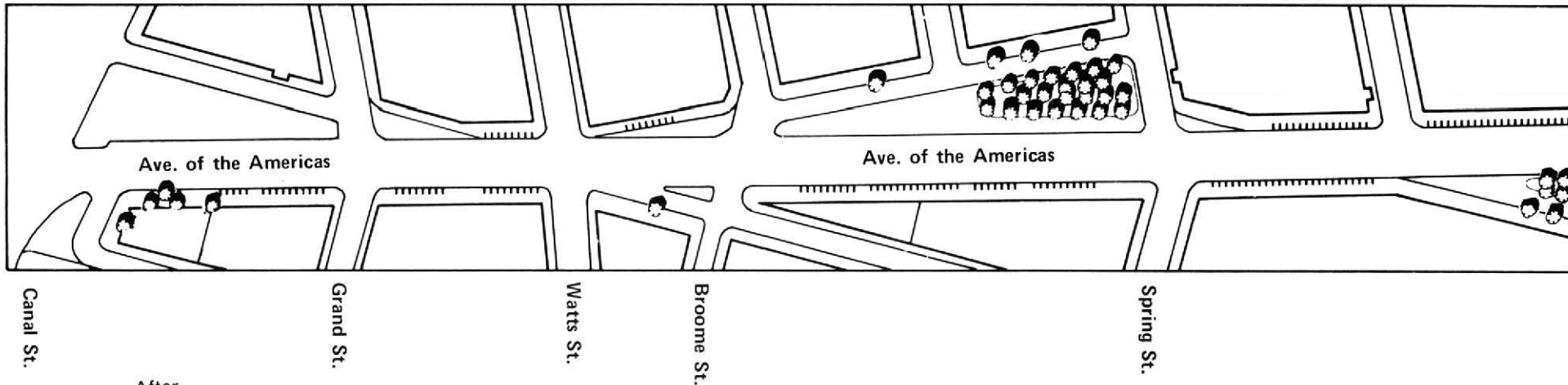
Early in this century, Sixth Avenue—now known as the Avenue of the Americas—was extended below Canal Street by condemnation and remapping. The result was an avenue of erratic width, sometimes only 100 feet wide, but often much wider, reaching 250 feet in some places.

Sidewalks seemed of secondary importance and were built in 15 to 20 foot widths, with the remainder of the right-of-way developed as paved roadway. These roadways of varying width contain much wasted space which can now be put to better use. Since open space is scarce in Greenwich Village and SoHo, it was decided that the excess roadway would be landscaped and developed as open space.

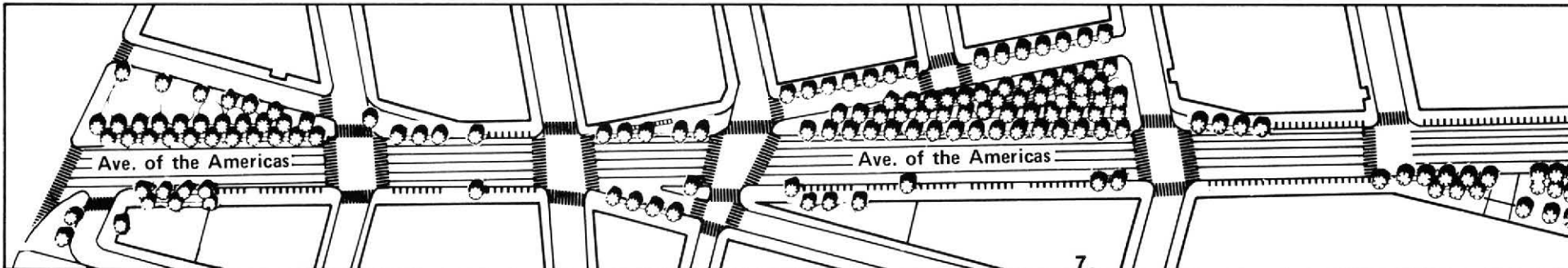
The project, one mile in length, included street repaving, the addition of trees and street furniture, definition of crosswalks and bus stops by interlocking concrete blocks in a zebra-striped fashion, and the development of parks at 4 intersections:

- The area between Canal Street and Grand Street, where a new ½ acre plaza area was created from excess roadway. The Plaza

Before



After



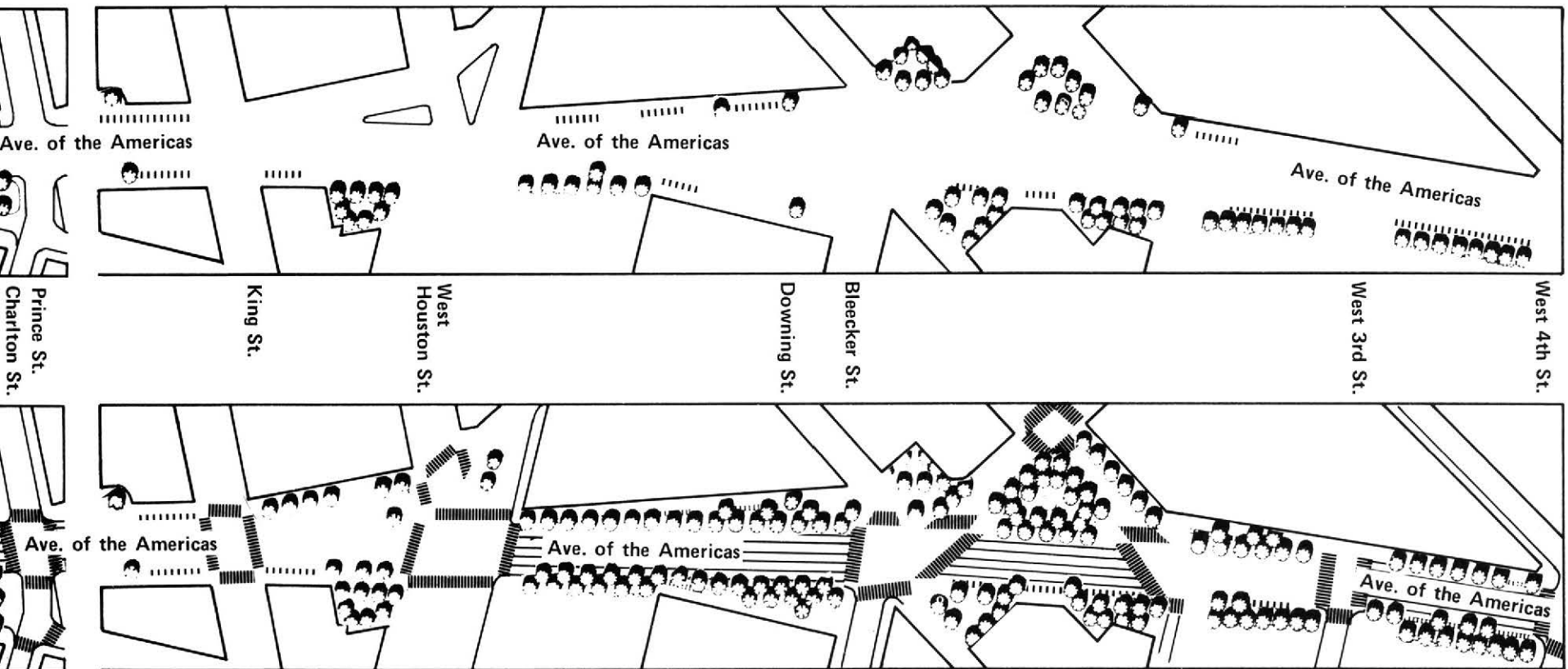
was paved with brick in circular patterns. High-mast lighting is used for the large intersection of Canal Street and the Avenue of the Americas. A double row of trees has been planted along the 4 blocks of Sixth Avenue.

• A triangle between Broome and Spring Streets, where an existing landscape area was doubled. Here too, special paving and lighting were installed.

- Father Fagan Square at Prince Street, where a little-used roadway was converted to a plaza and special provisions made for trucks serving the Police Department warehouse.
- The area surrounding Father Demo Square at Carmine and Bleeker Streets. Father Demo Square was doubled in size and landscaped with seating areas and several varieties of shade and ornamental trees. The

area adjacent to the triangular square will be developed as wide promenades with double rows of trees. The pedestrian areas have special lighting systems to provide adequate and safe lighting levels.

Total estimated construction cost is \$1.75 million, provided by the City of New York.



165th Street Mall

Jamaica Center is the transportation hub of Queens, served by more than 40 bus lines, subway lines, and the Long Island Railroad. Jamaica Center is presently involved in major public and private redevelopment efforts which will culminate in the development of York College, approximately 2 million square feet of office space, a new subway line, removal of the blighting Jamaica Avenue elevated lines, and new housing and community facilities.

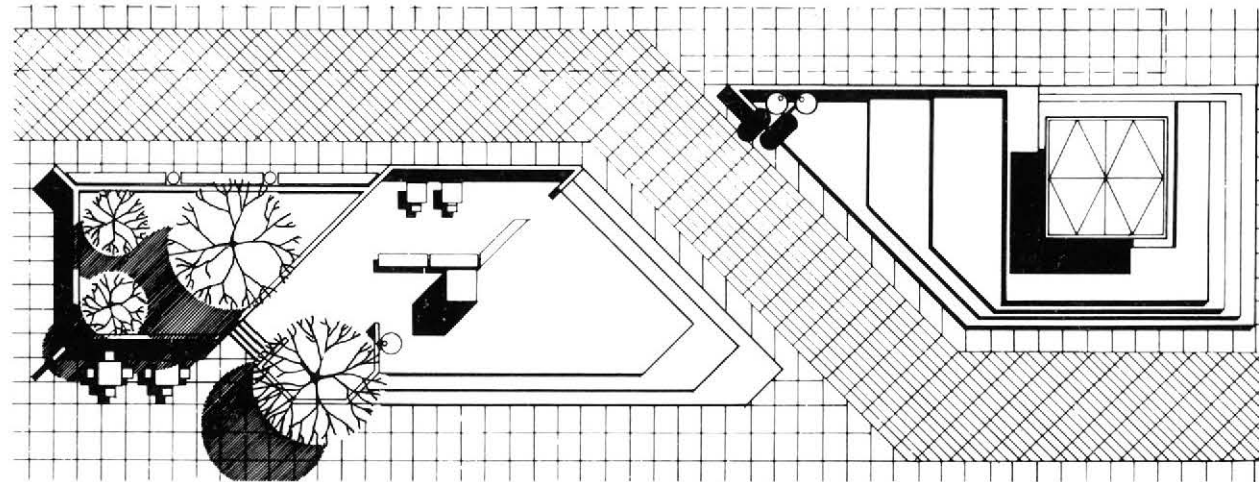
Jamaica Center's revitalization program includes a major upgrading of the pedestrian environment. 165th Street, third largest shopping area in New York City, was selected as the first phase for several reasons:

- Local merchants were interested in improving the street's appearance in the hope of attracting new shoppers.

- The street's location, development, and physical character permitted relatively easy and fast improvement.

- Extensive perimeter parking facilities already existed. A municipal garage south of Jamaica Avenue on 165th Street, a department store's roof-top parking off 89th Avenue, and municipal parking lots within a one- to two-block radius provided the area with more than 1,500 parking spaces.

- 165th Street is relatively narrow, with a 60-foot right of way and a linear configuration of approximately 860 feet. A department store, more than 70 specialty shops, and ample parking provide all the components usually found in a suburban shopping mall.

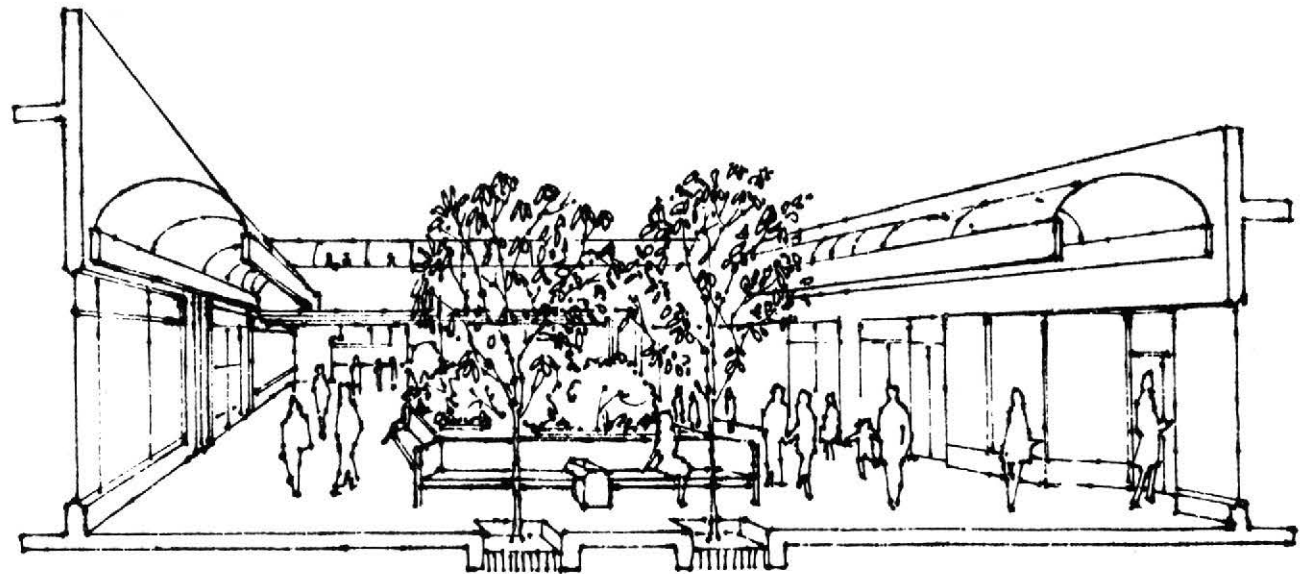
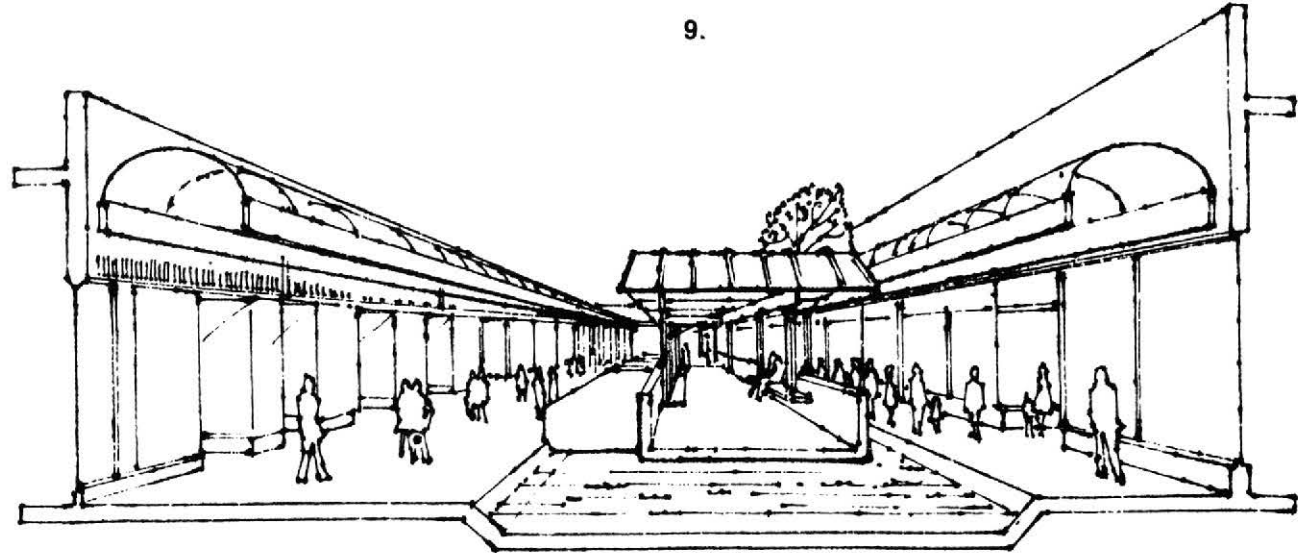


The plan for the 165th Street Mall includes:

- A pedestrian-way approximately 840 feet long and 60 feet wide. The mall surface will be at a uniform level from building line to building line and paved with decorative blocks. Emergency, service, and delivery vehicles will be permitted on a lane in the center of the mall.
- Improvements include low-level lighting standards, raised planters, and the protection of pedestrians from inclement weather through the use of continuous translucent canopies. Two mall information directories and sculpture, funded by a public arts grant, will also be provided.
- To the north and south of the vehicle-free area, 165th Street will be improved with additional plantings, street furniture, paving, and lighting.
- At some future time, a section of 165th Street south of Jamaica Avenue and north of the municipal parking lot may also be closed to traffic.

Estimated construction project cost is \$1.5 million, allocated in the City's Second Year Community Development Program Budget. Construction began in the summer of 1977.

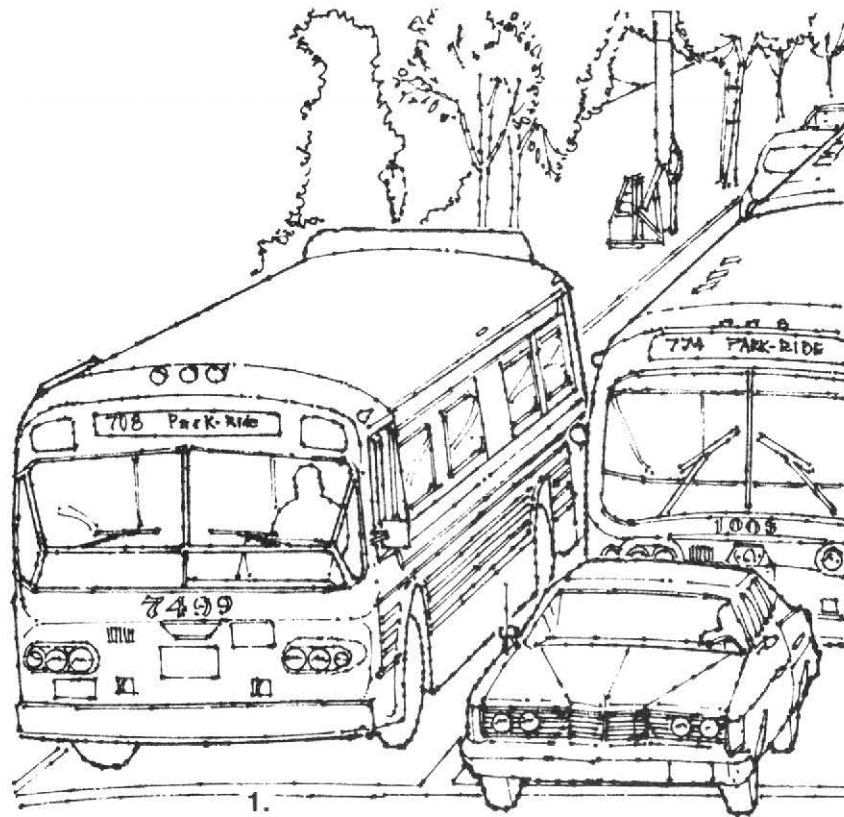
9.



1. Transit on the Freeways

The City of Los Angeles, aided by an \$11 million Urban Mass Transportation Administration grant, is developing a four-part multi-modal regional transportation improvement program. The objectives of the program are:

- To make more effective use of existing streets and freeways.
- To improve access to downtown Los Angeles, so as to assist in maintaining its dominance as a regional shopping center.



- To facilitate the circulation of transit riders and pedestrians within downtown Los Angeles.
- To evaluate alternative transit systems which could supplement and improve the existing bus system.

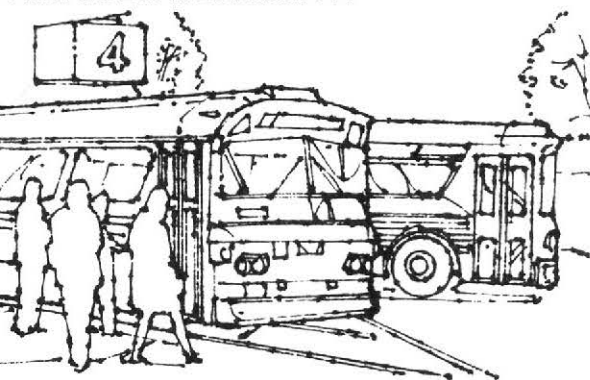
Transportation Systems Management

An important component of the regional transportation improvement program is the continuing development of its transportation systems management element through the identification of opportunities for improvements in the existing bus services, including improved routing, scheduling, and maintenance; additional freeway express bus services; park-and-ride lots; parking strategy; designation of downtown streets for the use of transit vehicles; and pedestrian malls.

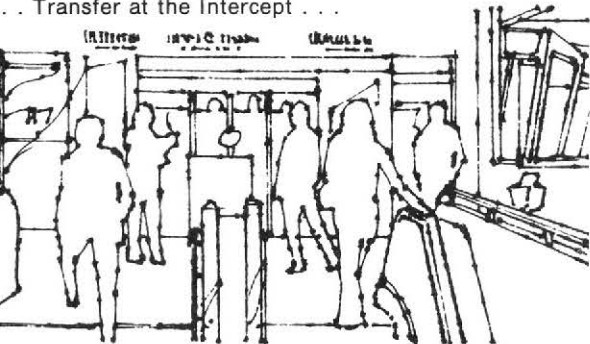
Freeway Transit

A regional freeway transit study will identify opportunities for improving express bus services over the freeway networks by such techniques as ramp-metering, preferential bus and carpool lanes, and the construction of bus stations at key points. This part of the plan is an important element in the regional effort to improve air quality. Fully-implemented, the program could provide 230 miles of free-flowing freeway for the joint use of all vehicles, including buses and carpools, and an additional 50 to 70 miles of exclusive lanes for high-occupancy vehicles only.

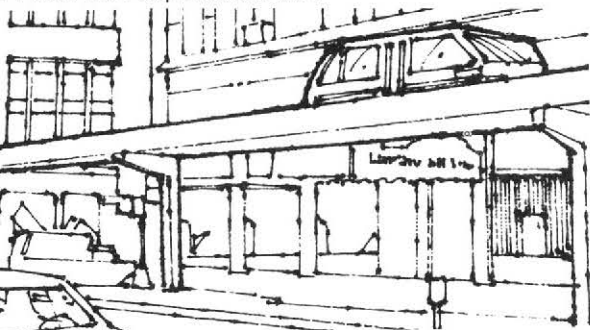
... Ride the Bus to Downtown ...



... Transfer at the Intercept ...



... Ride the People Mover ...



Downtown People Mover

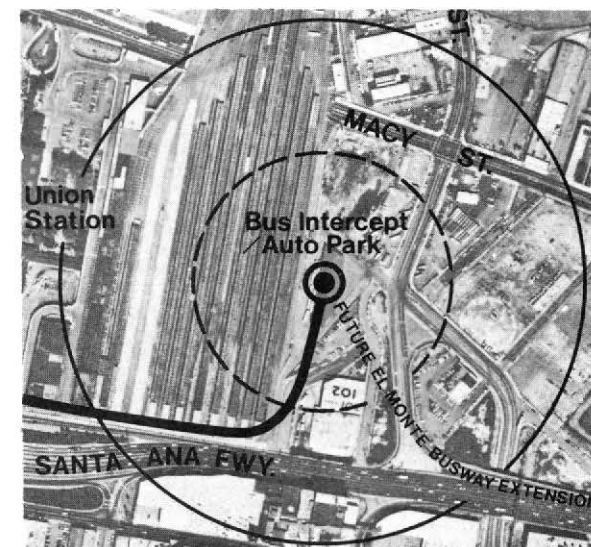
A downtown people mover system is an integral part of the regional transportation improvement program. The development of the system is essential to the full realization of the regional bus-on-freeway system and to the continuing growth of downtown Los Angeles.

Los Angeles is to receive \$100 million in grants, plus possibly as much as \$25 million from Federal highway funds for its proposed Downtown People Mover, contingent upon the satisfactory completion of preliminary engineering and environmental impact studies now under way.

As a part of the downtown people mover system, it is proposed to provide 3700 fringe parking spaces to intercept automobiles which would otherwise penetrate the central area. This is expected to improve air quality and noise levels in the central business district and make possible the improvement of pedestrian facilities on major shopping streets. Fringe parking spaces will be allowed as credits against on-site parking requirements for new downtown office buildings.

Transfers between bus routes and the downtown people mover, transfers from one bus route to another, and additional parking will be provided at two points on the edge of the central area: the Convention Center and Union Station. The El Monte Busway will be extended to the Union Station facility, providing an across-the-platform transfer to the downtown people mover and other bus routes. It was estimated that these facilities will be used by 40,000 persons a day. Four major bus streets have also been planned for the downtown area.

3.



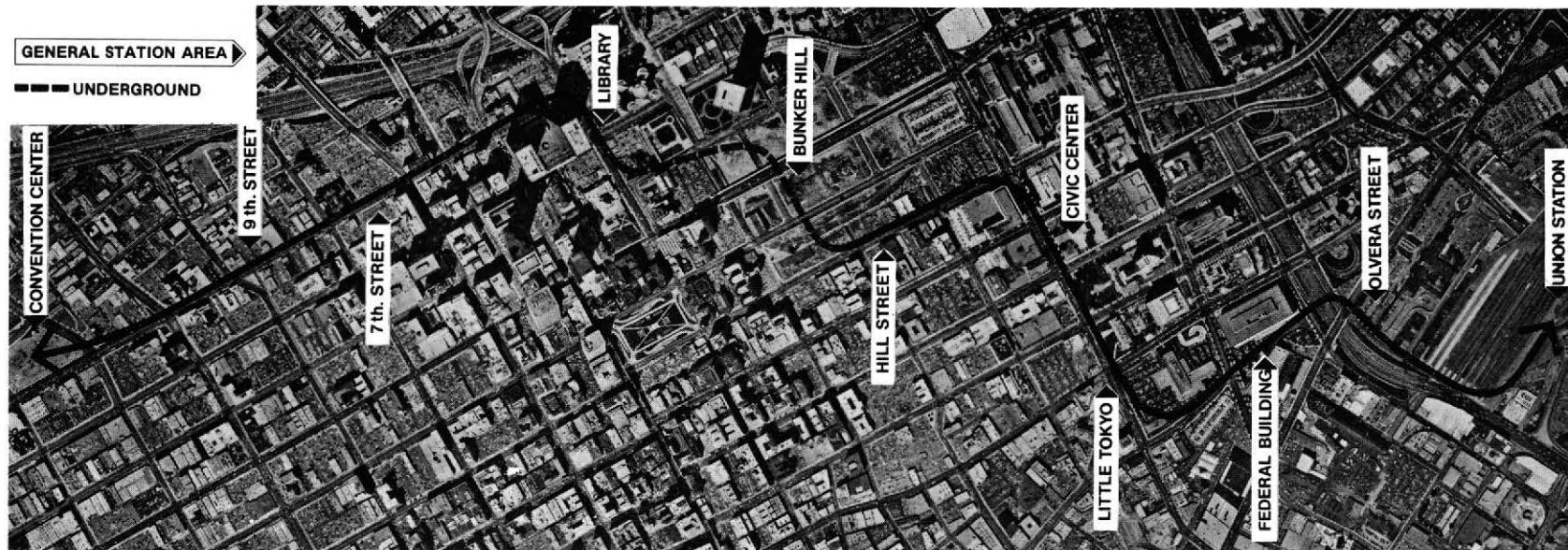
4. The People Mover's Route

The Downtown People Mover is designed to give people better access to the range of activities and opportunities available in the downtown:

- For residents, shoppers and visitors—access to nine different retail areas.
- For visiting business people—access between the convention center and the major downtown hotels and motels.
- For downtown employees—access to the over 200 places to eat.
- For elderly residents—access to the full range of downtown services.

Fixed Guideway Rapid Transit Program

The fourth element of the regional transportation improvement program is the evaluation of a proposed grade-separated rail rapid transit system in the most densely populated sector of the region, from downtown Los Angeles along the Wilshire Boulevard corridor, through Hollywood into the San Fernando Valley. The need for and feasibility of this type of public transportation will be determined as a result of the evaluation.



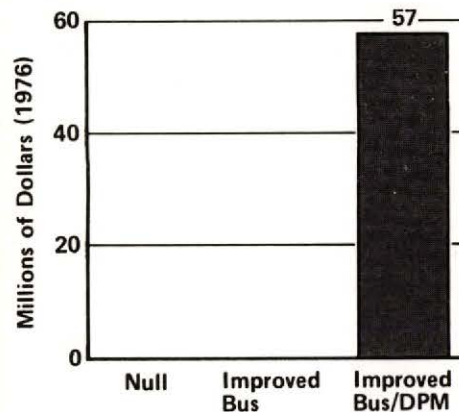
Impact of Downtown Transportation Improvements

5.

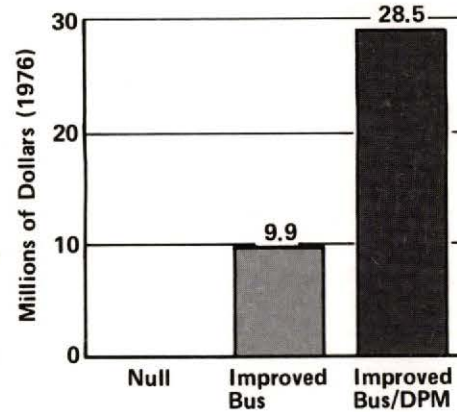
An extensive alternatives analysis was undertaken to project the impacts of the various transportation improvements on downtown Los Angeles. This analysis showed that the Downtown People Mover and the coordinated bus improvements can have a major positive impact on downtown Los Angeles, including:

- savings in transit costs in the downtown.
- intercepting autos at the fringe of downtown.
- diverting downtown users out of autos during the daytime.
- accommodating City Council-approved growth levels.
- increasing accessibility for more people to more places in less time.

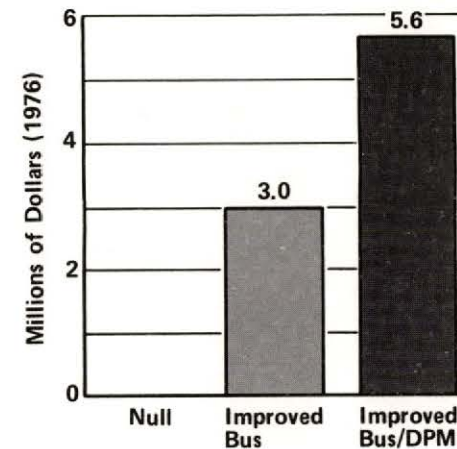
Employment Due to Construction of People Mover



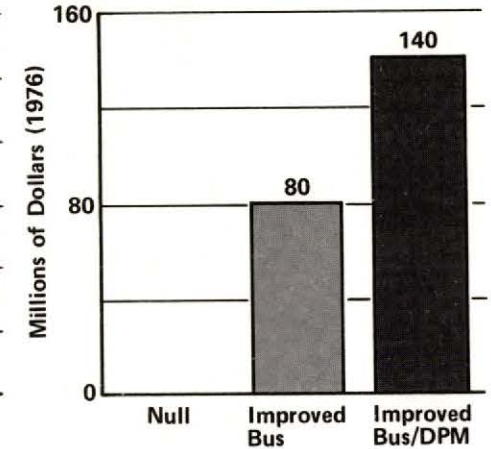
Retail Sales with Improved Transportation (annual-1990)



Local Tax Revenues Generated by Economic Activity (annual-1990)



Value of Real Estate Development due to Transportation (cumulative 1976-1990)



The following lists illustrate some of the ways in which transportation and center city environments can be improved. While not meant to be exhaustive, they are provided to suggest other types of improvements which have and can be used.

Public Transportation

Priority Techniques—Priority techniques give travel or parking preference to taxis, carpools, vanpools, or transit vehicles. They include reserved lanes on expressways and city streets, transit streets, exclusive ramps on bypasses at freeway interchanges, traffic signal preemption by transit vehicles, exemption of high-occupancy vehicles from turn prohibitions or requirements, and preferential parking facilities or rates for carpools or vanpools.

- Reserved street lanes—Chicago, Dallas, Denver, New York, San Francisco.
- Reserved contra-flow lanes—Honolulu, Los Angeles, Minneapolis, Madison.
- Bus signal pre-emption—Louisville, San Francisco (street cars), Boston.
- Exclusive ramps or by passes—Dallas, Los Angeles.

Transit Malls—Transit malls are streets or public ways reserved for the use of transit vehicles and pedestrians.

- Transit malls—Nicollet Mall in Minneapolis; Chestnut Street in Philadelphia; State Street Mall in Chicago (construction Fall 1977); Portland Mall in Portland (Oregon); Fulton

Street Transitway in Brooklyn (Construction 1978).

Fare-Free Zones—Fare-free zones are delineated areas, usually embracing a downtown retail and office area, within which transit patron can board any local bus and travel free of charge within the zone.

- Fare-free zones—Dayton, Denver, Portland (Oregon), Seattle.

Center City Circulation Services—Special fixed route service can be provided by buses or minibuses within the city center. This may include internal circulation, shuttle service between the retail and office district and peripheral parking locations, and shuttle service in conjunction with pedestrian and transit malls.

- Circulation service—Houston's Mini Bus System; Washington's Downtowner System; San Antonio's El Centro.
- Shuttle service—Houston's Mini-Bus System; Miami.

Jitney Services—Jitneys may provide unscheduled service over fixed routes during certain periods of the day using automobiles, jeeps, station wagons, or other small vehicles.

- Jitney service—Atlantic City, Chattanooga, Chicago, Cleveland, Miami, Pittsburgh, San Francisco.

Downtown People Mover Systems—Downtown people mover systems use small automated vehicles operating on fixed guideways to serve specific center city travel needs.

- A system is in use at Morgantown, West Virginia.

- Similar systems are currently in operation at the International airports at Dallas-Fort Worth, Miami, Seattle-Tacoma, and Tampa.
- The Urban Mass Transportation Administration announced on April 6, 1977 that Cleveland, Houston, Los Angeles, and St. Paul, had been chosen as demonstration sites for systems using proven hardware.

Pedestrians

Pedestrian Malls—Pedestrian malls are streets or public ways reserved for the use of pedestrians.

- Pedestrian malls—New York, Philadelphia, Santa Monica, and over 70 other communities across the United States.

Grade-Separated Walkway Systems—Skyways are above-grade systems which link buildings and in which pedestrian movement occurs. The terms *skyways*, *elevated* or *second-level walkways*, and *pedestrian bridges* are used interchangeably.

Underground concourses link buildings and provide for pedestrian movement below the street surface. The terms *below-grade systems*, *tunnels*, *subwalk*, *pedestrian subways* and *underground concourses* are used interchangeably.

- Skyways—Minneapolis and St. Paul, Cincinnati.
- Underground concourses—Houston, New York, Philadelphia.

Coordinated Pedestrian Systems—Coordinated pedestrian systems emphasize pedestrian linkages between major activity centers and elements of the transportation system.

- Coordinated pedestrian systems (proposed)—New York, Buffalo, San Francisco, St. Louis.

Regulatory Controls

Goods Movement—Controlling the movements of trucks can be another method of reducing congestion in downtown areas. A variety of regulatory and physical methods of controlling goods movement have been proposed, including: prohibiting loading and unloading during peak hours, encouraging evening deliveries, zoning ordinances affecting the location of freight facilities, vehicle licensing, building codes requiring off-street loading areas, grade-separated truck ramps and terminals, consolidated freight terminals and delivery routes, traffic signalization accommodating truck movements, time limits on curb parking, special access for delivery trucks in auto-free zones, exclusive truck-ways in high density truck corridors, and others. Restricting trucks to certain truck routes around the downtown area is a technique now commonly used in many cities.

New York has implemented a program to eliminate automobile traffic from certain streets in the Garment District where there is heavy truck traffic.

Dallas' Thanksgiving Square is an example of an innovative approach to accommodating many downtown needs including goods distribution. A joint public/private effort has resulted in a 3-level terminal with a privately-owned meditation park at street level, a second underground level for retail leasing space and the third underground level for a truck terminal. Thirty-one truck bays are available for servicing all buildings on adjacent blocks, with direct underground access. Financing from both public and private sectors was used to construct the Square and to operate it.

Parking—Regulation of on-and-off-street parking is another method of controlling downtown traffic congestion. Parking disincentives must go hand-in-hand with other economic and transportation incentives such as tax reductions, improved transit services, ridesharing programs and others. Parking regulations can include techniques such as parking meters, pavement and curb markings, building code requirements for maximum spaces rather than the widely-used minimums, zoning control of locating parking lots and garages, regulation of prices, control of hours of operation, strict enforcement, park and ride facilities and many others. Miami and Los Angeles have drafted comprehensive parking strategies.

Urban Design

Incentive Zoning—To help develop urban amenities at the street level, a number of cities have adopted incentive zoning approaches to land use control. By this means, a bonus of floor area may be given to a developer who provides plazas and open spaces around a building. Regulations may also control sidewalk space, location, and furniture. In addition, incentive programs can include special provisions to encourage outdoor cafes, kiosks, plantings, arcades, and open concourses at the subway mezzanine levels to improve access and lighting at subway entrances. New York has been using a variety of incentive zoning techniques.

Special District Zoning—Special district zoning offers a city a tool to develop open spaces and pedestrian and bicycle facilities into networks. Continuous systems are designed, and new developers wishing to construct on links of the network must conform to the overall plan.

Design Review—Some cities have adopted controls over the architectural design of center city projects and buildings. Design review boards have been set up to control changes on exterior appearance of existing buildings and the design of new ones. Design review boards in some cities also control the design and placement of signs. This process is most highly developed in connection with the designation of historic districts.

Landscaping—Immediate and dramatic improvements in pedestrian amenities can be made by enlarging and making better use of

sidewalk space to improve pedestrian crosswalks and transit stops or to enhance other pedestrian activities, such as sitting and window-browsing. Plants, trees, shrubs, grass and pavement designs create interest and beauty. Vegetation can provide shade and protection.

Lighting and Street Furniture—Many man-made objects have the potential for enhancing and giving variety to city center public spaces. Lighting equipment not only enlivens the city center at night, but may also contribute to its structure and appearance during the day.

Street furniture can be both functional and aesthetic. Bus shelters, benches and chairs, trash receptacles, fountains, telephone booths, and information kiosks are functional elements of most public spaces. Additional amenities such as plantings, tree grids, public sculpture, and children's play equipment may be included in a city center improvement program.

Information Systems

Transit User Information Systems—Timely accurate information on transit services can help increase ridership.

Transit system maps and specific route maps can be placed at downtown information centers, banks, hotel lobbies, and other places. Transit signs using simple graphics with bold logos, including the street name, and route number complemented at eye level with a plastic enclosed map of the system, or that portion of the system served by the routes can be both attractive and informative. Telephone informa-

tion services for potential passengers could include a toll-free number which can be used from any city pay phone. Portland, Oregon has implemented one of the most advanced transit information systems in conjunction with its new transit mall.

Pedestrian Information Systems—Because the pedestrian walks at no more than five miles per hour, signs need not be large and obtrusive. Information can be located at all major center city access and transfer points. In addition, information kiosks can be placed at other prominent locations throughout the center city providing detailed guidance for orientation.

Driver Information Systems—Driver information systems consist of an area-wide traffic surveillance and control system which can detect problems rapidly and transmit information to drivers. There are various techniques available to communicate this information to motorists:

- Variable-message signs, when controlled as a system, become tools in aiding motorists to move through city center streets. Detroit and Minneapolis have implemented variable message signs on freeways leading into the downtown areas.
- A visual device located within each vehicle could automatically provide drivers with routing instructions from any point within the system.
- The use of low-power radio as an on-board technique for disseminating information has the advantage of providing low-cost/real-time information at selected sites of the city center road network.

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San Francisco

Parking Policy

Copies of the *Parking in San Francisco* studies, December 1975, are in limited supply. Specific questions may be addressed to:

Bureau of Traffic Engineering
Department of Public Works
460 McAllister Street
San Francisco, California 94102
415/588-3371

Copies of the parking revisions to the Master Plan, adopted in 1977, are available from:

Mr. Rai Okamoto, Director
Department of City Planning
100 Larkin Street
San Francisco, California 94102
415/558-4656

Copies of the entire Transportation element (1972) are generally not available but may be found in major public and university libraries around the country.

Neighborhood Preferential Parking

Copies of the city enabling ordinance no. 312-20 may be obtained by writing:

Clerk of the Board of Supervisors
City Hall, Room 235
San Francisco, California 94102
415/588-3184

Questions regarding the planning process may be addressed to:

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