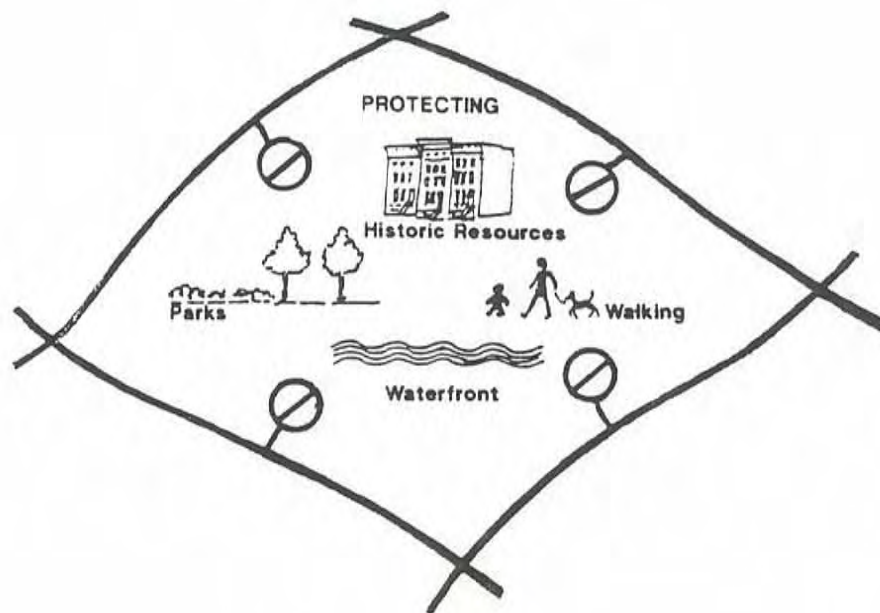

Greenwich Village **TRAFFIC CALMING STUDY**



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For:
Transportation Alternatives
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Funded By:
New York Council on the Arts
Columbia University
Transportation Alternatives

FOREWORD

The tragedy that occurred when an out of control Oldsmobile heading west on Washington Place crashed into Washington Square Park on April 23, 1992 could not have been foreseen when we presented the findings of this traffic calming study at a community forum only five weeks earlier on March 16, 1992. Yet the irony of having proposed closing that particular street segment in this study makes us especially sad.

Shifting street space in our crowded community from motor vehicle use to more humane uses like walking, cycling and planting trees and flowers has been the central focus of the Auto-Free New York Committee of Transportation Alternatives since we began our mission over three years ago. Not too long after we got started, pedestrian advocate and urban planner Barry Benepe came to one of our meetings and described his plan for capturing a small segment of West Fourth St. in the northwest corner of Greenwich Village for pedestrian use.

Barry, who is founder of the very successful Greenmarkets program in the City, agreed to collaborate with us to continue research on this issue. It seemed important to take a comprehensive look at a larger chunk of territory and prepare a traffic reduction plan for the entire Community Board #2 district which covers Greenwich Village, SoHo and Little Italy. With financial assistance from the New York State Council on the Arts we were able to begin this effort. We were very fortunate that an eager student of architecture at Columbia University -- Michael R. King -- found us, and was able to help us pursue this auto-free research study. The results are described in the pages that follow: an overview of the community's agony brought on by the motor vehicle, a catalogue of traffic engineering and urban planning solutions that have now gained the name "traffic calming" and some illustrated examples of how these techniques might be applied in our community.

We invite your review of this report and hope to get your reaction. We also look forward to continuing this research and to bringing into reality some of these proposals.

George Haikalis
Project Manager
Greenwich Village Traffic Calming Study

and

Chair, Auto-Free New York Committee
Transportation Alternatives
May, 1992

Almost all transportation and traffic studies deal with motor vehicle use and ways to move more vehicles at a faster speed. In contrast, this study holds the welfare of pedestrians as its primary responsibility. The goal becomes a civilized environment which provides a safer, quieter, cleaner and more pleasant, convenient and attractive place to work, live and play.

- BARRY BENEPE

The Greenwich Village Traffic Calming Study concludes my research and recommendations of pedestrianization and traffic calming within Manhattan Community District Two (Greenwich Village, SoHo and Little Italy) for Transportation Alternatives.

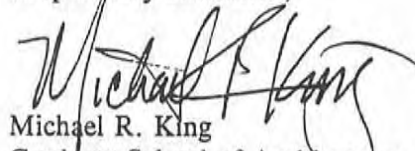
In the first phase, *CONFLICTS ON THE STREETS*, I document the existing conditions in the district and their origins. The nature of the study is not to utilize whole mountains of statistical data (read: the city has no comprehensive data on pedestrians) but to rely on empirical observations of those living in the area. I have included historical and factual data detailing districts, land use and transportation, and suggested conflicts and potentials.

In the second phase, *CURRENT APPROACHES TO CALMING TRAFFIC*, I explore methods used in Manhattan and elsewhere. I encountered many examples and theories making cases for traffic calming which offer advice and programs. In that the primary purpose is to educate the public I catalogued my search into Manuals, Essays, Reports, General Readings, Bibliographies and Recent Proposals.

In the third phase, *VILLAGE POSSIBILITIES*, I suggest specific plans and proposals through a series of four vignettes: Sheridan Square, West Fourth Street, New York University and Broadway.

In as much as we have tried to be fair and complete in our evaluation, we understand that others hold different observations and conclusions; which is why we are producing this report. **WE WANT COMMUNITY FEEDBACK ON THIS REPORT AND HOPE TO INCLUDE IT IN FURTHER DISCUSSIONS.**

Respectfully submitted,



Michael R. King
Graduate School of Architecture, Planning and Preservation
Columbia University
16 March 1992

I wish to acknowledge the following people, for without their help, patience and understanding, this study would not be possible:

Sweetness Melissa.

George Haikalis, Bill Guild and others of the Auto-Free New York Committee of Transportation Alternatives.

Barry Benepe and Associates.

The authors of each of the books, without whose research this study and the entire traffic calming dialogue would not be possible.

David Gurin, formerly of the New York City Department of Transportation.

Gerard Soffian and Michael Primeggia of the New York City Department of Transportation.

The Traffic and Transportation Committee of Manhattan Community Board 2.

The Avery Architectural Library of Columbia University.

Nickelodeon Laser Printer.

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PHASE ONE
CONFLICT OF THE STREET

REFERENCE MAP

The area of Manhattan bounded by the Bowery, Fourteenth Street, the Hudson River and Canal Street containing Little Italy, SoHo, NoHo and Greenwich Village known as Manhattan Community District 2. About 1.25 square miles with 42 linear miles of streets (24% of the total land area).



PHYSICAL SURVEY

SQUARE SYSTEM OF MANHATTAN

New York City grew upon a system of squares which served as public foci for neighborhoods. Examples include Tompkins Square (1), Madison Square (2), Gramercy Square (3), Stuyvesant Square (4) and Washington Square (5). Gone is Hudson Square (6) below Canal Street, a victim of the entrance to the Holland Tunnel and St. John's Square which became a freight terminal for New York Central Railroad.

There have been various efforts through the years to interconnect these squares with other parks and gardens in the city. The Hudson River Waterfront (7), Christie-Forsyth Mall (8), Morningside Park, Ocean and Eastern Parkways and Brooklyn Heights (9) all exemplify these efforts with varying degrees of success.



GRID SYSTEM OF MANHATTAN

Manhattan originally evolved through the combining of separate communities, each with their own street systems, squares and identities. The Commissioners' Plan of 1811 superimposed a rigid orthogonal street system intended to connect the piers along the East and Hudson Rivers and maximize real estate development between. At that time the island was surrounded by abundant clear water and woodlands, that not much thought was given to a need for urban park lands.

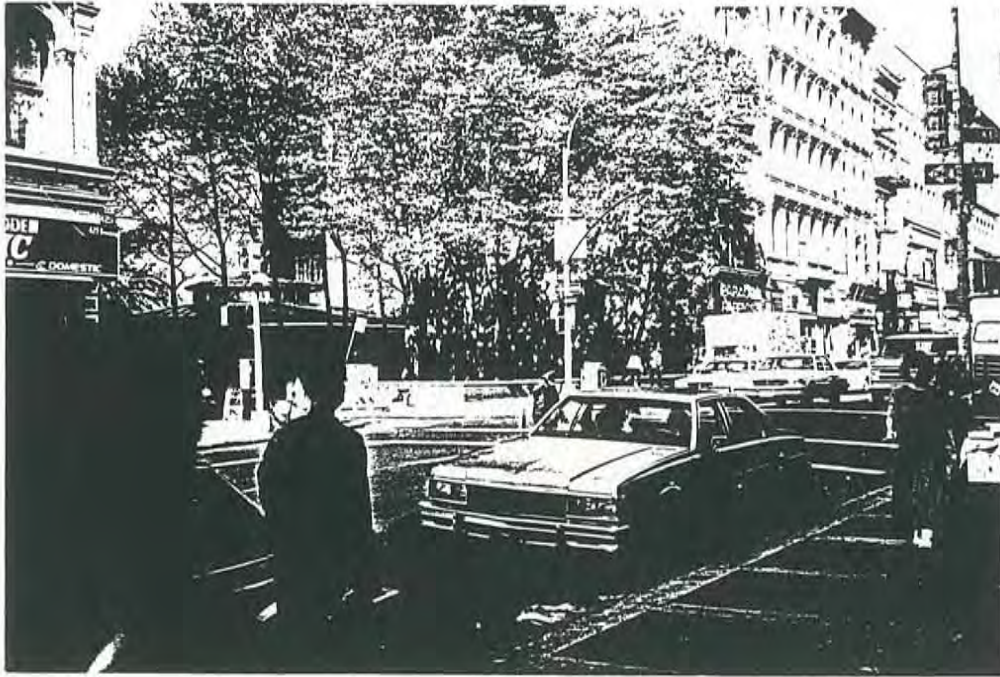
Within District Two are traces of five distinct grids: Downtown (1), Tribeca (2), the Lower East Side (3), the 1811 Commissioners' Plan (4) and the Greenwich Village Grids (5). While seemingly discordant, the intersections and contradictions of these grids offer a wonderful opportunity to study our district. After all, the streets in the West Village and Tribeca are more polar oriented than anywhere else in town.



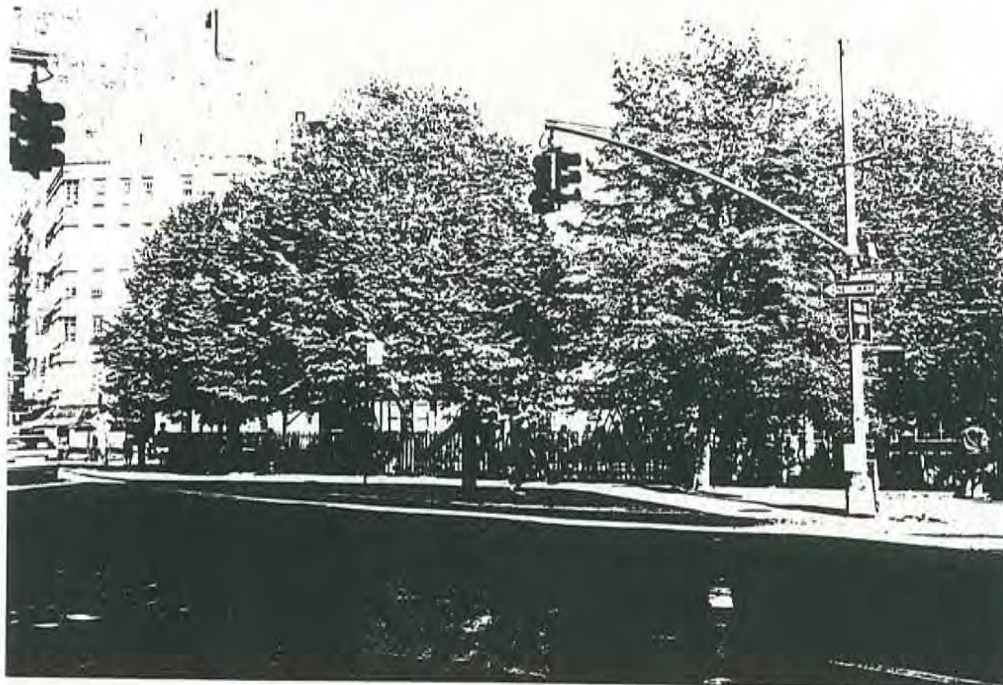
PARKS and PLAYGROUNDS

A look at the 'green' spaces in the District: Washington Square Park (1), the play-grounds along Sixth Avenue (2), the Christopher Street Pier (3) and the supposed park at the entrance to the Holland Tunnel (4) among others.





The bank with the trees at the corner of Howard Street and Broadway. A hint of what is possible when greenery is introduced into the city.



Abingdon Square Playground.

REMNANTS

As the city grew, it left behind certain streets which exist today apart from the norm: Gay Street (1), the old ferry slip and Weehawken Street at the foot of Christopher Street (2), Crosby Alley (3) and Astor Place (4) to name a few. These relics are unique within the district and for the most part exemplify streets already calmed. In certain instances [West Fourth Street between Seventh and Eighth Avenues (5), Lafayette between Spring and Kenmare Streets (6)] the direction of the street precludes most traffic.





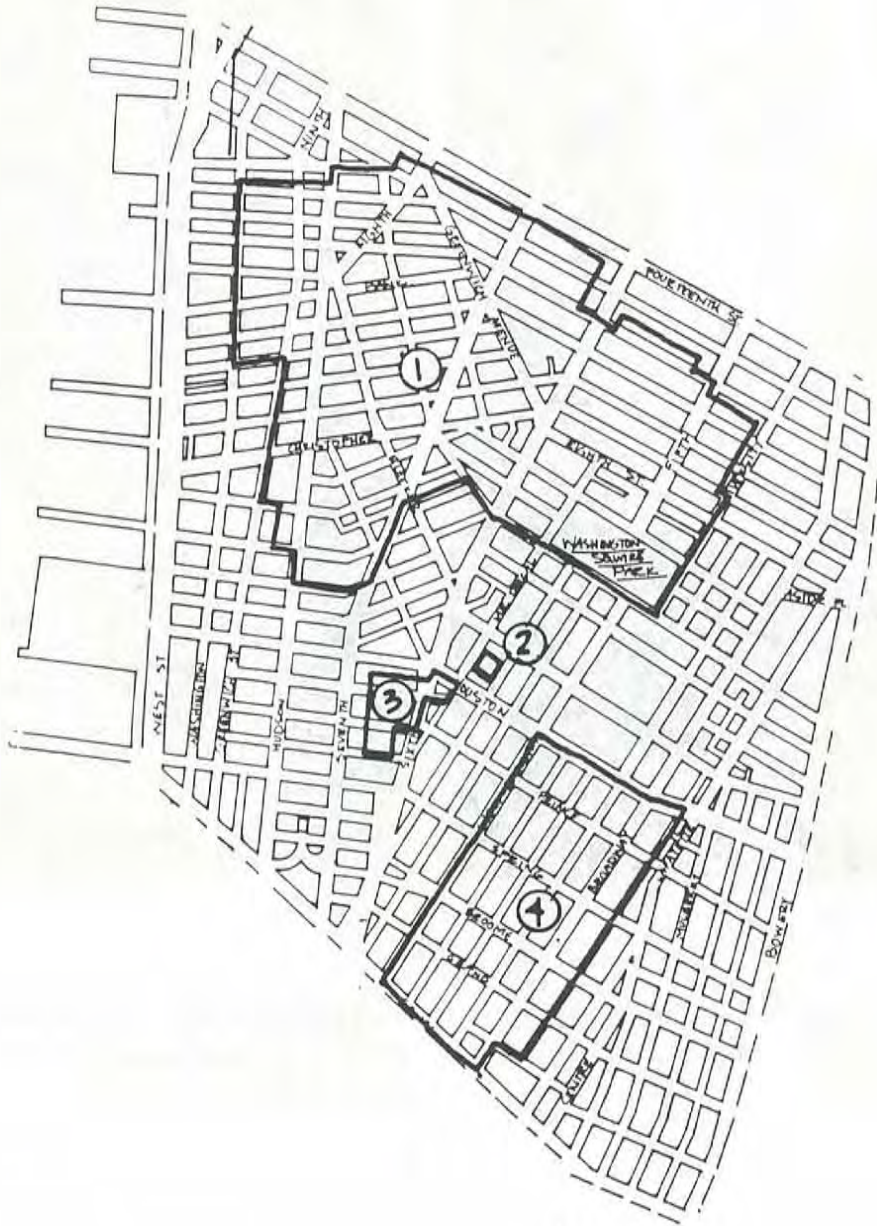
Gay Street. No parking signs and the street direction dispel most of the traffic on this already calmed street.



Weehawken Street. This mystery street could serve as an ideal turnaround for a Christopher Street trolley.

HISTORIC DISTRICTS

That part of District Two with historic status: Greenwich Village (1), MacDougal-Sullivan Gardens (2), Charlton/King/Vandam (3), and SoHo/Cast Iron (4). Demonstrates that much of Greenwich Village and its environs are legally protected.





Bank Street in the Greenwich Village Historic District.



Spring Street at Broadway in the SoHo/Cast Iron Historic District.

IMPOSITIONS

As the city grew, it butchered existing neighborhoods with bigger and better roads: Sixth (1) and Seventh (2) Avenues were cut through the District when subways were built. Kenmare Street (3) was pushed through for access to the Williamsburg Bridge. The Holland Tunnel entrance (4) caused its own havoc around Hudson and Canal Streets. Eighth Avenue (5) and Hudson Street (6) were extended to connect the Village with the 1811 Commisioners Grid. Houston (7), West Third (8) and Bleeker (9) Streets were widened as part of urban renewal. We document these incidents not to belittle progress but merely to record it.





South side of Houston Street without the first row of buildings. They were exchanged for a wider street, leaving us with the blue-green beams at the corner of Broadway.



Eighth Avenue crossing West Fourth. Note the continuation of West Fourth in the distance and the purple triangle left behind.

SURFACE PARKING LOTS

Those lots in the district now used for surface parking. This does not include parking garages. Most of the lots are on the periphery of the district, along the Bowery (1), Canal Street (2) or the Holland Tunnel entrance (3). The lot on West Broadway south of Grand (4) is the subject of a current Parks Council proposal for a playground.





The parking lot at Astor Place. Although surface parking provides open space, we see it as a gross misappropriation of land. It would better serve the public as a park or playground.



What good are widened sidewalks if they only serve as overflow parking lots?

COMMERCIAL FRONTAGES

The current New York City Department of Planning zoning map with commercial frontage considerations. Demonstrates the abundance of commercial streets in the district and offers a fair indication of traffic patterns both pedestrian and otherwise.





Fish markets along Mott Street above Canal Street. Notice the mass of humanity crowded on the sidewalk. Would they, and the merchants not be better served if the parked cars were eliminated?

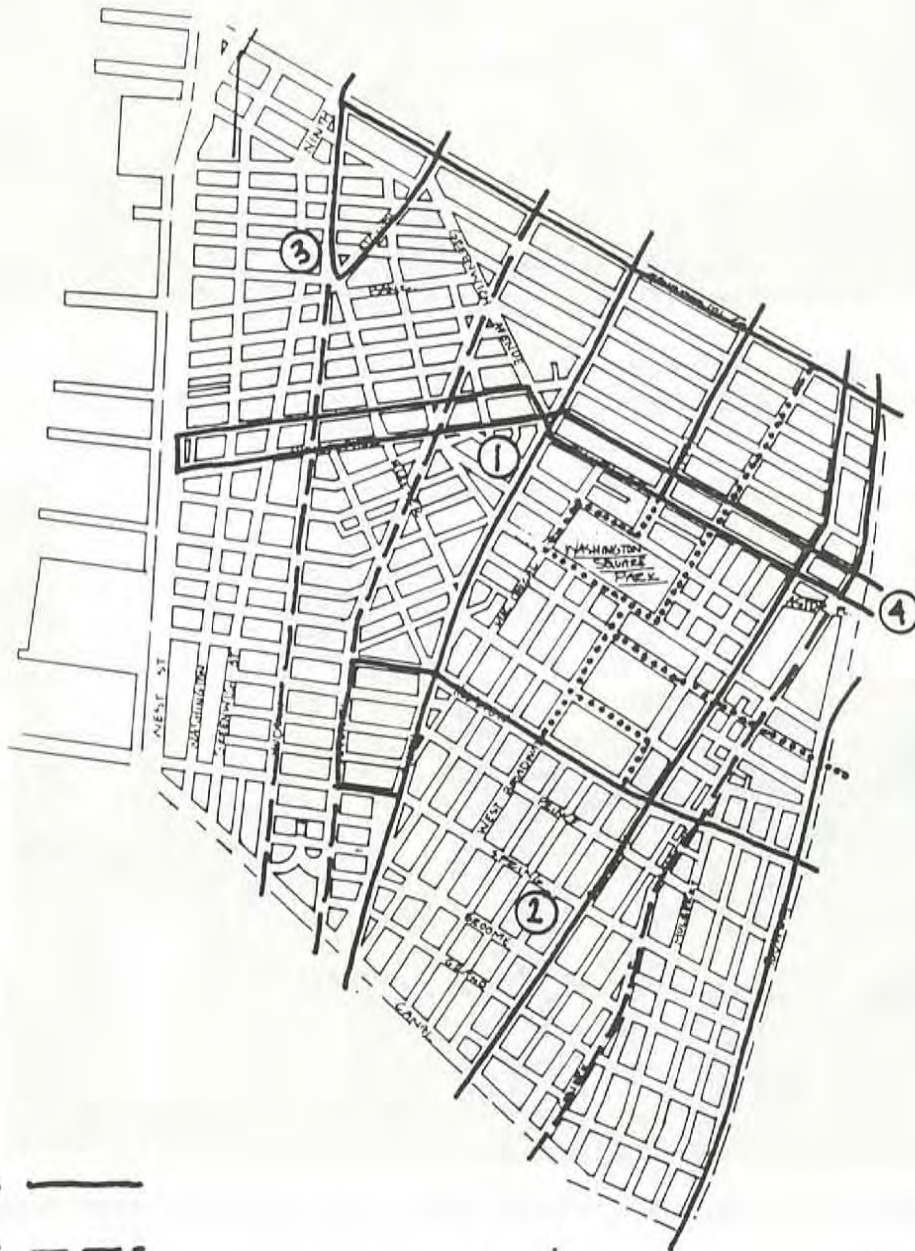


Sidewalk vendors along Sixth Avenue at Eighth Street. This is one of the busiest shopping destination in the District.

TRANSIT SURVEY

SURFACE TRANSIT TODAY

The district is served by many bus lines which either traverse, terminate within, or operate part time. New York University operates a 'trolley' from its campus to residential halls north and east. The location of these lines aid us in determining traffic patterns: Christopher/Eighth Street (1), Broadway (2), Abingdon Square (3), and Sixth Avenue, Astor Place (4).



LEGEND

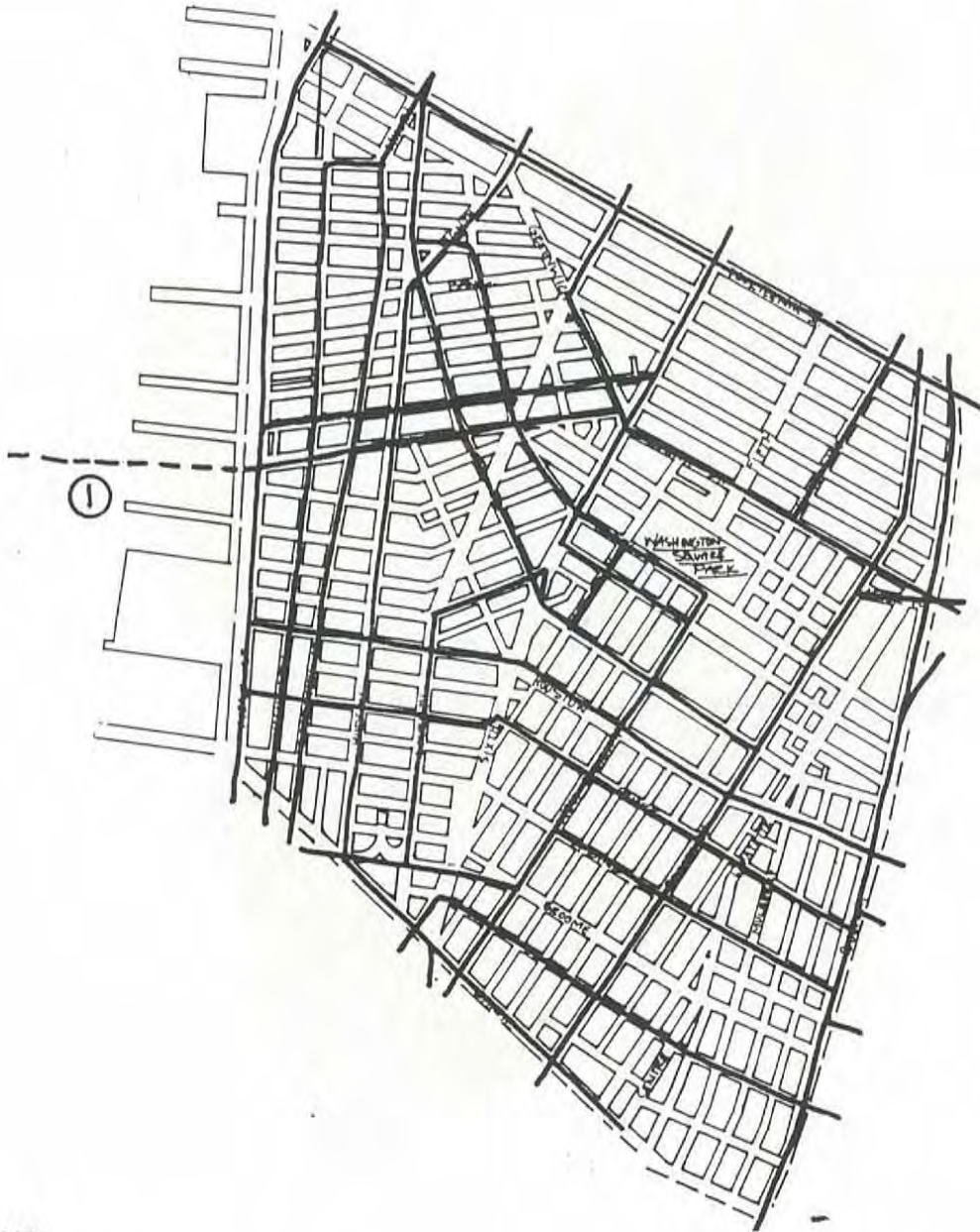
Full-Time Bus ———

Part-Time Bus - - - - -

NYU Trolley ······

SURFACE TRANSIT YESTERDAY

Circa 1910, the District was served by 270% more surface transit routes (27 to 10), plus the Christopher Street Ferry (1). While we recognize the changing transportation needs and patterns in America, we offer this information only to demonstrate the decline in surface transit within the district from its peak at the turn of the century. In the last 20 years, bus speed has decreased by some 35%, due to the rise of the automobile. The Transit Authority has responded by offering more 'Limited' bus lines (M101, M2, M5) which stop only at about every third stop.



LEGEND

Street Railway or Horsecar Route —————

RAPID TRANSIT TODAY

The siting of subway stops allows one to predict pedestrian paths, potentials for improvement and conflicts with the automobile.



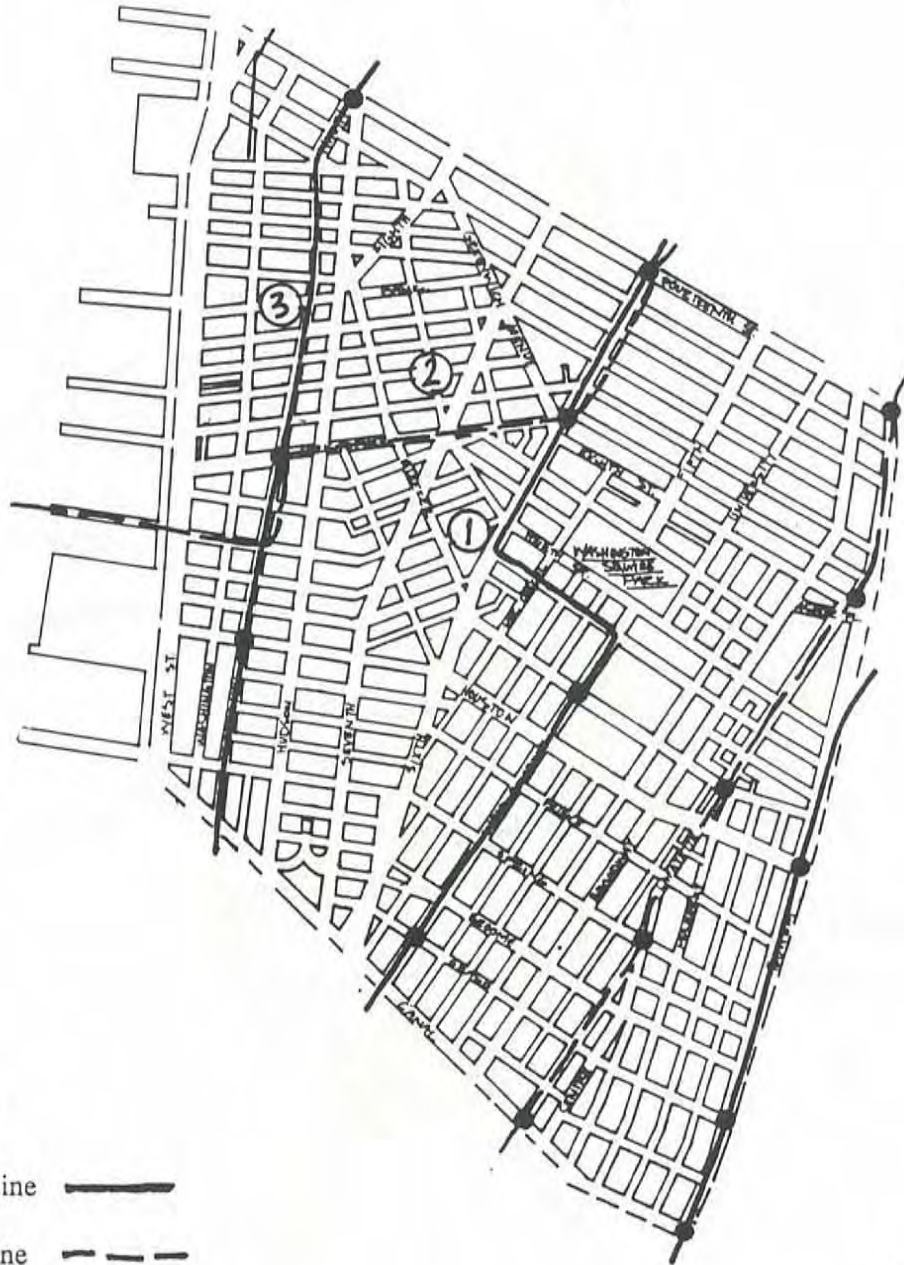
LEGEND

Subway Line — — — —




Subway Stop ●

RAPID TRANSIT YESTERDAY

We offer a look at rapid transit circa 1910 because the first round of subways were brand new, the last elevated lines were still standing and wide avenues had not been plowed though the District [Sixth (1) and Seventh (2) Avenues]. This map also details the existence of rapid transit to the far west end of the District [Greenwich St./Ninth Avenue Elevated (3)].

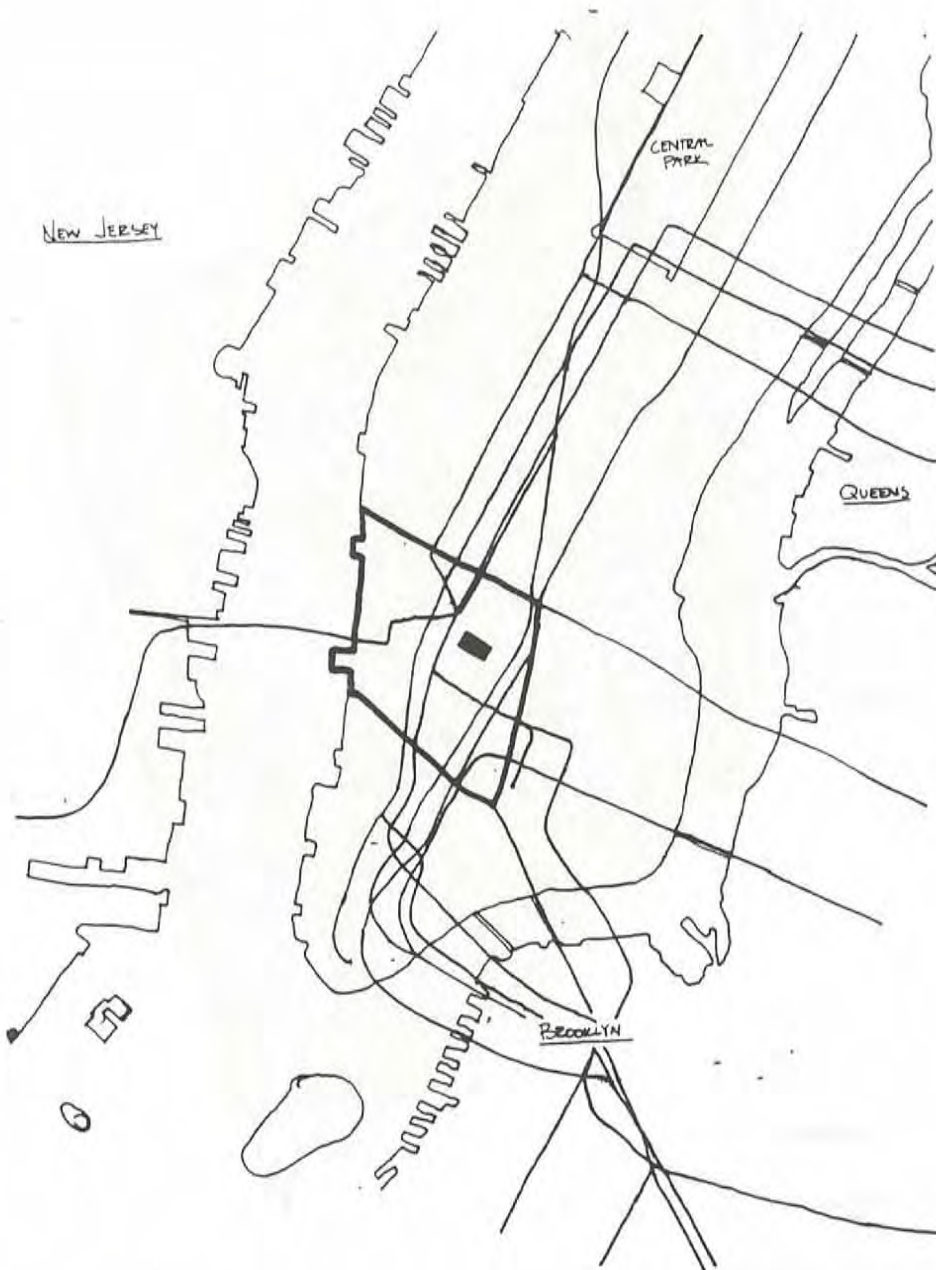


LEGEND

- Elevated Line 
- Subway Line 
- Elevated or Subway Stop 

RAPID TRANSIT DESTINATIONS

The District is blessed to be served by all but three of Manhattan's subways (the 42nd Street Shuttle, the Flushing Line and the PATH train to the World Trade Center). Of these subways, the West Fourth Street Station (1) serves as the hub of the Independent System (A,B,C,D,E,F,Q). Originally envisioned as a 'transfer' station street access was an afterthought, which explains why it is so hard to find the entrance on West Fourth Street.



AUTOMOBILE DESTINATIONS

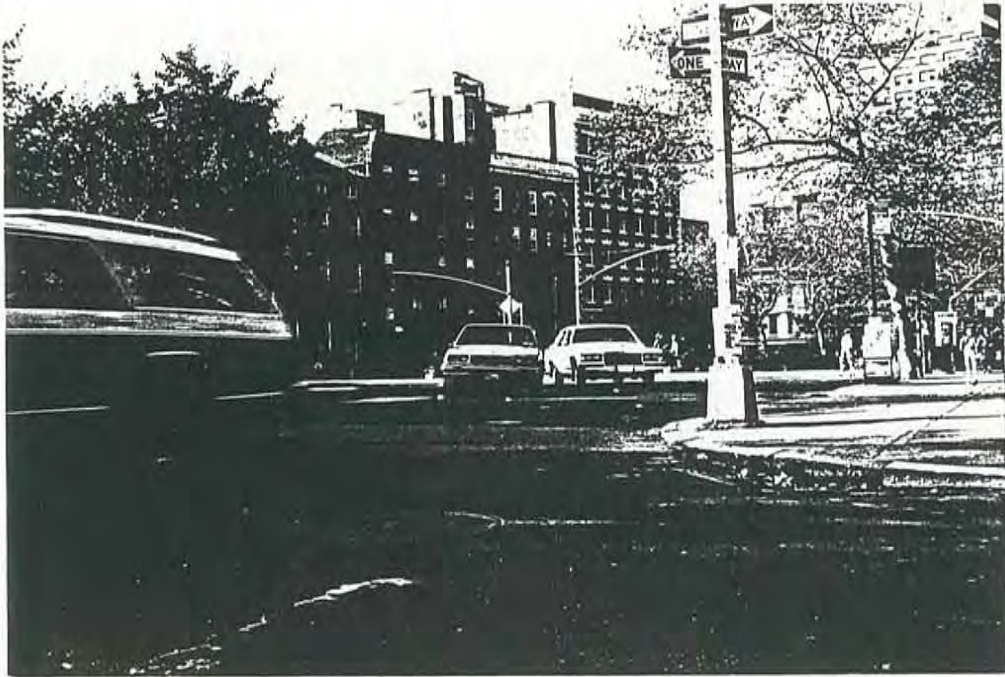
A look at the major traffic arteries of the city as they extend out from the District. Note the connection from the Holland Tunnel (1) to the East River Bridges (2), the one-way conduits through Mid-town (3), and Sixth and Seventh Avenues through Central Park (4). These are the same Sixth and Seventh Avenues that slice through the District.



MAJOR AUTOMOBILE TRAFFIC PATTERNS

A self explanatory map describing our estimation of automobile traffic within the District. Of note is the entrance to the Holland Tunnel (1) and crosstown viaducts to the Williamsburg (2) and Manhattan (3) Bridges, the Sixth (4) and Seventh (5) Avenues incisions, and the Bleeker Street (6) and Greenwich Avenue (7) 'shortcuts'.





Abingdon Square where Ninth Avenue traffic cuts down Bleeker Street for express service to the East Side.



Canal Street through Chinatown. This is the main crosstown route between the East River bridges and Holland Tunnel.

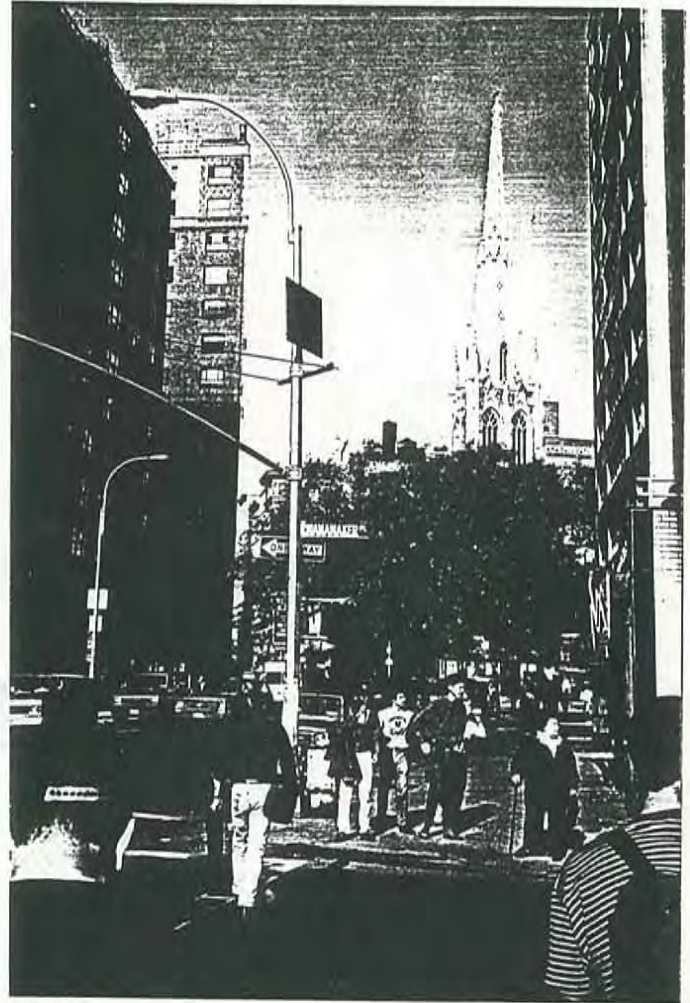
PEDESTRIAN ROUTES

Our final Transit Survey map describes those streets that are highly pedestrian in nature. Included in our criteria are subway stops, sidewalk cafes, street vendors and other commercial activity. It is within these corridors where the need for auto calming is highest; to enhance the pedestrian nature of our city and to make it safer. Of the latter, the New York Police Department have already taken to closing MacDougal Street (1) to traffic on weekend nights because too many people are getting hit by cars.





The former Police Building, now residential, on Centre Street below Broome. Just one of the many views to be found while walking in the District.

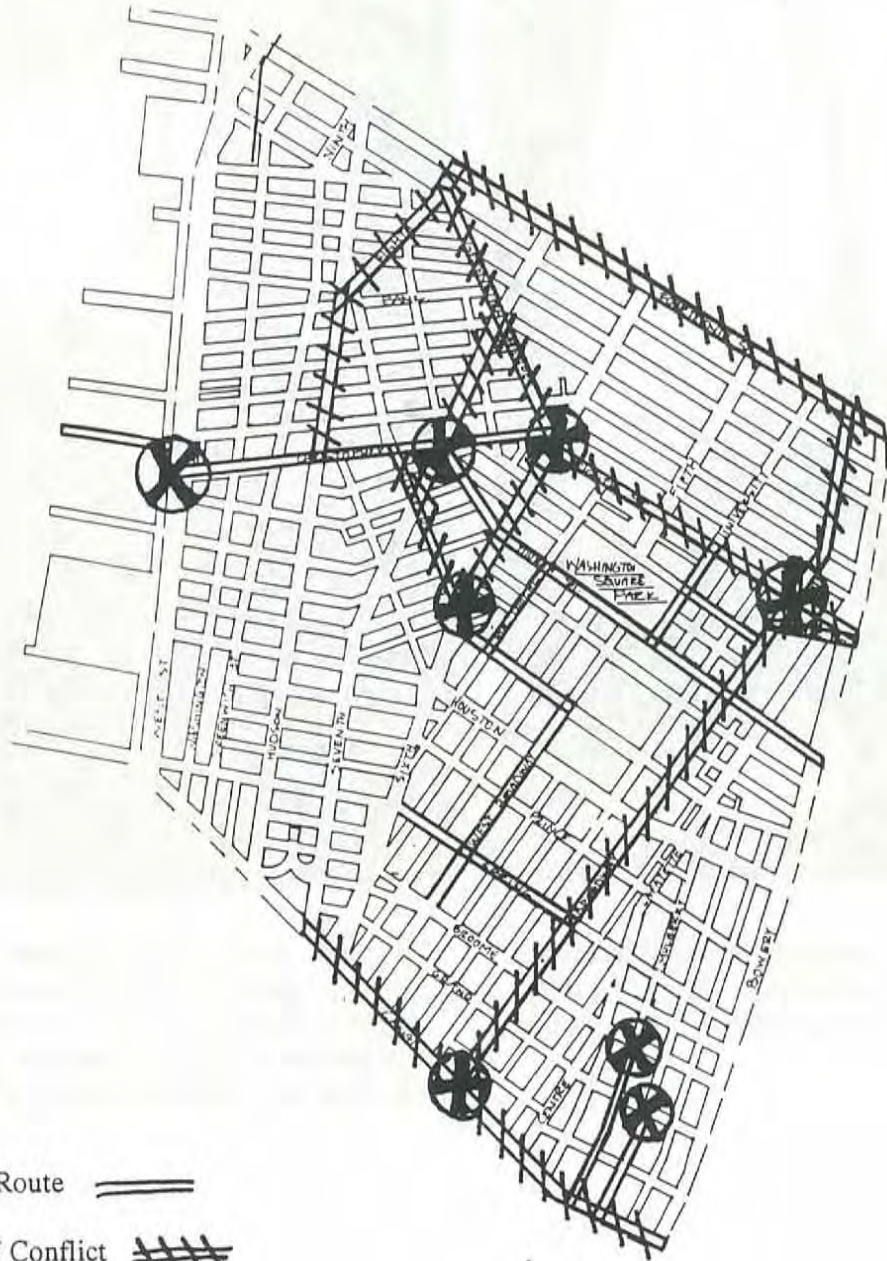


Looking north along Broadway to Grace Church, easily the most visible thoroughfare bisecting the district. Note the combination of commercial frontage, pedestrian activity, bus lines and automobile and truck traffic.

CONFLICTS

CORRIDORS AND OBSTRUCTS

Compiling the Pedestrian and Automobile Traffic maps we find streets where there is an unhealthy combination of automobiles and pedestrians; prime candidates for some type of auto calming. We also find locations where pedestrian traffic must cross heavy automobile streets. At these intersections loss of life or limb is a distinct possibility and the necessity to restrain the traffic is high in priority.



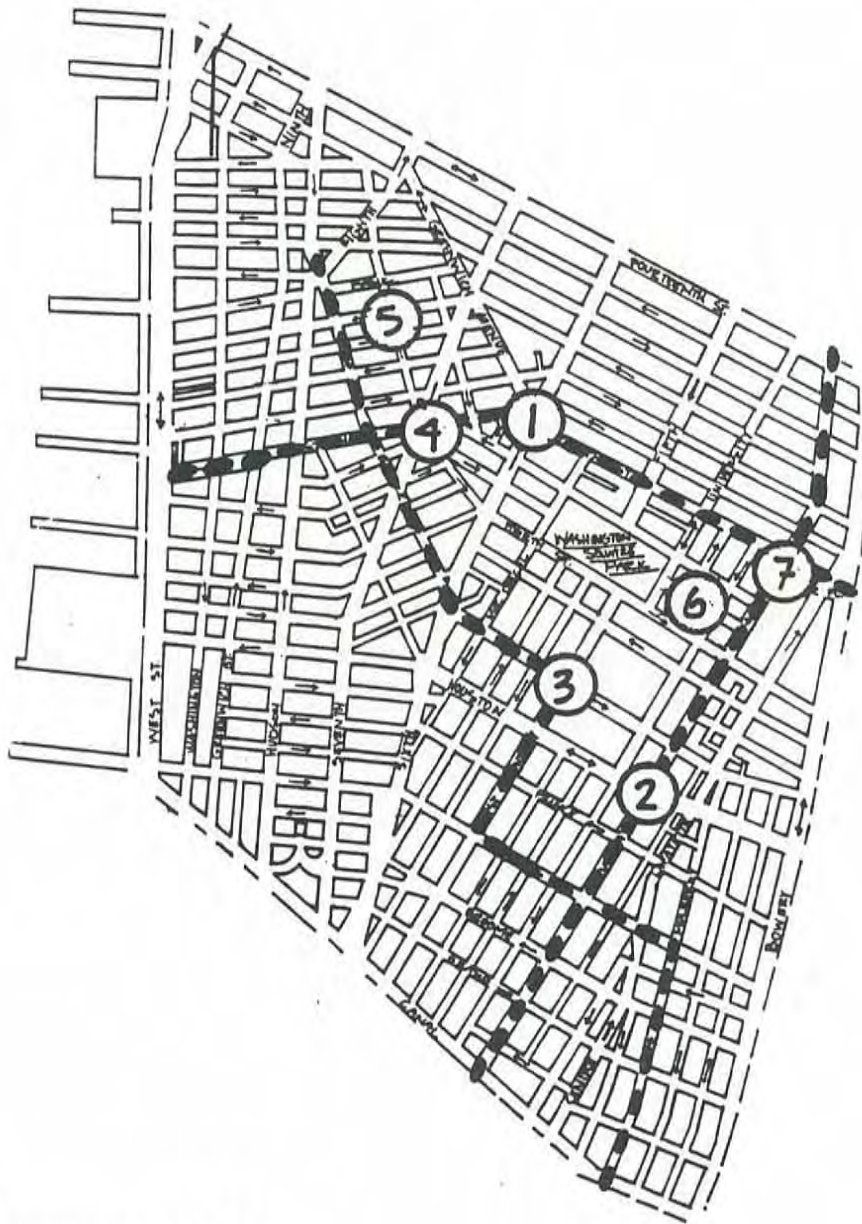
LEGEND

- Pedestrian Route ==
- Corridor of Conflict ###
- Obstructs ⊗

POTENTIALS

CORRIDORS AND NODES

Compiling the Pedestrian and Surface Transit maps we find three corridors of potential: Christopher/Eighth Streets (1), Broadway (2), and Bleeker/West Broadway/Spring/Mulberry Streets (3). These streets have people, subway connections, history and commerce - prime candidates for immediate improvement. We also find four nodes of opportunity: Sheridan Square (4), West Fourth Street (5), New York University (6), and Broadway at Astor Place (7). Here paths intersect and/or end and those transfers could be enhanced.



LEGEND

Corridor of Potential ●●●

PHASE TWO

CURRENT APPROACHES TO TRAFFIC CALMING

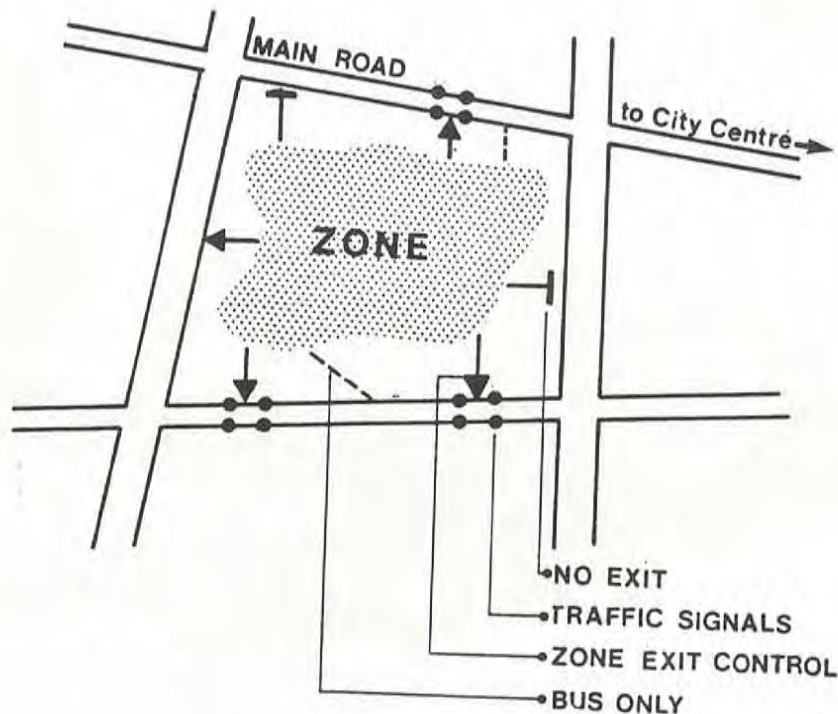
MANUALS

APPLEYARD, DONALD. *LIVABLE STREETS*. University of California Press, Berkeley, 1981.

Perhaps the quintessential 'pedestrianization' manual. Deals with the reclamation of city streets for the use of the people living there, specifically as it relates to the San Francisco/Berkeley area. Contains ideas on surveys, resident maps, resident perceptions, diagrammatic abstracts, methods of representations, propaganda techniques and examples of traffic calming on certain Berkeley streets, including economic data and resident responses.

Chapter 12, "MAKING STREETS LIVABLE: Policies and Process."

Speaks of 'family' streets (safe sanctuary, healthy, neighborly, community, playground, historic, green) and how the vehicularization of those streets, often for the residents themselves is ultimately detrimental. Traces the real control of streets not to those who live there but to "agencies and ordinances which are remote from the residents." Argues that the improvement of 'family' streets is most inexpensive. Describes the process for change as that of resident evaluation, meetings, interviews, professional surveys, and analysis of traffic, population, safety, emergency services, noise, vibration and air pollution, safety from crime, maintenance, privacy, accessibility, parking, greenery, and play spaces. Only after discerning this information can comprehensive traffic calming plans be enacted. Concludes that people are adaptable and can tolerate almost any level of traffic, but what are those limits?



THEORETICAL DIAGRAM OF TRAFFIC CALMING.

Within the central ZONE traffic is either calmed or removed.



BARNSBURY, ENGLAND.
 Traffic Calming scheme implemented in 1970. Note one-way streets and barriers forming cul-de-sacs which prevent through traffic.

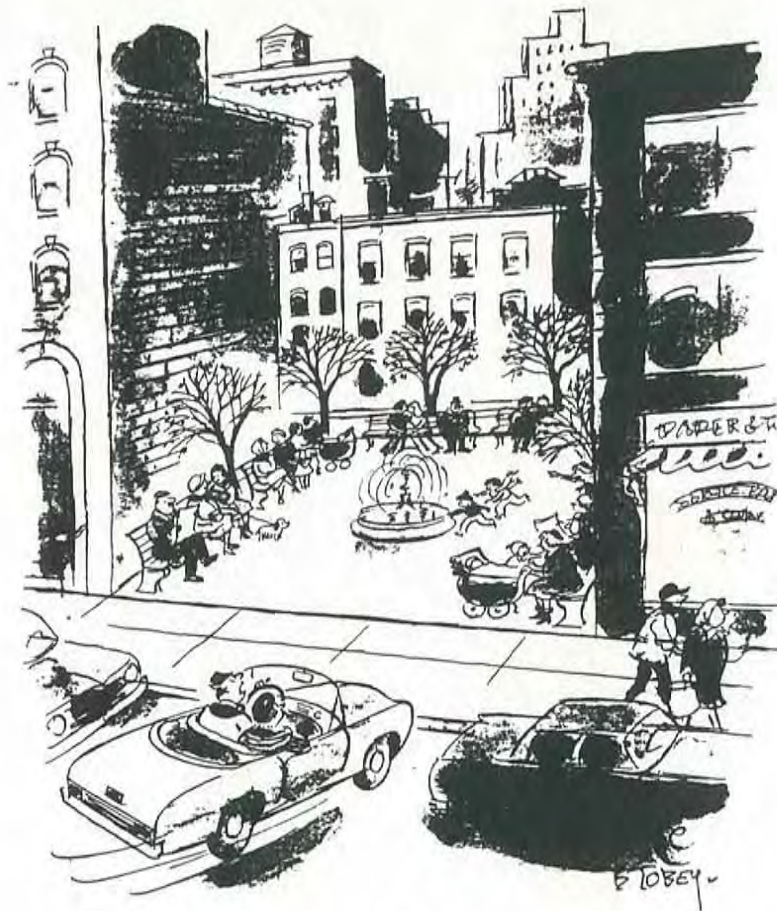


Dutch proposal to dedicate part of street to trees and foliage while allowing some parking and through access.

BRAMBILLA, ROBERT and GIANNI LONGO. *FOR PEDESTRIANS ONLY: Planning, design and management of traffic-free zones.* Whitney Library of Design, New York, 1977.

Discusses the reality of the pedestrian mall as not "urban idylls created in an artist's eye, but practical solutions to some urgent urban problems" such as the reduction of motor vehicles and improved environmental quality. Warns that "unless a traffic-free zone is conceived in the context of an overall effort to solve a city's problems, it cannot succeed for long."

Explores the history of pedestrian-only space in Europe after World War II and its transplantation to America; demonstrating that the success of a pedestrian only space is largely determinant on "the willingness of the citizens to take action on behalf of themselves."



"This city is going to hell! That used to be a parking lot."

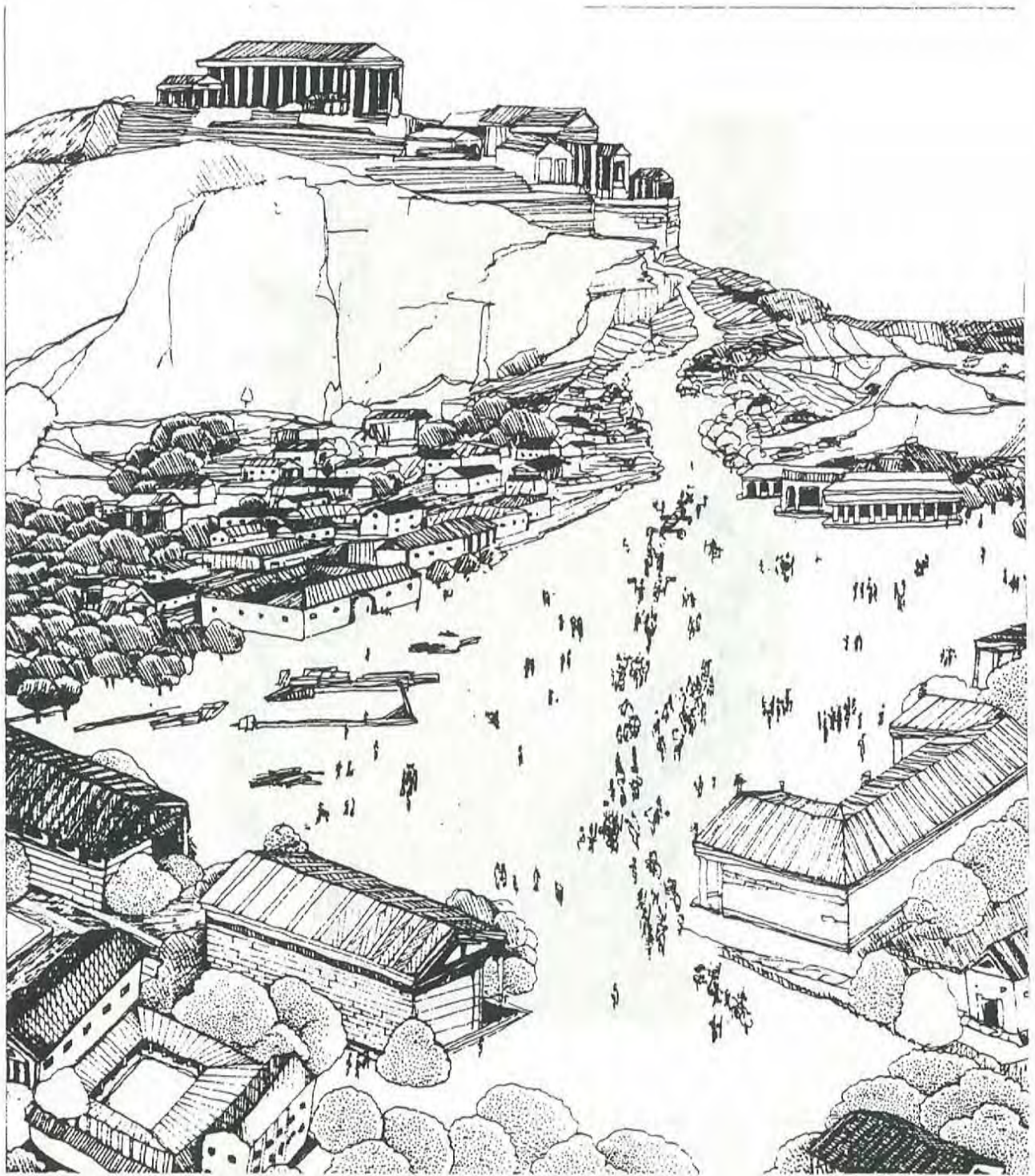
B. B. Tobey; © 1975, the *New Yorker* Magazine, Inc.

BREINES, SIMON and WILLIAM J. DEAN. *THE PEDESTRIAN REVOLUTION: Streets without Cars*. Vintage Books, New York. 1974.

Colorful, fun and easy to read paperback from a distinctly socially conscious era. Begins with an optimistic declaration of a pedestrian revolution, moves through the history of the pedestrian then details existing or proposed situations which take space from automobiles and return them to the people. Digresses into a look at alternatively powered transportation vehicles then returns for a look at the fully developed pedestrian district. Many illustrations and photos of Manhattan. Contains THE PEDESTRIAN BILL OF RIGHTS.

Chapter VII, "THE FULLY DEVELOPED PEDESTRIAN DISTRICT."

Describes a part of the city which is pedestrianized. It will be clearly marked with traffic routed around and parking garages aplenty. Mass transit, taxis and trucks will deposit residents, employees and goods at the periphery where they will transfer to mini-transport modes, walk, or be delivered by hand. (This is the same type of delivery system that United Parcel Service presently uses.) The resulting traffic-free zone will be a haven for walkers, sidewalk cafes, trees and children playing. Discusses existing legal and planning techniques that could be used to create pedestrian districts including: land banks, development rights and historic districts.



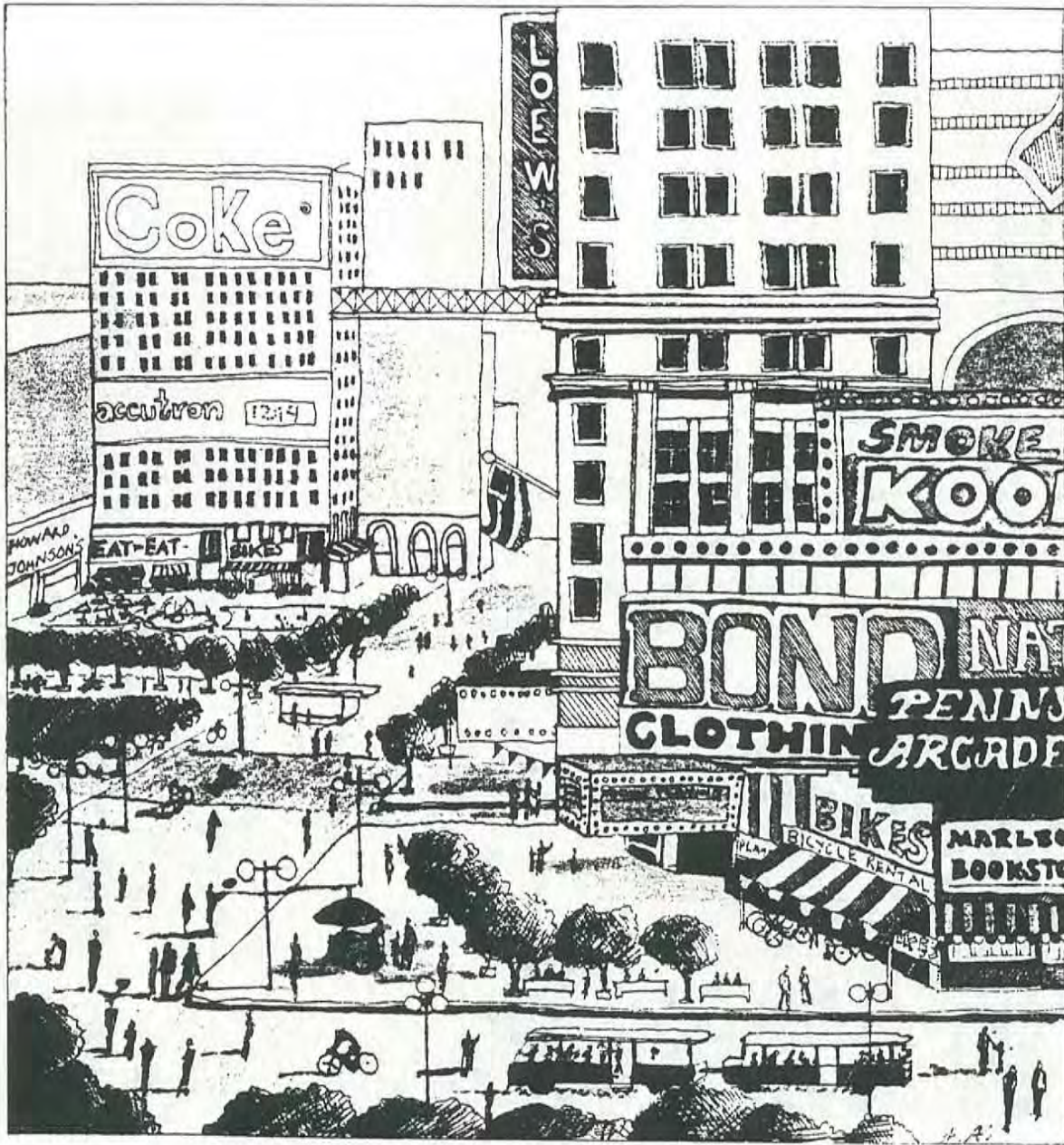
THE AGORA
Fifth Century B.C. Athens.



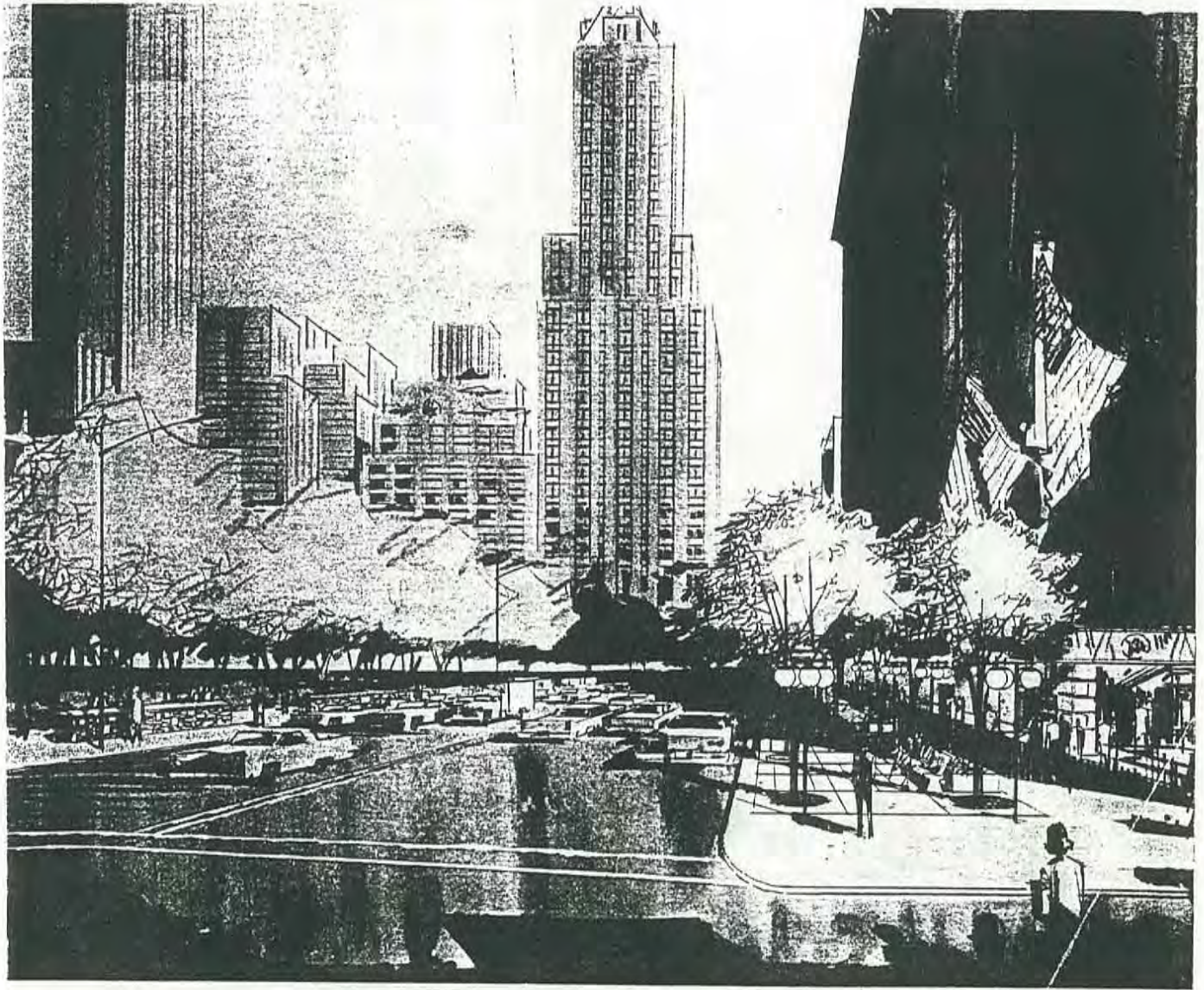
MANHATTAN URBAN BIKEWAY SYSTEM.

Pomerance and Breines, Architects

Consider this proposal with respect to an urban greenway system that would link the various parks and squares along the length of Manhattan. A GREEN SPINE.



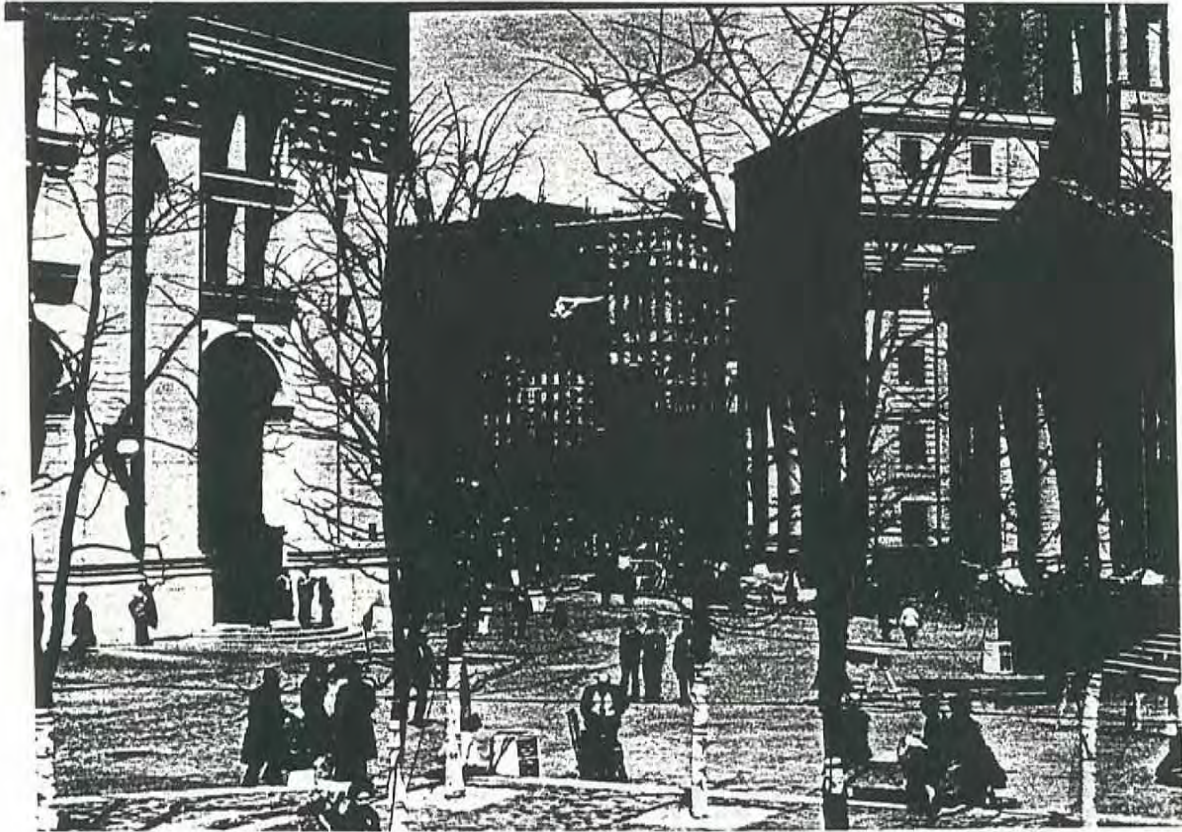
TIMES SQUARE WITHOUT CARS.
Pomerance and Breines, Architects



CENTRAL PARK SOUTH.

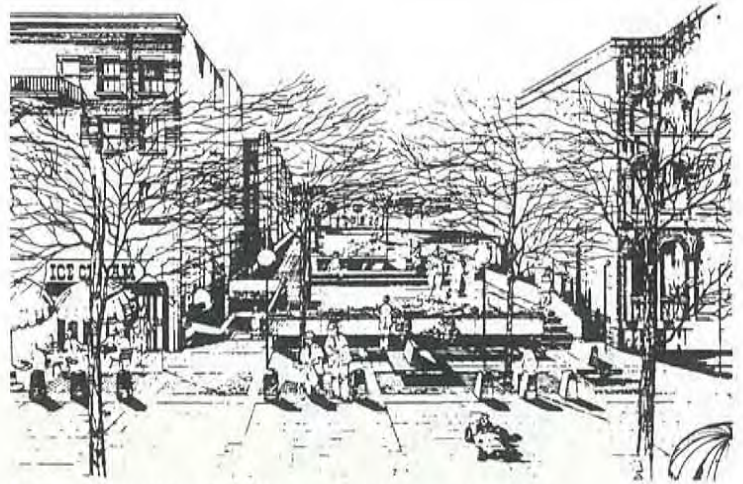
Pomerance and Breines, Architects

Consider this proposal with respect to Washington Square South.



ST. ANDREW'S PLAZA.

This happy accident of irregular gridiron patterns near City Hall allowed for the creation of a plaza where cars once ruled. Opened in 1974 the plaza is usually crowded by day with strollers and lunch time sun-seekers. It has direct correlations with certain intersections in District 2; for example Sixth Avenue and Christopher Street or Astor Place.



East 8th Street as a park street. This drawing is made directly from the above photograph, with no change in the buildings except for the modernized storefronts. The character of the street, however, has radically changed. On a park street, the chief pedestrian victims of the automobile—the young and the elderly—have nothing to fear. (Pomerance & Breines, Architects; M. Paul Friedberg & Associates, Landscape Architects)

Cars owned by 8th Street residents could be placed in a garage built on an existing empty lot. The garage shown is a half-level below the street, partially covered by a sitting deck. Vehicle entry would be from the adjoining street. (Pomerance & Breines, Architects; M. Paul Friedberg & Associates, Landscape Architects)



EAST EIGHTH STREET.

This particular scheme has relevance to most of the quieter streets in the West Village.

THE PEDESTRIAN BILL OF RIGHTS

- The city shall not harm the pedestrian.
- The streets belong to all the people, and shall not be usurped for the passage and storage of motor vehicles.
- People shall have the right to cycle in safety; that means ample provision of bikeways separate from trucks, buses and automobiles.
- To reduce dependence on the automobile, city and suburban residents shall have the right to convenient, clean and safe mass transportation.
- People shall be freed from the heavy burdens of daily travel by having the opportunity to live near their places of work.
- Urban residents shall have plentiful and generous open public places—outside of parks—for gathering and ceremonies.
- Pedestrians shall have the right to breathe clean air on streets, free of the harmful fumes of vehicles.
- Standing room only on city streets shall end by providing benches for sitting and relaxation.
- The sounds of human voices shall replace vehicular noise on city streets.
- Concern for the welfare of pedestrians shall extend to the surface under foot—with paving congenial for walking—and shall include human-scale street furniture and signs.
- Urban man shall have the right to experience trees, plants and flowers along city streets.
- Cities shall exist for the care and culture of human beings, pedestrians all!

PEDESTRIAN BILL OF RIGHTS.

We include this as a clear pronouncement of goals.

Comprehensive study of the pedestrian and characteristics of design for the pedestrian. Looks at the human, spacial and traffic considerations in design, people movers, pedestrian planning and design, and planned pedestrian environments. Defines the uses which generate various levels of pedestrian traffic.

Chapter One, "PEDESTRIAN MAN."

"Walking is one of man's most magnificent abilities, a vital factor in his long journey up the evolutionary ladder...Walking abilities shaped the first rudimentary human settlements...the advent of machine transportation has caused a drastic restructuring of urban form...The conflict of man and auto has created an unbalanced competition for urban space...causing a dilution of the human environment."



PEDESTRIAN DENSITIES PER SQUARE FOOT, lunch hour, weekday.
Note that along Broadway, Fulton and Cortland Streets are numerous restaurants.

PUSHKAREV, BORIS and ZUPAN, JEFFERY. URBAN SPACE for PEDESTRIANS. Regional Plan Association. MIT Press, Cambridge, 1975.

A research-based text of the RPA providing recommendations and methodologies for improving the pedestrian world in large city centers, especially New York. Concerned with the role of planners, architects and urban designers as well as engineers, lawyers, real estate developers and behavioral scientists.

Concentrates on pedestrian travel demands (retail and restaurants, time concentrations, rain and transit) and space requirements (constraints, impediments and flow). Recommends that pedestrian space be taken from streets, that zoning provide for private pedestrian space, and that underground pedestrian space be integrated more with the natural environment. Advocates linking pedestrian space to building space, legal standards for sidewalk obstructions, and auto-free streets.

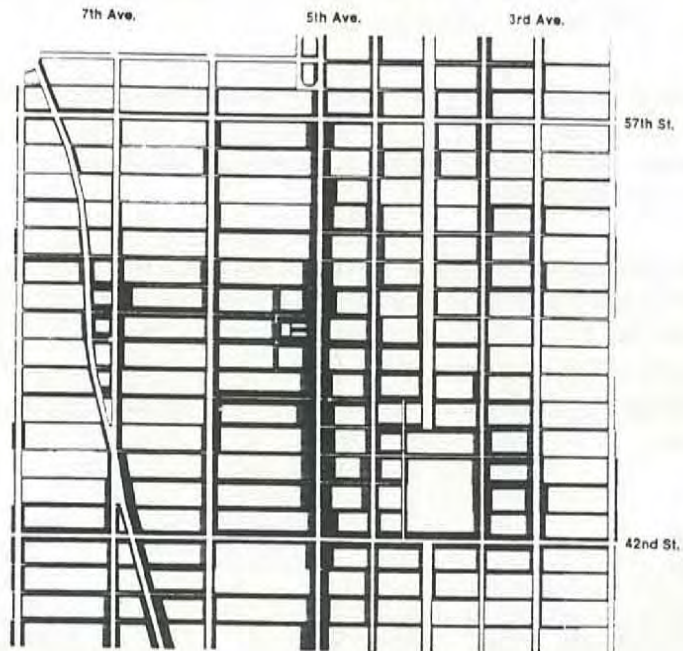
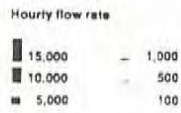


Sunlight underground. Left, proposal for a new subway in downtown Buffalo. The principle is applicable to the reconstruction of existing subways with cut-and-cover tunnels close to the surface. Openings of this type could provide sunlight to the Broadway subway stations in New York, where room is available in the median strip of the roadway. At other locations, such as on 42nd Street, the openings could be features in the middle of a pedestrian mall. Below, a more modest type of skylight, designed by Cambridge Seven Associates for the new North Station on the Orange line in Boston. The skylight structures can be incorporated into the "buffer zone" of a sidewalk, separating pedestrians from vehicular traffic.

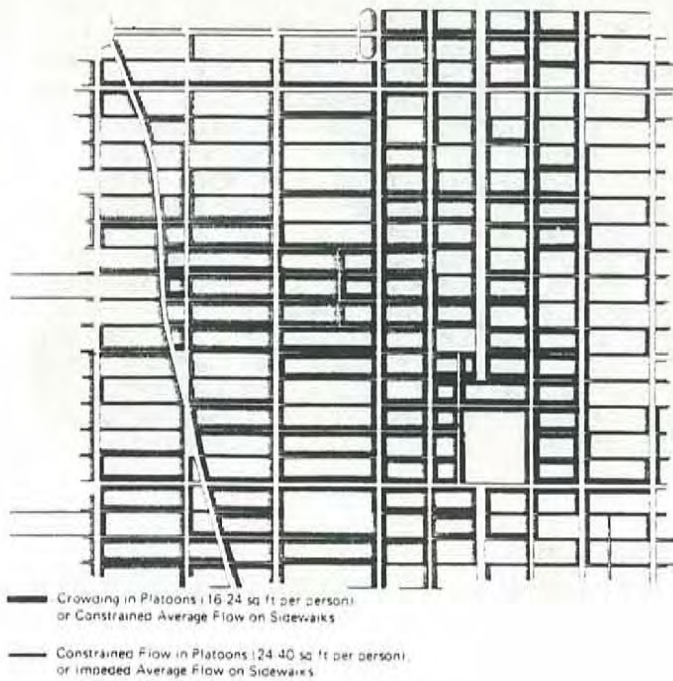


SUBWAY SUNLIGHT.

Consider this proposal as it could be used at the West Fourth Street Station or Union Square.



MIDDAY HOURLY PEDESTRIAN FLOW in Midtown.



MIDDAY PEDESTRIAN SERVICE LEVELS in Midtown.

RESIDENTIAL STREET DESIGN and TRAFFIC CONTROL. Institute of Transportation Engineers. Prentice Hall, New Jersey, 1989.

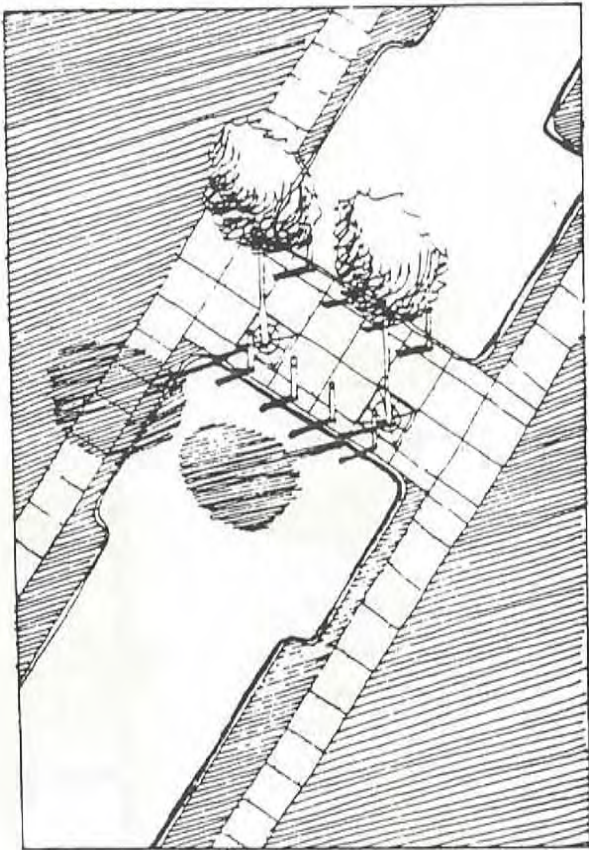
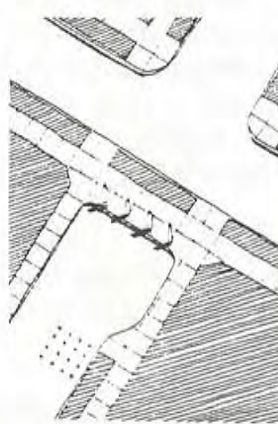
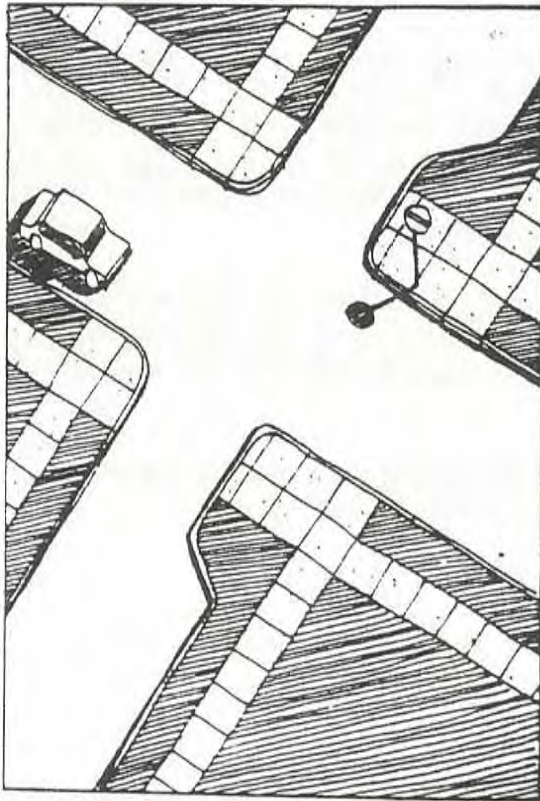
Probably the most important book on the list. Establishes basic goals in designing and operating circulation systems in residential neighborhoods. It covers the planning and processes involved, discusses alternative design approaches, and reviews traffic management and control techniques and their likely impacts. Deals with inner-city, city and suburban street design and its accompanying safety aspects. Sets forth procedures for evaluating neighborhood traffic management proposals and suggests strategies for implementation.

"The first function of residential streets is to serve the land that abuts them. They provide for access to homes by all who enter and leave, and all who deliver and collect. But they are also routes for those who wish only to pass through the area. It is here that conflict arises...

"Often, such intrusion is possible because the geometry of street networks and of individual streets was fixed long before such conflicts had been visualized."



HIERARCHICAL STREET NETWORK LAYOUT.



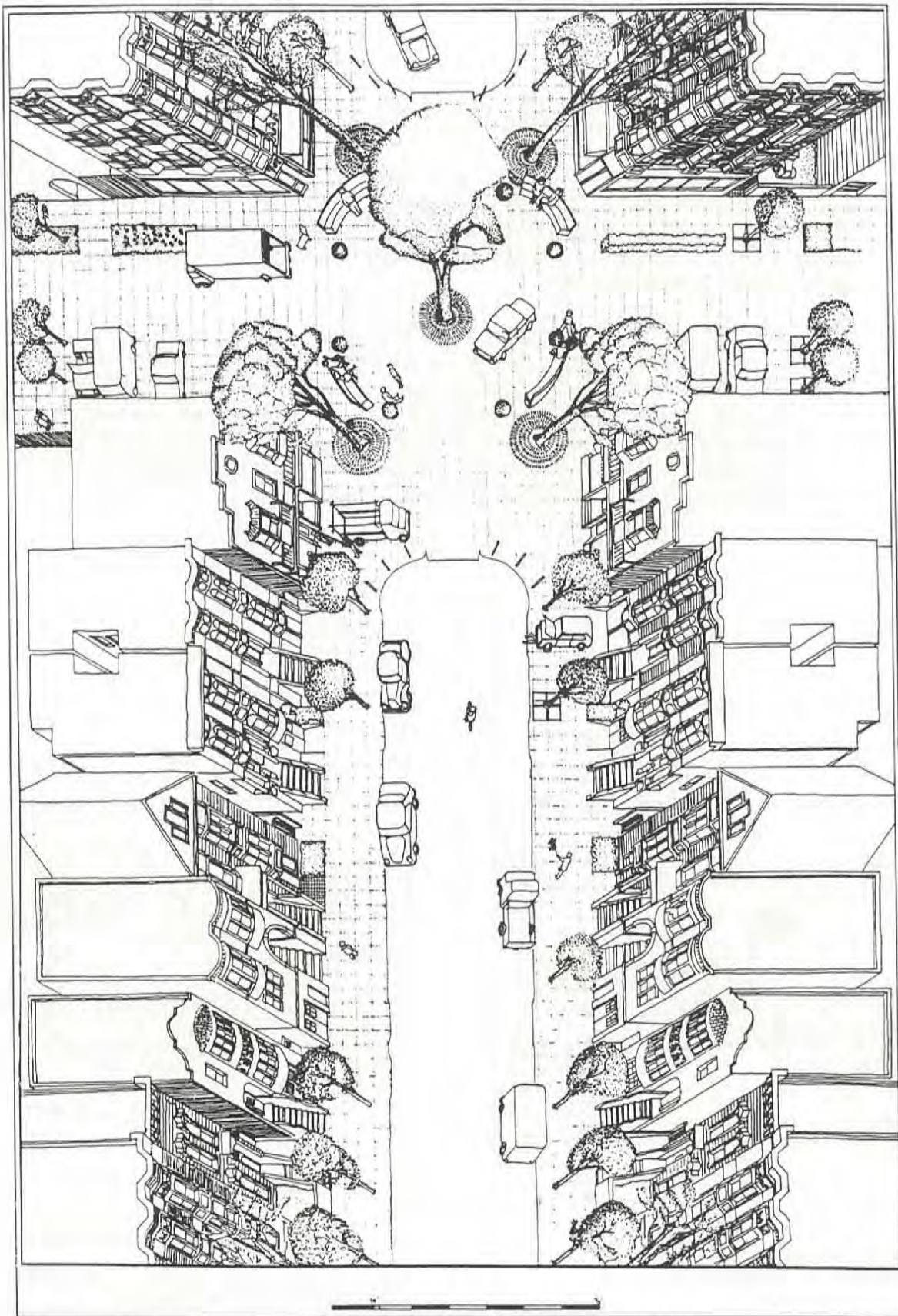
CHOKER.

DIAGONAL DIVERTER.

CUL-DE-SAC AT INTERSECTION.

MIDBLOCK CUL-DE-SAC.

Examples of traffic restraints.



TYPICAL ROW HOUSE INTERSECTION where one street is reserved for deliveries, parking and pedestrians.

TOLLEY, RODNEY. *CALMING TRAFFIC in Residential Areas*. Brevi Press, Great Britain, 1990.

Introduces the idea of 'traffic calming' as a way of slowing cars, reducing accidents, and improving the environment and living conditions of the residents. Declares that the savings on accidents alone more than outweigh the cost of construction, not to mention the value of safety and environment. Provides an introduction to the ideas and practice of traffic calming, together with a glossary of technical terms.

Chapter 10, "AREA-WIDE TRAFFIC CONSTRAINT."

One of the faults of traffic calming on individual streets is that the displaced traffic may divert to other streets. The solution then becomes traffic calming on an area-wide scale in such a manner that neighborhoods can be thoughtfully and thoroughly planned. Describes area-wide restraints in Germany, Denmark and England and declares them successful in that the resultant is increased commercialization, enhanced civic pride, reductions in pollution and less accidents.

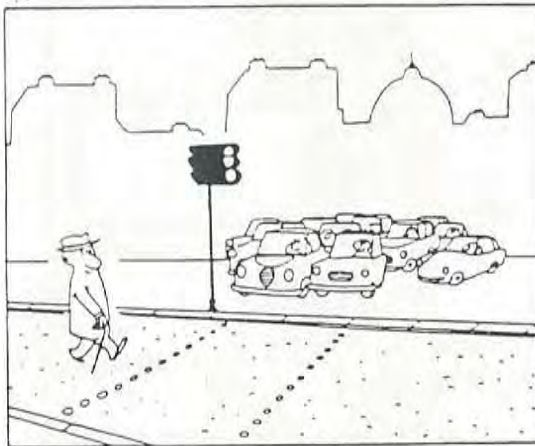


Fig 8.1: Changing the 'green time' in favour of the pedestrian

Source: Verkehr & Umwelt, 3/87



Fig 5.1: The need for traffic calming as seen in West Germany

Source: Arbeitskreis Verkehr und Umwelt e.V. (1988), *LÄRM-Minderung durch prinzipielle Verkehrs-Beruhigung*, Berlin

ESSAYS

ANDERSON, STANFORD, ed. *ON STREETS*. MIT Press, Cambridge, Mass. 1978.

Collection of essays concerning the structure of streets, both spatially and formally. Looks at streets through history, as channels, as locus of communication and signification, as social conductors and in contextual models. Contains an extensive bibliography.



5. Caravan Plan, Madison Avenue, New York City.
[Mary Hommann. *The Caravan Midtown Circulation Plan* (1968)]

Example of city planning after living with the automobile for two generations.

"TOWARD AN EVOLUTION OF TRANSPORTATION: Potentials for the Urban Street." Peter Wolf.

DE BOER, ENNE, ed. *TRANSPORT SOCIOLOGY: Social Aspects of Transport Planning*. Pergamon Press, New York, 1986.

Intended to provide the student of transportation relevant materials from the social side of transport. Sees "that the increasing motorized traffic once thought to be beneficial for our mobility and freedom has had a devastating influence on residential streets and thus on essential conditions for social integration and individual development...For car users the net effect may be positive...For people without access to a car...(the elderly, youth and disabled) ...there is no community without propinquity."

"THE RECAPTURE OF THE STREET?" Rudolf de Jong.

Speaks of the power that is in the streets as differentiated by the Agora of Athens (democracy) and the detached palace of Versailles (authoritarian). Argues that the disintegration of the street as a location for social intercourse is inherently negative in the evolution of humanity. This disintegration has taken place though the introduction of pavement widening, fixed rail, public utilities and the private car, mass production and consumption. Sees the future of the street in the 'unorder' that was once there. This is not a pedestrian-only street but one where the imagination is given free reign.

MONHEIM, HEINER. "AREA-WIDE TRAFFIC RESTRAINT: A Concept for Better Urban Transport," *BUILT ENVIRONMENT*, vol. 12 no. 1/2. Alexandrine Press, Oxford, 1986.

Questions the meaning of area-wide traffic restraint and how it may be used not only to improve pedestrian traffic but that of the bicycle and public transport. Advocates the domestication of the car.

Proceedings of the Fourth National Seminar on *PLANNING, DESIGN AND IMPLEMENTATION OF BICYCLE AND PEDESTRIAN FACILITIES*. American Society of Civil Engineers, 1976.

"THE ROLE OF THE PEDESTRIAN." John J. Fruin.

Discusses environmental, spacial and sociological conflicts between vehicles and pedestrian traffic. Suggests that pedestrians have more fundamental rights than cars relating to quality of life, human interaction and sociological/cultural development.

"RESOLVING CONFLICTS BETWEEN PEOPLE AND CARS." Herbert Levinson.

Suggests modes of separation between people and cars. Describes the issue as not one of volume but of maintaining circulation continuity and essential access. Cautions against auto-free solutions which are counter-productive - e.g. the resultant must be as lively as its vehicularized predecessor.

"PEDESTRIANIZATION OF THE CENTRAL CITY." Harold Lewis Malt.

Asks the question: why are not there more pedestrian-ways in America and why don't the ones we have work very well? Discusses background and mythology of pedestrian travel and offers proposals for downtown Miami.

"A TOOL FOR IMPROVING SOCIAL SERVICE DELIVERY SYSTEMS IN URBAN AREAS." Allen E. Shinder and Martin L. Reiss.

Concludes that the use of streets for non-vehicular purposes merits careful consideration as streets constitute a large portion of the public land area in our cities and cannot be overlooked as locations for integrated programs and social services. In short; advocacy of the play street.

"PEDESTRIAN BEHAVIOR: A study of the organization of co-active behavior." Ronald Goodrich.

Argues that the psychological character of a place largely determines a person's choice to be there and his subsequent behavior. Deals with how pedestrians act and how this is organized under various environmental conditions. Promotes pedestrian behavior as enjoyable and viable - likewise the pedestrian environment must be rewarding.

"MAINTENANCE OF DELIVERY SYSTEMS FOR CHICAGO'S STATE STREET TRANSIT MALL." Thomas Kaeser.

Site specific calculations showing that services: delivery, emergency and construction can be maintained on the proposed mall. Improved services will depend on overall changes in goods transfer in the city.

TOLLEY, RODNEY ed. *THE GREENING OF URBAN TRANSPORT: Planning for walking and cycling in Western cities.* Belhaven Press, New York. 1990.

A collection of essays divided into three parts: Principles, Strategy and Practice concerned with the consequences of reliance on a flawed mode of transport; one with severe environmental and social side-effects and whose resource demands are not sustainable in the long term. Includes the EUROPEAN CHARTER of PEDESTRIANS' RIGHTS.

"THE ECONOMIC CASE FOR GREEN MODES." John Roberts.

Describes the broad economic growth that results from pedestrianization of urban centers in Europe. Draws upon the cross-European study: Quality Streets (TEST, 1988), uses "economics" immodestly and un-mathematically, given the psychological nature of pedestrianization. Concludes that the motor car is not the economic grail which we have been led to expect.

"THE PEDESTRIAN TOWN AS AN ENVIRONMENTALLY TOLERABLE ALTERNATIVE TO MOTORIZED TRAVEL." Otto Ullrich.

States that the burdens on health and ecology by motor traffic have exceeded their rightful limits and neither technical nor volumetric increases will help. Suggests that pedestrians, bicycle and mass transit cannot complement motorized traffic but must replace it.

"A SYSTEMATIC APPROACH TO PLANNING OF URBAN NETWORKS FOR WALKING."
Anthony Ramsey.

Studies historical, professional, aesthetic, social and psychological views as they effect pedestrian systems. Offers a character of the ideal network.

"THE EVOLUTION AND IMPACT OF PEDESTRIAN AREAS IN THE FEDERAL REPUBLIC OF GERMANY." Rolf Monhein.

Describes pedestrianization in the FRG as it has given rise to the rediscovery and recapture of streets and squares while relegating the automobile to a 'service' role. Declares that towns in Germany without "representative pedestrian areas now appear hopelessly antiquated".

The European Charter of Pedestrians' Rights adopted by the European Parliament in 1988

- I. The pedestrian has the right to live in a healthy environment and freely to enjoy the amenities offered by public areas under conditions that adequately safeguard his physical and psychological well-being.
- II. The pedestrian has the right to live in urban or village centres tailored to the needs of the motor car and to have amenities within walking or cycling distance.
- III. Children, the elderly and the disabled have the right to expect towns to be places of easy social contact and not places that aggravate their inherent weakness.
- IV. The disabled have the right to specify measures to maximise their independent mobility, including adjustments in public areas, transport systems and public transport (guidelines, warning signs, acoustic signals, accessible buses, trams and trains).
- V. The pedestrian has the right to urban areas which are intended exclusively for his use, are as extensive as possible and are not mere 'pedestrian precincts' but in harmony with the overall organisation of the town, and also the exclusive right to connecting short, logical and safe routes.
- VI. The pedestrian has a particular right to expect:
 - (a) compliance with chemical and noise emission standards for motor vehicles which scientists consider to be tolerable;
 - (b) the introduction into all public transport systems of vehicles that are not a source of either air or noise pollution;
 - (c) the creation of 'green lungs', including the planting of trees in urban areas;
 - (d) the fixing of speed limits and modifications to the layout of roads and junctions as a way of effectively safeguarding pedestrian and bicycle traffic;
 - (e) the banning of advertising which encourages an improper and dangerous use of the motor car;
 - (f) an effective system of road signs whose design also takes into account the needs of the blind and deaf;
 - (g) the adoption of specific measures to ensure that vehicular pedestrian traffic has ease of access to, and freedom of movement and the possibility of stopping on, roads and pavements respectively;
 - (h) adjustments to the shape and equipment of motor vehicles so as to give a smoother line to those parts which project most and to make signalling systems more efficient;
 - (i) the introduction of the system of risk liability so that the person creating the risk bears the financial consequences thereof (as has been the case in France, for example, since 1985);
 - (j) a drivers' training programme designed to encourage suitable conduct on the roads in respect of pedestrians and other slow road users.
- VII. The pedestrian has the right to complete and unimpeded mobility, which can be achieved through the integrated use of the means of transport. In particular, he has the right to expect:
 - (a) an ecologically sound, extensive and well-equipped public transport service which will meet the needs of all citizens, from the physically fit to the disabled;
 - (b) the provision of facilities for bicycles throughout the urban areas;
 - (c) parking lots which are sited in such a way that they affect neither the mobility of pedestrians nor their ability to enjoy areas of architectural distinction.
- VIII. Each Member State must ensure that comprehensive information on the rights of pedestrians and on alternative ecologically sound forms of transport is disseminated through the most appropriate channels and is made available to children from the beginning of their school career.

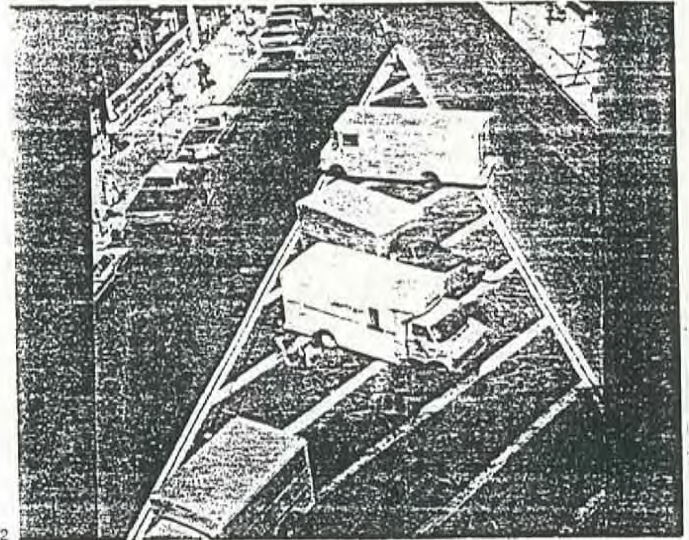
EUROPEAN CHARTER OF PEDESTRIAN RIGHTS.

We include this excerpt to demonstrate where Europe is in terms of pedestrian rights.

REPORTS

GREEN STREETS: Designing Public Space While Rebuilding Infrastructure. A report to Mayor Koch from the Dept. of Transportation and the Dept. of Parks, 1990.

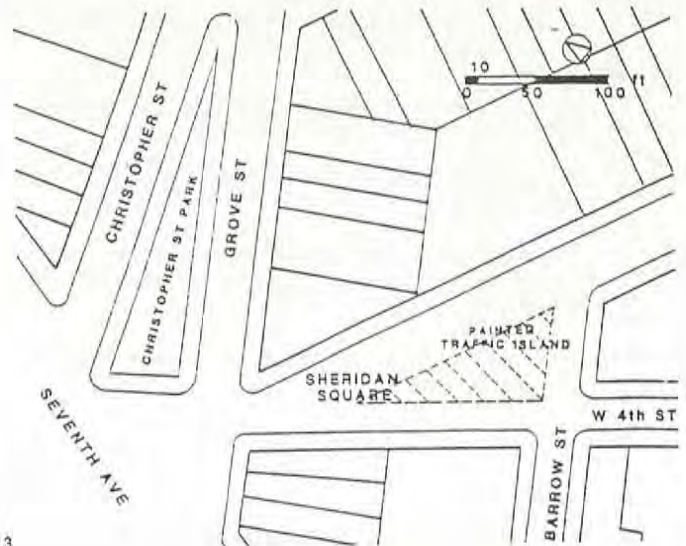
Admits that the long established public policy to expand roadways for motor vehicles at the expense of sidewalks has been a mistake. Seeks to rectify the situation by creating 'events' for the pedestrian experience. Sees this approach as one requiring architects interested in more than just buildings, engineers sensitive to pedestrian as well as traffic flow and park planners willing to expand green space outside its normal boundaries.



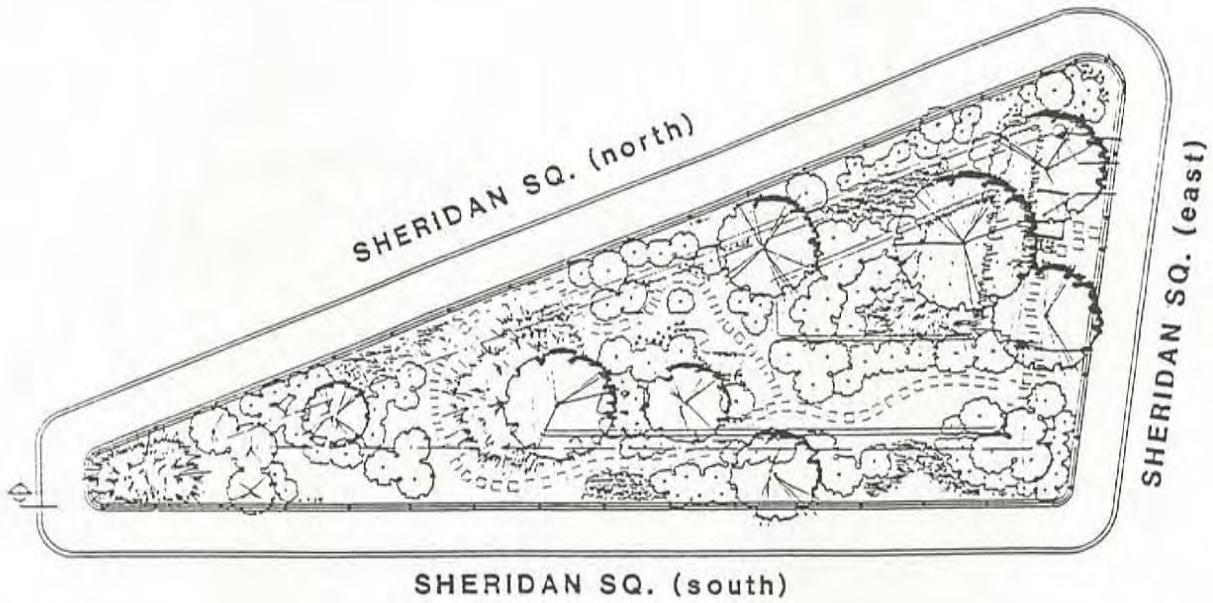
Sheridan Square is a triangle bounded by Washington Place, Barrow Street and West 4th Street in Manhattan. In the 1978 AIA Guide to New York City it was described as "the most unused public space in Greenwich Village, marked out with a striped asphalt triangle stanchioned with 'no parking' signs".

Local residents and Department of Transportation planners saw the vacant triangle as an opportunity to "reclaim" some asphalt for green space. The residents formed the Sheridan Square Triangle Association and raised about half the required funds from individual contributions and the Federal Archives Sales Tax Savings Fund (with the cooperation of the Urban Development Corporation). The other half of the cost was borne by DOT.

The resulting "viewing garden", (designed by a landscape architect who is a member of the Association), with banked masses of annual and perennial flowers punctuated with small evergreen and flowering trees, is bounded by a four foot high iron fence. The Sheridan Square Association maintains the garden, contributing thousands of volunteer hours and raising funds. An award for the garden from the Parks Council calls it "an impressive example of cooperation between a private group and a public agency... (the council) specifically lauds the Greening Program of the DOT and the continued dedication and hard work of the Sheridan Square Triangle Association."



SHERIDAN SQUARE - Existing Conditions.



PLAN

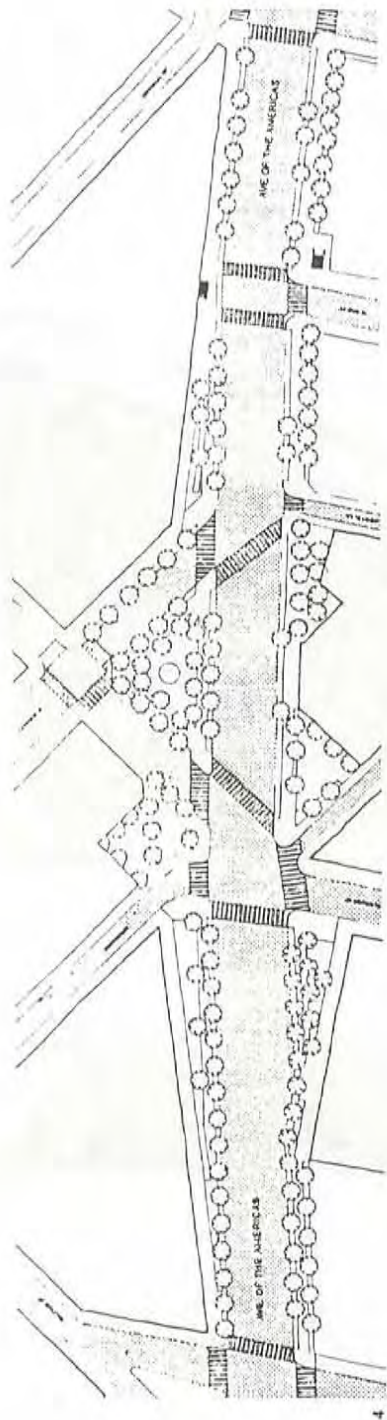


SOUTHERN SECTION ELEVATION

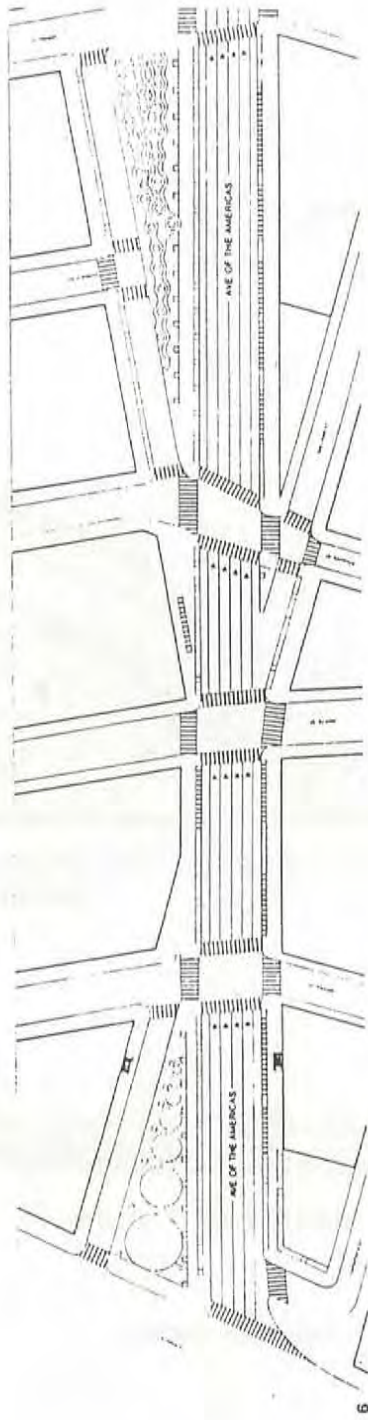
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7 LANDSCAPING PLAN AND ELEVATION

SHERIDAN SQUARE - Improvements.



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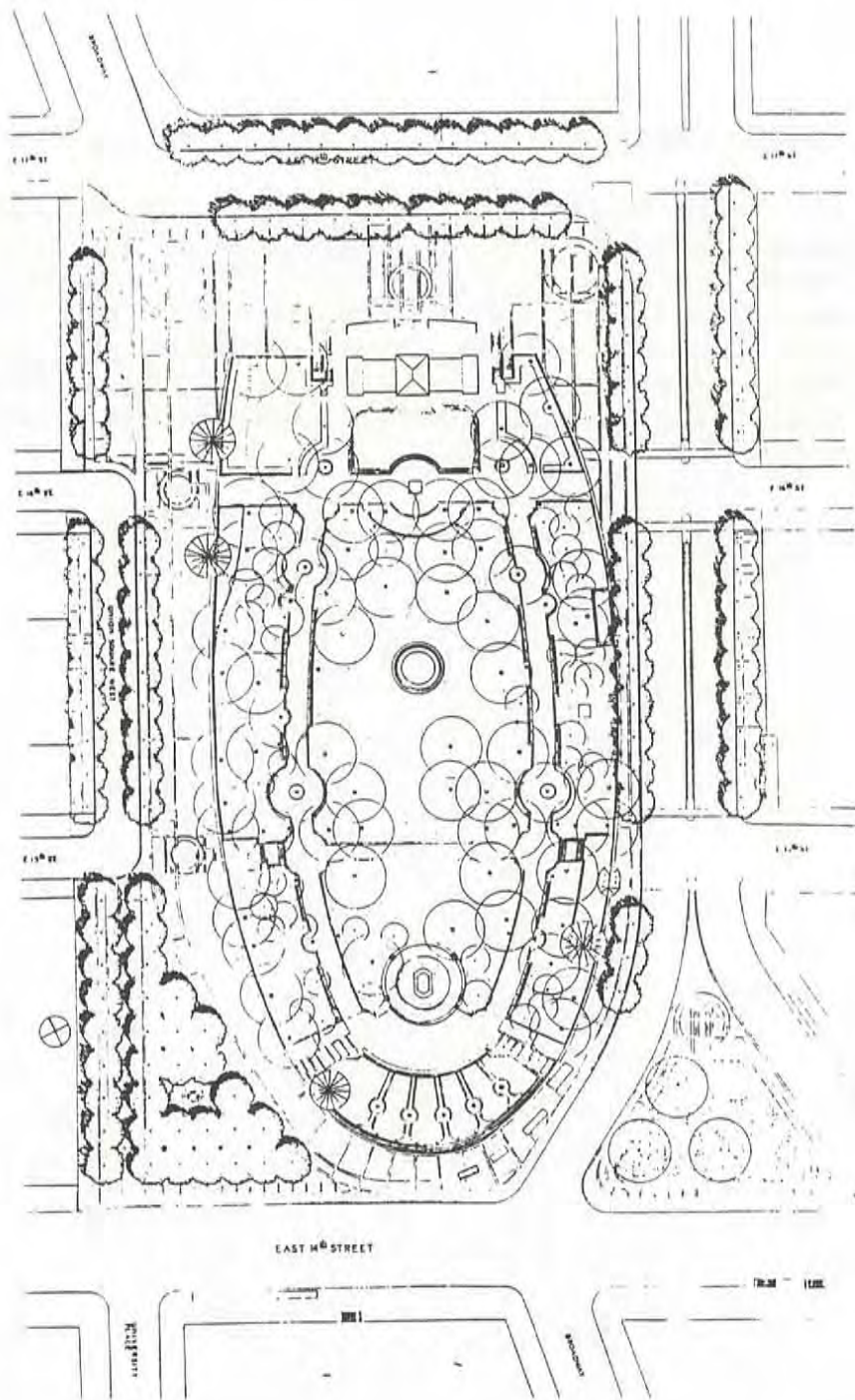
SIXTH AVENUE ABOVE CANAL STREET



ABINGDON SQUARE



BROOME-WATTS-THOMPSON STREET TRIANGLE



UNION SQUARE

HASS-KLAU, CARMEN. *THE PEDESTRIAN AND CITY TRAFFIC*. Belhaven Press, New York, 1990.

Chapter 10, "TRAFFIC CALMING: A new concept for road transport in Germany."

Interesting for its history of political and social events leading to the pedestrianization of Germany. Sees the Olympic Games in Munich (1972) as the first time an auto-free zone was successful on a large scale. Articulates that in this period the creation of 'livable' streets (Wohnstrassen) was seen as primary over 'motor vehicle' streets, and 'traffic calming' (Verkehrsberuhigung) became the jargon expression. Observes that traffic calming can only be successful if traffic engineers, planners and environmental engineers work together.



Figure 10.10 Traffic calming of a major through road, Langenfeld.



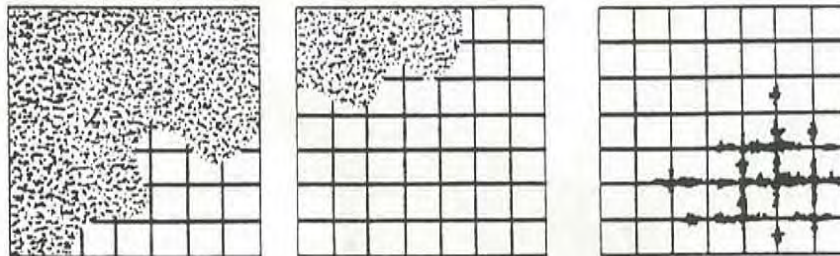
Figure 10.2 Bonn Beuel: pedestrianization but access is allowed to trams and servicing vehicles.

EXISTING PEDESTRIANIZATION IN GERMANY.

PEDESTRIANSPACE: Midtown Pedestrian Study. New York Department of City Planning. Peter Seidel, project director, 1982.

Declares that an increasingly complex and specialized street system is necessary for the continued survival of the extraordinarily dense Midtown Manhattan area as a pre-eminent urban center. Considers pedestrian movements and improvements not in a vacuum but part of the broader objective of the diverse needs of all transportation.

Suggests a hierarchial pattern of street use which retains the basic simplicity of the grid system while introducing greater differentiation and modulation. Divides streets into 'through' and 'local', establishes 'priority' lanes, wider sidewalks, and pedestrian precincts.



city appears in nature.../ city absorbs nature... : nature appears in city



Figure 13: CONSTRAINTS

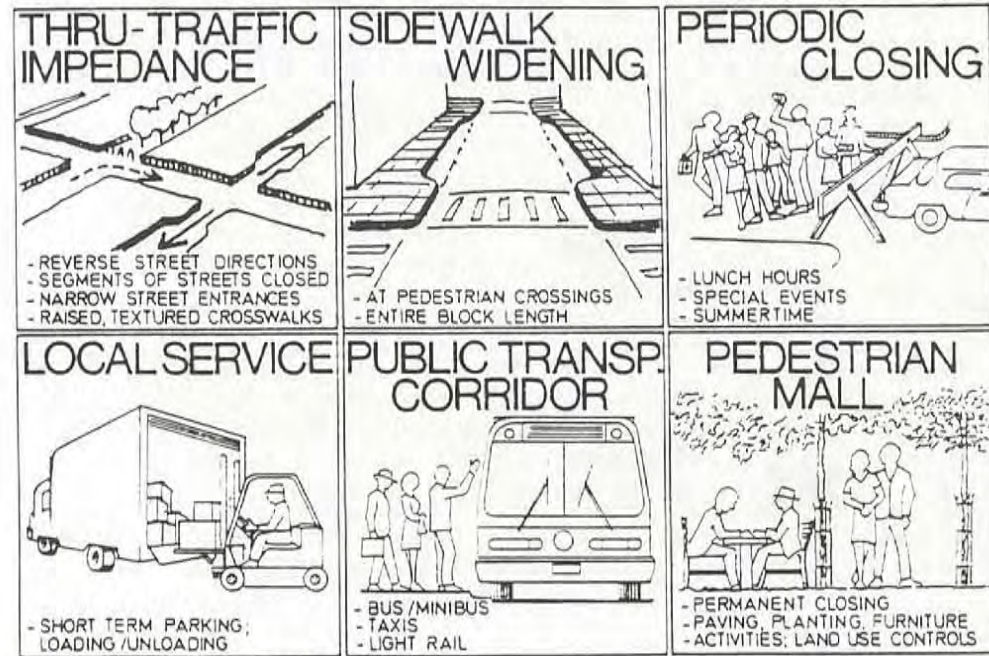
1 Grand Central; 2 Bryant Park; 3 Penn Station; 4 Designated Service Streets;
 5 Designated Bus Priority Streets; 6 Rockefeller Center; 7 Madison Bus Lanes;
 8 Broadway Plazas; 9 Proposed Restaurant Row; 10 Herald Square Proposal;
 11 Fifth Avenue Plan; 12 Alternating Street Directions.

CONSTRAINTS IN MID-TOWN.

This map looks at the consequences if certain traffic-calming measures were taken. Notice that there is still a considerable amount of pavement for use by the automobile.



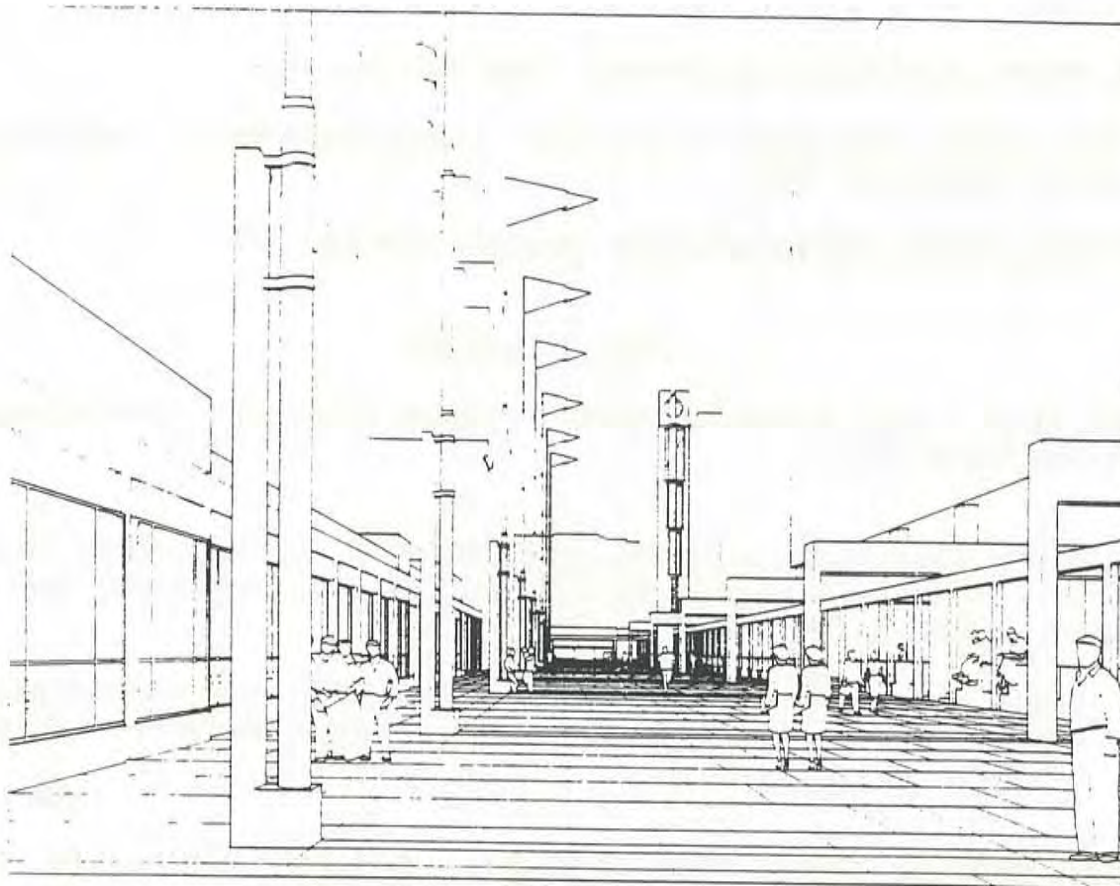
»THROUGH« STREETS



»LOCAL« STREETS

Figure 15: IMPROVEMENT OPTIONS
Options for 'through' streets pertain to better organizing an intensive mix of vehicular and pedestrian traffic; options for 'local' streets pertain to local environmental improvements.

IMPROVEMENT OPTIONS.
Primary in any campaign to pedestrianize a city, an education and awareness campaign must be waged. Exemplified here are some options of which the public should be informed.



PERSPECTIVE LOOKING WEST

FASHION INSTITUTE OF TECHNOLOGY.

The part-time closing of West 27th Street between Seventh and Eighth Avenues has given FIT a clear and unified 'campus' and contributed a significant urban space to the city. This proposal suggests the architectural treatment of a permanent closure. Relative to Washington Place through New York University.

GENERAL READINGS

JACKSON, KENNETH T. *CRABGRASS FRONTIER: The Suburbanization of America*. Oxford University Press, New York, 1985.

JACOBS, JANE. *THE DEATH AND LIFE OF THE GREAT AMERICAN CITIES*. Random House, New York, 1961.

HISS, TONY. *THE EXPERIENCE OF PLACE*. Knopf, New York, 1990.

LYNCH, KEVIN. *THE IMAGE OF THE CITY*. Massachusetts Institute of Technology Press, Cambridge, Massachusetts, 1960.

NEWMAN, OSCAR. *DEFENSIBLE SPACE*. MacMillan, New York, 1973.

BIBLIOGRAPHIES

CHIN, FELIX. *AUTO RESTRICTED ZONES: A Selected Bibliography*. Vance Bibliographies, Monticello, Illinois, 1979.

ELKINGTON, JOHN, ROGER MCGLYNN and JOHN ROBERTS. *THE PEDESTRIAN: Planning and Research*. Volume Two of the 1974 T.E.S.T. study: "Improving the Pedestrian Environment". Transport and Environmental Studies (T.E.S.T.), London, 1976.

Deals with pedestrian activity, accidents, perception, conflicts, environment and suppression. Includes schemes to improve pedestrian activity. Includes a literature review and annotated bibliography.

GREEN, CHRIS ed. *TRAFFIC NOISE: Bibliography on Surface Transportation Noise*. Technical Commission, England, 1987.

Discusses the social and economic impact of transportation noise and the effects of transportation noise on physical and psychological health. Includes a literature reviews.

RECENT PROPOSALS

To conclude our research, we present the following proposals that hopefully will tie this bibliography back to existing conditions reconnaissance in phase one and foreshadow the next phase.

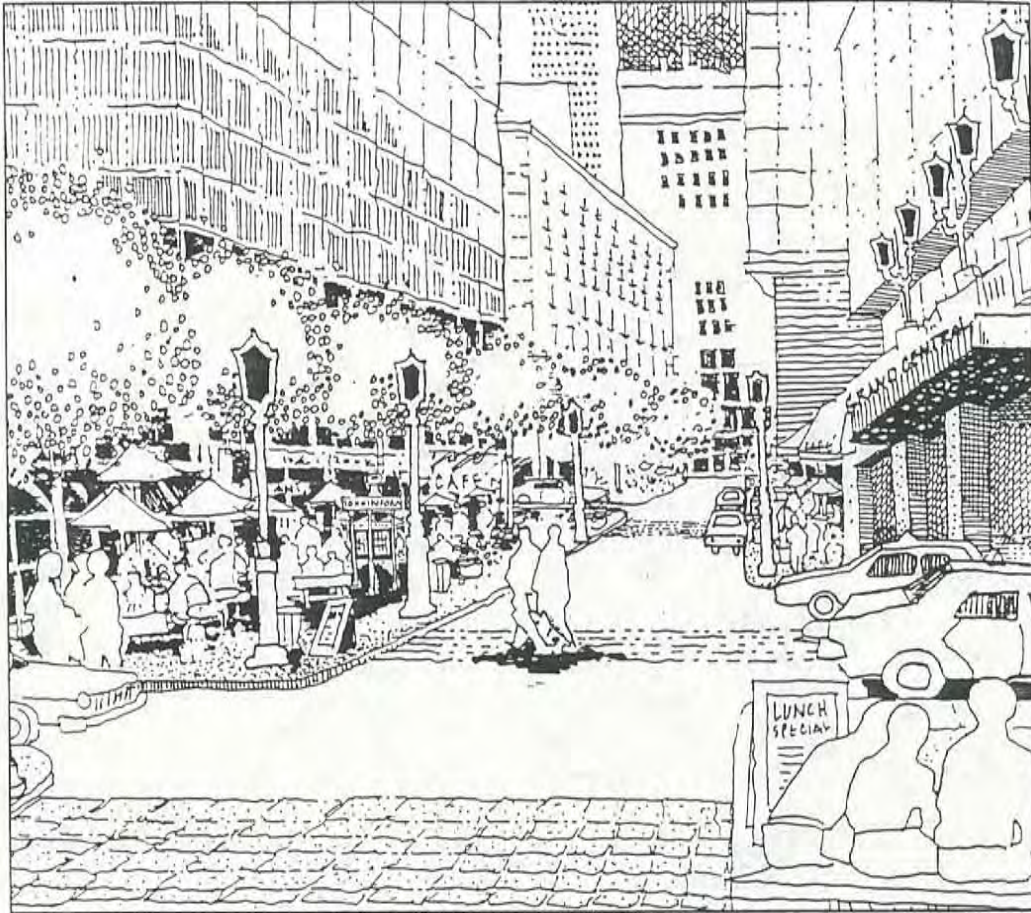


A glass-walled cafe, set in a pedestrian park, forms a unified forecourt for the Terminal.

PERSHING SQUARE CAFE.

Recapture of unused space under a viaduct reinvents a previously dismal place. Emphasis is on people, not the automobile.

GRAND CENTRAL DISTRICT: New Life for a Midtown Business District. Grand Central Partnership, 1987.



Landscaping on wider sidewalks will make an appealing plaza along Vanderbilt Avenue.

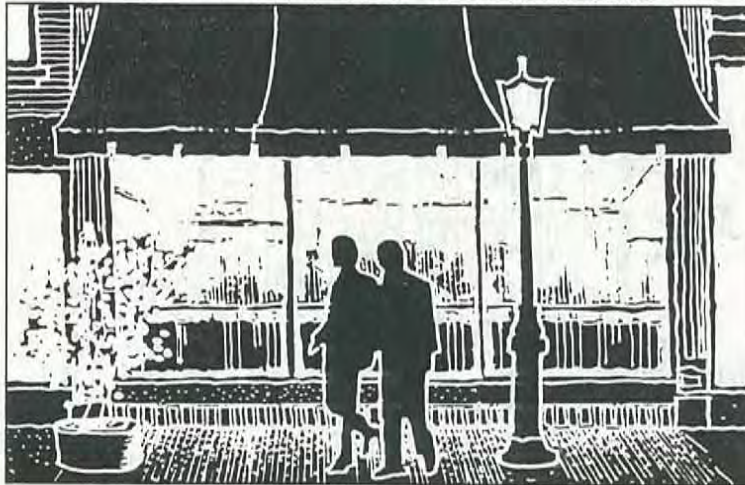
VANDERBILT AVENUE PLAZA.

With automobile traffic routed to other streets certain blocks can be transformed to strolling streets catering to lunchtime crowds, children playing and greenery.

GRAND CENTRAL DISTRICT: New Life for a Midtown Business District. Grand Central Partnership, 1987.



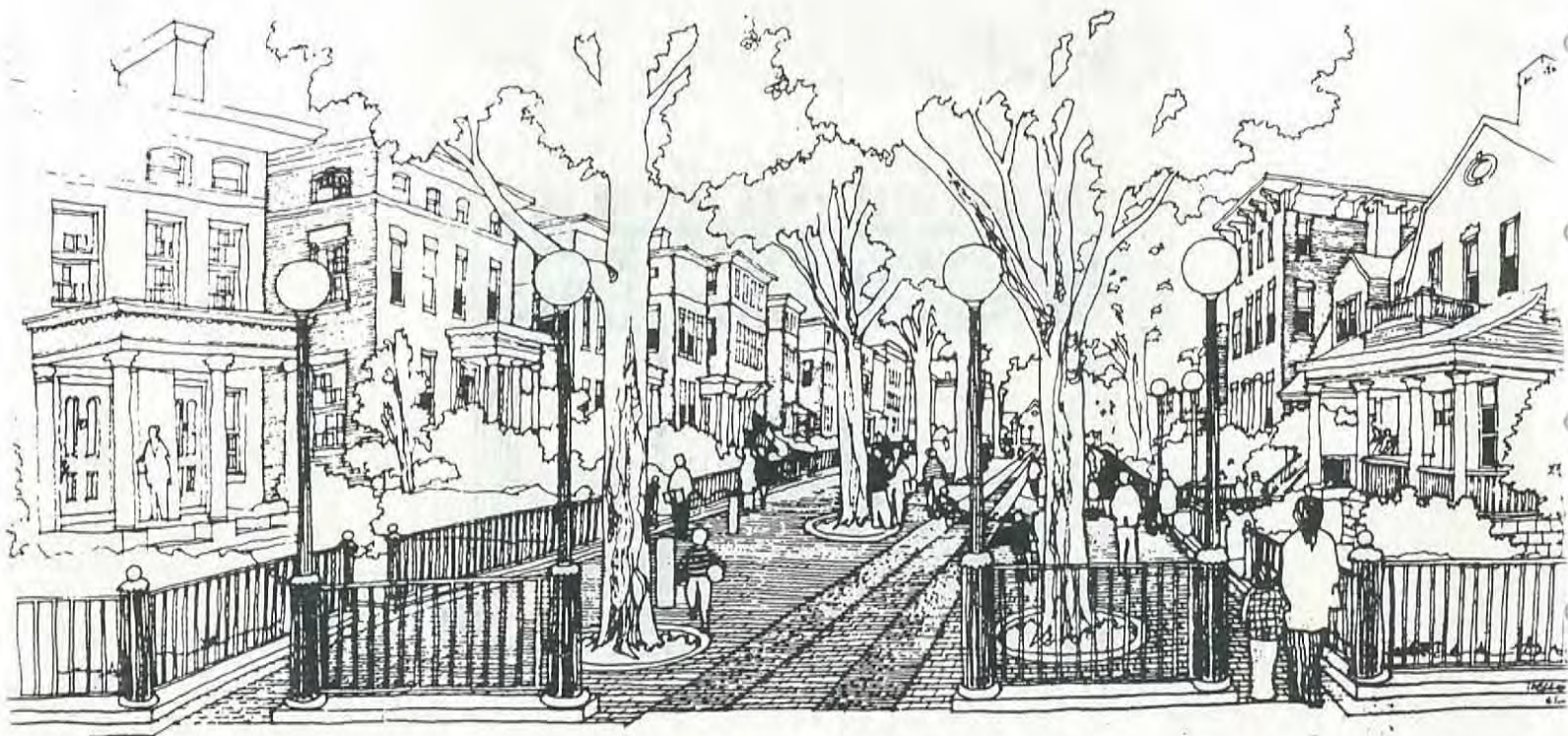
Restaurants have a role on the street, opening out by day, lighting its edge by night.



NIGHT AND DAY EFFECT OF SIDEWALK CAFES.

By day, a presence is felt on the sidewalk while at night lighting brightens the street, making it safer.

GRAND CENTRAL DISTRICT: New Life for a Midtown Business District. Grand Central Partnership, 1987.



HARTFORD, CONNECTICUT.

Proposal in 1975 to close a residential street to automobiles; giving over the space to foliage, pedestrian ways and play-spaces. Note center access for emergency vehicles and deliveries.



Proposed Circulation System

Legend:

- Traffic
- - - Service
- ▨ Pedestrian
- ||||| Parking

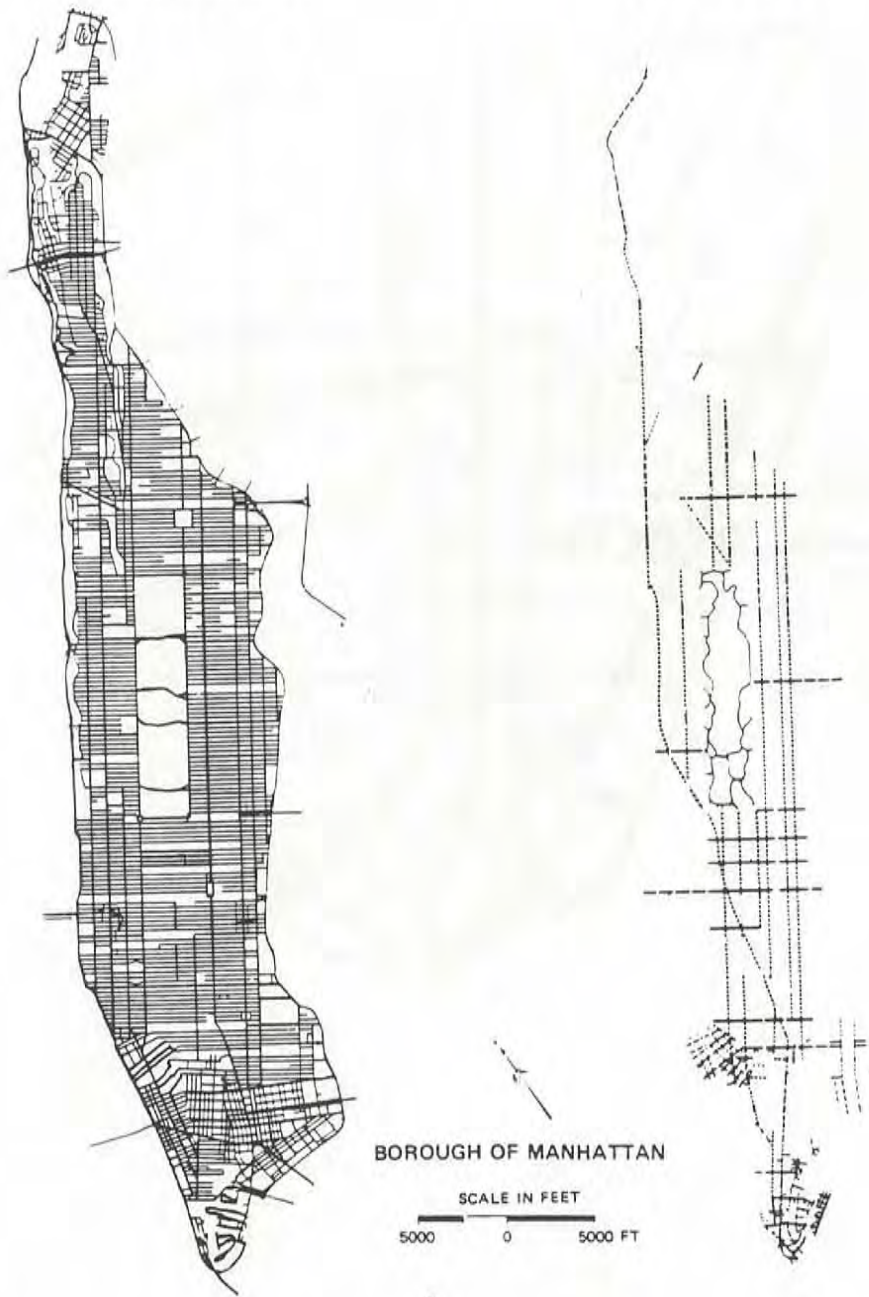
DOWNTOWN MANHATTAN.

Proposal to pedestrianize some streets downtown. Reserves the more visible streets (Broadway, Wall Street, Chambers Street) for the walker while allowing traffic access to parking garages, the bridges, tunnels and periphery freeways.

WALLACE, DAVID, WILLIAM CONKLIN, ALAN VOORHEES, et al. *LOWER MANHATTAN PLAN*. New York City Planning Commission, 1966.

PAVEMENT RETAINED
FOR VEHICULAR MOVEMENT

PAVEMENT RELEASED
FOR PEDESTRIAN USE



TRAFFIC CALMED MANHATTAN.

A graphic display of the island of Manhattan with some streets released for pedestrian use. Note vast majority of streets would still be retained for vehicular movement.

HAIKALIS, GEORGE. *TOWARDS AN AUTO-FREE MANHATTAN: An Alternative Strategy and A Proposed Study*. Tri-State Regional Planning Commission, New York, 1974.



TRAFFIC CALMED DISTRICT TWO.

A look at which streets in District Two would be effected by the above proposal.

PHASE THREE
VILLAGE POSSIBILITIES

BASE MAP

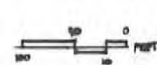
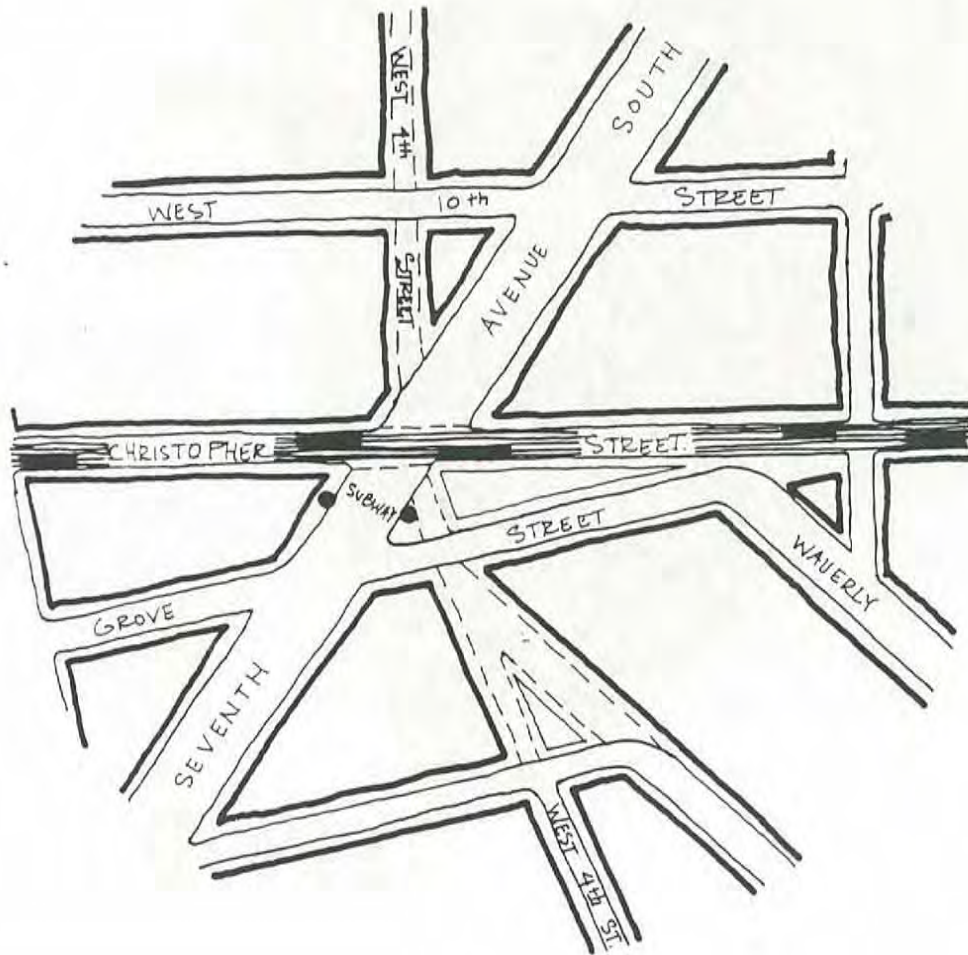


SHERIDAN SQUARE

Seventh Avenue at Christopher and West Fourth Streets.

We propose transforming Christopher and Eighth Streets into a traffic-free transit corridor; reserved for 'trolleys', bicycles, deliveries and pedestrians. This corridor would traverse the Village from West Street to Astor Place. There it could link with St. Mark's Place and continuing to Tompkins Square. Replacing the existing M13 bus route, the 'trolley' would provide superior crosstown transit service, a clear link from the West to the East and improve commercial activity along its path.

At Sheridan Square, we propose calming West Fourth Street. This would serve two functions: enhance the existing park and cut off the busy West Fourth 'short-cut'. Presently many automobiles use West Fourth between Seventh and Broadway as their personal expressway in a race towards the free East River bridges, leaving exhaust fumes, noise and accidents in their wake.





EXISTING SHERIDAN SQUARE



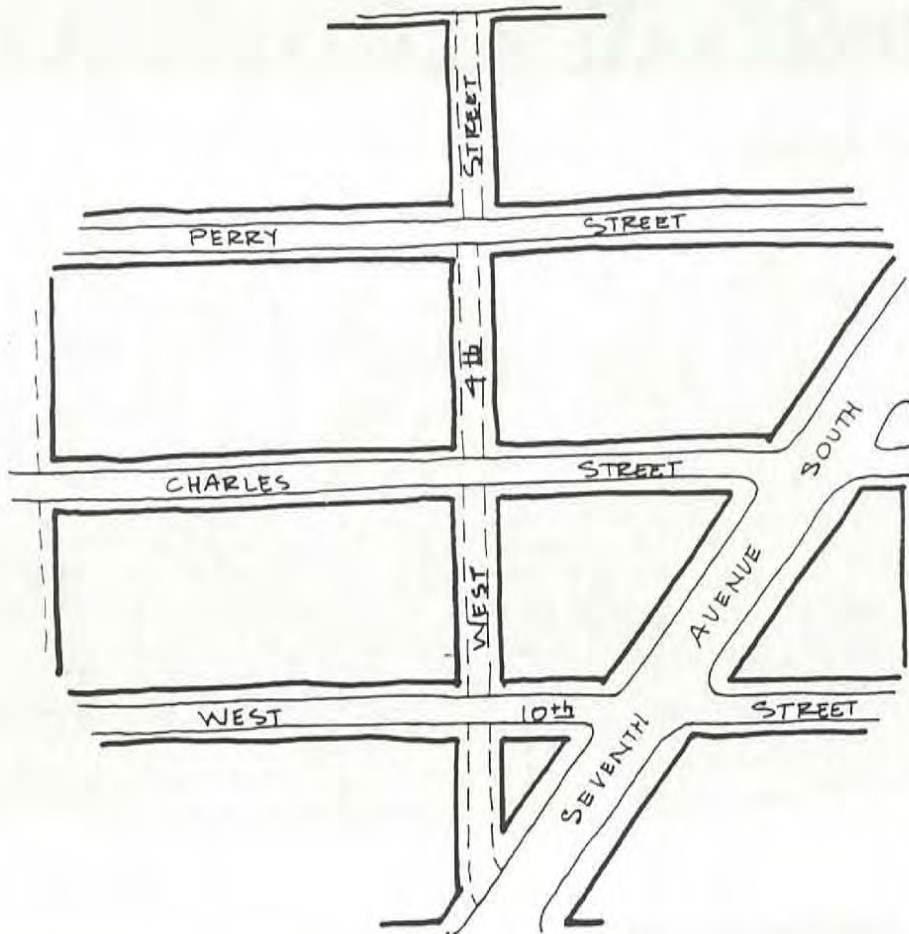
TRAFFIC-CALMED SHERIDAN SQUARE

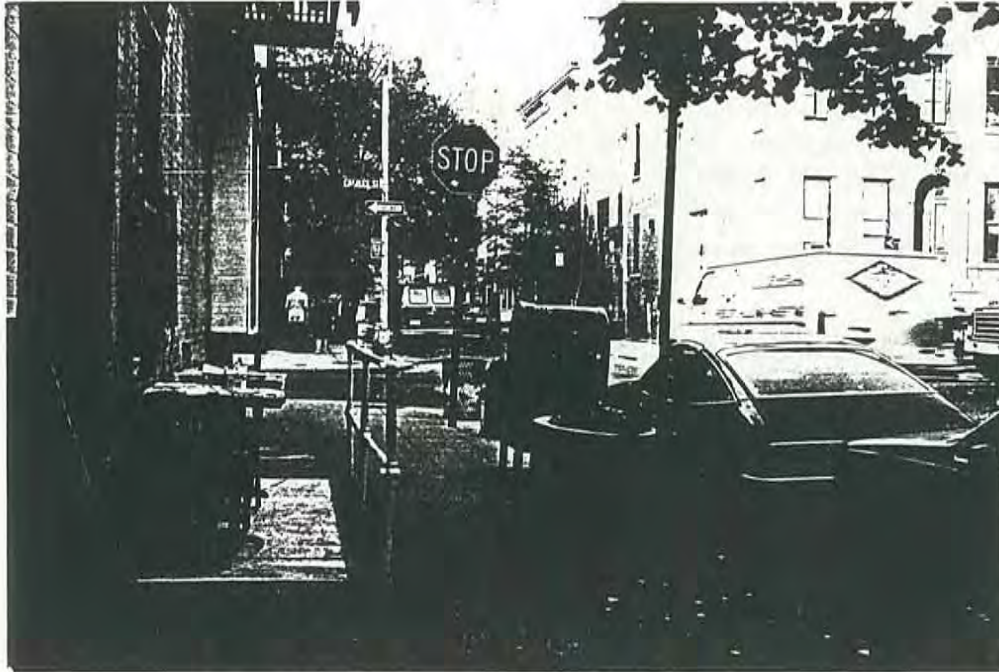
Note Christopher Street transit corridor, improved news-stand and subway entrance, sidewalk cafes (operators would maintain the park) and removable chains for emergency vehicles.

WEST FOURTH STREET at Charles Street

One of the most compelling corridors in the Village, West Fourth could be greatly enhanced if the cars were replaced with people and the sidewalk cafes allowed to flourish. Between Seventh and Eighth Avenues, West Fourth is one-way north. Because both Seventh and Eighth go one-way south, there is relatively little automobile traffic, making it a prime candidate for further calming.

Typical of the intersections along West Fourth Street, Charles Street exemplifies the possibilities of a traffic-calmed West Fourth.





EXISTING WEST FOURTH STREET at Charles Street



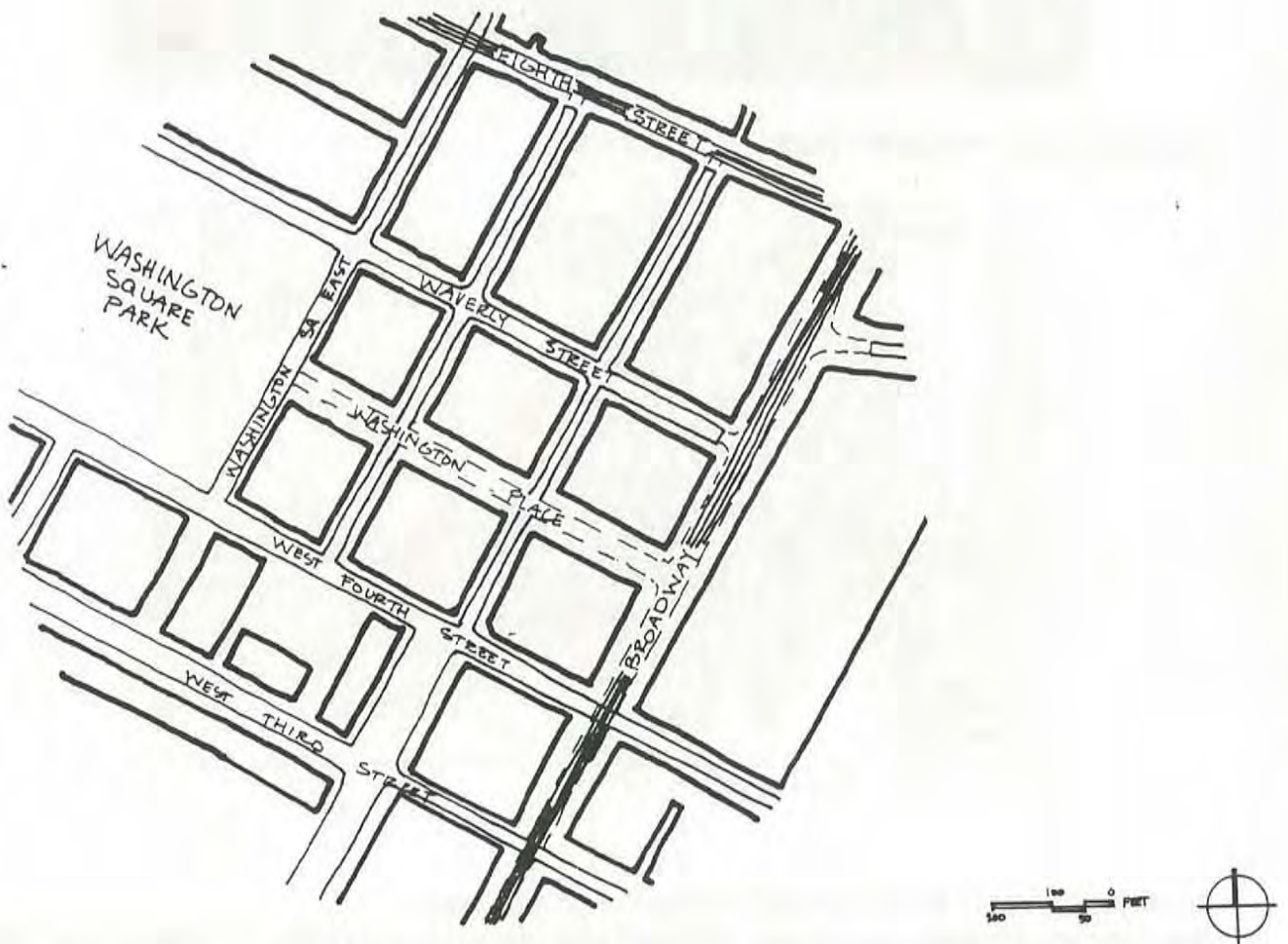
TRAFFIC-CALMED WEST FOURTH STREET at Charles Street

Note larger and enhanced sidewalk cafe, children playing where cars once parked, bicycles and removable chairs for deliveries or emergencies.

NEW YORK UNIVERSITY
Washington Place

It is too bad that New York University does not have a real campus. Their uptown neighbor Columbia certainly did well to appropriate 116th Street last century. With gates and security guards, the level of collegiate serenity offered at Columbia's campus shames NYU. Further uptown, City College closes Convent Avenue during the day and Yeshiva University has its own little enclave. Even the Fashion Institute of Technology has gotten into the act by closing 27th Street between 7th and 8th Avenues during the day.

So why not NYU? They own all the buildings in the area. On Washington Place most of the buildings house administrative offices. The school should reclaim this street as truly their own.





EXISTING NEW YORK UNIVERSITY - Washington Place



TRAFFIC-CALMED NEW YORK UNIVERSITY - Washington Place
Note trees, students with books, benches, clean air and peace and quiet for the campus.

BROADWAY at Astor Place

Perhaps THE main north-south artery in the District - indeed the city, Broadway is essential to traffic calming in Manhattan. Built as a promenade, Broadway could well become a Grand Boulevard from the Battery to the Bronx, with the proper coaching.

We propose to reserve Broadway for pedestrians and transit between Canal and Union Square. It would have its own 'trolley' system, coordinated plantings, larger sidewalks and increased street activity. The transit corridor would replace the existing bus lines and serve to unify the diverse commercial, culinary and gallery spaces along its length.

Private cars and taxis would be re-routed along Lafayette Street and Fourth Avenue (both presently underutilized). Most all of the larger buildings were built to receive freight from other streets. For those that have no access, delivery would be allowed during specified hours.



100
50
0 FEET





EXISTING BROADWAY - at Astor Place



TRAFFIC-CALMED BROADWAY - at Astor Place

Note more trees, larger sidewalks, planters and benches (maintained by stores), transit corridor with 'trolleys', sidewalk cafe where parking garage once was and bicycles.