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MUNICIPAL BUILDING
NEW YORK CITY

Contract No. 208826
Lower Manhattan Expressway
Plan for Planning

Ref: TAD-DAH-P-GTT-601.05

Hon. C. Sidamon-Eristoff
Commissioner, Department of Highways
40 Worth Street
New York, N.Y.

Dear Sir:

In accordance with your instructions all work on the above contract
has been terminated since the decision not to proceed with final
printing was made known to us.

All work on this contract, with the exception of the final printing
has been completed. We are forwarding herewith a copy of our final
report in its present form, i.e. typewritten and with summary
illustrations. We are also submitting with this our final billing.

I wish to thank you for the confidence which you have shown me in
this work and for the cooperation of your department.

Very truly yours,

S. Woods
Shadrach Woods

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NEW YORK CITY

Aug 22, 1969

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In accordance with subsequent instructions only 1 copy is now forwarded.

Shadrach Woods

Sincerely,

I wish to express here my gratitude for the confidence which the Administration has placed in me, and for the cooperation which all agencies have extended to me.

In the course of our investigation and research in preparing this report, we have become increasingly convinced of the necessity of associating the construction of the road with comprehensive development of the right of way and the areas adjacent to the road. It is clear that such development, in the City's best interests, should be planned as part of the road building operation and therefore that the Urban Design study should be carried out in conjunction with the engineering design study of the road. The cost of the Urban Design study will be amortized several times over in the savings to be made on air-rights and highway design and construction costs through this integrated design approach, which requires close cooperation between the City and State agencies concerned.

I take pleasure in submitting herewith 25 copies of the report which you commissioned under contract no. 208826, on the organization of an Urban Design study of possible development in conjunction with the construction of the Lower Manhattan Expressway. This report describes the process to be followed in pursuing the study and the product which would result from such a study. It includes a list of the consultants whose expert advice would be required to assist the Urban Design consultant in this work with a description of the tasks that would be assigned to them. An estimate of the cost of the Urban Design study and a time table giving a detailed analysis of the work program are also included. This report then would serve as a plan for a complete 12-month Urban Design study.

Dear Commissioner Eristoff:

Hon. C. Sidamon-Eristoff
Commissioner, Department of Highways
City of New York
40 North Street
New York, New York

Lowery

June 30, 1969

I. DELIMITATIONS AND DEFINITIONS

PART ONE

The Proposed Study

The City of New York, New York State, and the Federal government have,

over a period of years, come to agree that a grade separated crossing

of Lower Manhattan, which would link the Williamsburg and Manhattan

Bridges to the Holland Tunnel and the West Side, is in the public

interest. This connecting road can be financed under the Federal Aid

Highway Act of 1968 as part of the Interstate Defense Highways System.

The road as mapped transverses densely built and intensely used

residential, commercial, and manufacturing districts. The City

has set as a condition for its approval of this road the prior implementa-

tion of an urban design study of the area and of the potential

development both within and adjacent to the right of way. The purpose

of the urban design study is to determine what development it would

be advisable and feasible for the City to promote or encourage in

conjunction with the building of the road.

The present report, which was commissioned by the City acting

through its Department of Highways, defines the nature and conditions of the

urban design study, the expertise required to carry it out, and estimates

its cost.

This report takes as a premise the City's stated policy of

integrating the design of the new road with an overall urban design

concept. It attempts to delimit the areas which are of concern to the

urban design team and to indicate how the highway design and the

urban design process can be related in a 12-month study.

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As noted above, the City Administration considers that the inclusion

of such a considerable engineering work into the dense urban fabric

needs to be studied as much from the architecture and planning aspect

as from the road engineering point of view, so as to satisfy the

requirement "to consider the social effects, environmental impact, and

consistency with the goals and objectives of urban planning promulgated

by the community." [Federal-Aid Highway Act of 1968, sec. 24]

Given an analysis of the community's objectives and goals, as

well as the existing characteristics and needs of the area, the urban

design study would logically include the following activities:

1. Definition of the limits of the area

to be studied, that is, the area on which

the construction of the road will have

an immediate effect in terms of develop-

ment opportunities or inhibitions,

community displacement, traffic patterns,

real estate value, change of use, etc.

(Provisionally these limits are fixed as

follows: Houston Street, the East River

pier-head line between Houston and

Catherine Streets, Catherine Street,

the Bowery, Canal, Walker and Beach

Streets, and the Hudson River pier-head

line between Beach and Houston Streets.)

2. Assessment of the effect that the

construction of the road will have on

each of the factors mentioned above.

3. Recommendations for private and public

action in view of the predicted effects

of the road being opened.

4. Investigation of the feasibility of

development within the air-rights of the

road, and determination of programs for

that development.

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5. Development of design specifications for the complex composed of the roadway and the projected development in and adjacent to its air-rights.

6. Proposals for integration with other long term large scale investments such as the 2nd Avenue subway and other mass transit proposals, the modification of the Miller Highway, etc.

7. Preparation of graphic and written documents which define and illustrate the programs and courses of action recommended as a result of the study.

The urban design study, then, combines economic, financial, socio-logical, physiological, and technological research to propose development policies in the City's best interests. It demonstrates the architectural design potential of those policies and makes recommendations for their implementation and phasing.

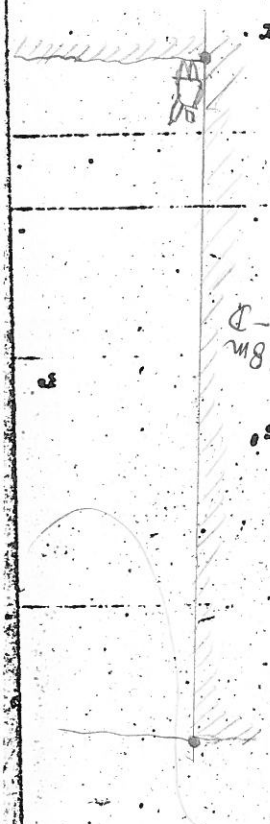
The Lower Manhattan Expressway

The Lower Manhattan Expressway is a grade-separated link between the truck routes over the East River bridges (The Williamsburg and Manhattan Bridges). The Brooklyn Bridge does not carry truck traffic and the Holland Tunnel was opened and since then has been presented in many variations. In the current proposed form it is a depressed roadway which would conform to Interstate Defense Highway System standards. As presented at a public hearing on April 10, 1968, its main section follows an alignment from the Holland Tunnel along the north side of Watts and Broome Streets to Chrystie Street where it divides into a branch connecting to the Williamsburg Bridge and one following the east side of Chrystie Street to the Manhattan Bridge.

Its total length is approximately 2 miles between the connecting points. In its Broome Street section it carries 10 lanes of traffic, 5 each way, in a cut some 180 feet wide and up to 60 feet deep. The road passes under the Broadway, Lafayette, Center, and Chrystie Streets subway lines. Three lanes of traffic each way are carried by the bridge connections. Connections to the City street system are made at West Street, Avenue of the Americas, at Clinton Street and at the Manhattan Bridge end of Canal Street.

The road is a considerable engineering work, for it encounters such problems as descending below the ground water level, passing under and over subways, traversing areas where existing buildings are of dubious structural soundness, connecting to the high bridges, etc.

The Expressway will displace a total of 1,246 housing units and 311 firms (an estimated 6,000 jobs). The relocation needs are



distributed as follows: 289 housing units and 67 firms between the Hudson River and West Broadway; 385 housing units and 149 firms between West Broadway and the Bowery; and 572 housing units and 95 firms between the Bowery and Exxes Street. (Housing and Development Administration, "Lower Manhattan Expressway Relocation Report.")

In its current version, as shown at the public hearing of April 10, 1968, the road is at least partially decked over, restoring buildable public area to the City. Presently the Lower Manhattan Expressway is part of the official map of New York City and figures in the capital budget of New York State.

Records
City

Joint Development and Joint Use

These terms are used to describe the development which may

take place in conjunction with the construction of the Expressway.

Joint development applies to development within the Expressway.

Corridor generally, while joint use refers more specifically to

development within the air-rights of the road. This latter has

also been called multi-use, or multiple use of air-rights.

The concept of joint development, which includes joint use,

is not a new one. It was usual, in the middle ages for instance,

to combine shops, workshops, and dwellings with bridges. It is a

sensible idea to attempt to extend use in order to better realize a

given investment.

When joint development has not been a part of the original

concept, development has nevertheless often taken place. Development

has either been an afterthought to the design or construction

process, as has often been the case with highways, or it has

followed the construction at some later date, as we have seen in

use of air space above railroad yards or terminals. This is

a natural consequence of the competition for space in areas

well served by the transportation network.

Joint use and the leasing of air-rights has precedents in New York City, as for instance in the Grand Central Park Avenue development which followed the depressing of the railroad right of way.

In the case of the road presently under consideration, which is to be built below grade, the idea of using the air space above the road is inescapable. At the same time it seems reasonable to extend this development impetus beyond the confines of the roadway right of way itself and into the areas around it which currently form with the corridor fairly coherent sectors or neighborhoods, so that these may also participate in the revitalization process in an orderly way.

Joint development then, in this case, would include the following:

1. Development in and over the right of way of the road, also called air-rights.

2. Development in the area immediately affected by the road ("impact area") as determined by the Urban Design study.

3. Coordination with roadway design and construction in order to minimize inconvenience.

The Lower Manhattan Expressway has been the object of controversy ever since it was first proposed, shortly after the opening of the Holland Tunnel. Much of the recent opposition seems to draw its vigor from a misunderstanding of the nature and purpose of this transportation facility in its presently projected form. This confusion may also be partly the result of an emotional overload which is generated by the use of the term "expressway" for what is essentially a service road scaled to today's vehicles.

Geographical Necessity

The transportation congestion in Lower Manhattan is easily understood when the following facts are considered: five of the twelve major road links between Manhattan and its environs are south of Houston Street, forty percent of New York City's industrial jobs are in southern Manhattan and Lower Manhattan's commercial and industrial areas generate traffic on streets that are not adapted to modern truck transport and loading operations. Although less than ten percent of the central business district's two and a quarter million employees use automobiles to go to work, this represents more than a quarter of all automobile commutation in the city, or a density of automobile use 15-20 times the city average. Moreover, the area is a focal point for two of the four Hudson River crossings. The usefulness of a grade-separated crossing of Lower Manhattan can easily be demonstrated. It lies in the increased traffic handling capacity which it would provide thus permitting a reorganization of local traffic.



Functional Need

The need for increased capacity can be traced back to the opening of the Holland Tunnel. Today one truck out of every three entering and leaving Manhattan uses one of the three facilities which would be linked by the new road. These three facilities connect Long Island and New Jersey to the Lower Manhattan manufacturing district, which provides employment for about 125,000 "blue collar" workers, and in which there are about 35,000 daily loading operations. The need is aggravated by the increasing use of large trailer rigs for diversified freight handling, and by the intensification of warehousing and freight terminal uses in the western manufacturing district and along the Hudson River waterfront.

It is not possible to increase the east-west traffic capacity if both the existing uses and the existing network of streets are maintained. Congestion caused by the coexistence in confusion of freight handling ("stop" streets) and through movement ("go" streets) cannot be relieved unless and until the conflict between these functions is resolved by their separation. If this congestion is not relieved the manufacturing district will continue to stifle for lack of a proper access, and to decline. The semi-skilled employment base in Manhattan will be further eroded and the welfare load will be increased. However it should be noted that if the Lower Manhattan Expressway is abandoned, pressure will be severe on the manufacturing district for change to more lucrative uses, and values will rise, and the City will be obliged to promulgate a new set of goals and objectives for this area, and to articulate these in a planning and urban design study. In this way potential losses to the City, as well as a potential rise in unemployment, may be limited.



General

Functional Inadaptation of Existing Streets

In addition to an increase in the volume of traffic and in

the size of vehicles trying to use streets suited to the speed and

size of horse-drawn carts, the street network is badly oriented

to carry through traffic between the rivers. The short blocks

which have no storage capacity run east-west and traffic inter-

sections are easily blocked by the frequent stopping of truck-

trailer outfits 50' or 60' long. This obstructs access to adjoining

areas, especially to Lower Manhattan and to the West Side.

The grade-separated crossing would allow for reorganization

of local traffic patterns so as to improve access to those areas

which need better service, especially the manufacturing

district, and would eliminate extraneous traffic from the

residential areas thereby improving the environment.

The economic advantages to the city and the area would basically result from the revitalization of the manufacturing district through improved service access to it. The industries which exist in this area are not those which typically move out to industrial parks. Their survival here is a function of accessibility, both for service and for labor. The new road would improve access by removing through traffic and could even include new facilities oriented to warehousing and manufacturing.

By improving transportation to and within the area, the grade-separated crossing will certainly improve the economic potential of the manufacturing district and the economic base of the city generally. The privileged position which this activity occupies, at the center of a transportation network of roads and subways, can be fully exploited, and renewal of the district's physical plant will receive a much needed impetus. (At the same time that the blue collar jobs are being preserved, the residential areas to the east, whose population depends to a large extent on those jobs, will be improved by the restoration of their streets to local service functions and by the new development including community facilities which will be associated with the Expressway.)

In addition to the economic and environmental advantages to be expected from the construction of this new grade-separated crossing, the massive investment which it requires will provide immediate financial benefits to the area and to the city in the form of money and job opportunities related to the construction.

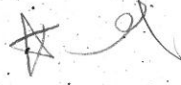
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The principal arguments against the road are concerned with the displacement of families and businesses in the path of the road and the disruption of communities which lie across that path. It is clear that these are extremely serious matters and would constitute an insurmountable block to the construction of the road if the City Administration had not adopted a policy of associating the construction of the road with relocation and with joint development to replace the dwellings and places of business removed. (See Joint Development)

It is difficult to conceive of the housing in the corridor being conserved in its present state, whether the Lower Manhattan Expressway is built or not. A relocation problem exists and it must be dealt with soon. The construction of the Expressway and its air-rights will simply make the relocation and reconstruction problem more immediate, while at the same time providing an impetus toward its solution. Since the utility of the Expressway lies principally in its projected positive effect on the economic base, the inconvenience of relocation may be justified.

The air-rights development will be of value to the communities, providing new public facilities such as schools, parks and playgrounds, community centers and other improvements, as well as new housing. The city is constantly changing and populations are so mobile that it is difficult to argue seriously the case for conservation for its own sake. The content of "community" is continually being redefined, and at every moment the constellation of people who form their community is different.

The argument for the Expressway and air-rights development in its presently mapped form takes into account the communities it traverses, instead of leaving them to their own insufficient devices.



THE URBAN DESIGN IMPERATIVE

The position of the City Administration is that the construction of a Lower Manhattan grade-separated crossing can not be undertaken without an Urban Design study and an investigation into the economic and environmental effects that such construction is likely to produce.

As long as the Interstate Highway System was being built in rural areas, its disruptive effects were minimal and there was little serious opposition to any given section of the system. Alignments could easily be made to respond to local considerations and the design of the highways was in theory entirely a function of user criteria.

However, as the great road system approaches the urban terrain, infinitely more hazardous to negotiate where there is no satisfactory alignment (since all entail hardship to one or another part of the urban fabric), it becomes necessary to include other criteria and conditions in the design process. Among these factors are the dislocation and relocation of the commercial and economic base as well as the displacement of families; the disruption of social and political structures; the modification of existing traffic patterns and intensities; the conservation of significant elements of the built world; the control of environmental stress factors such as noise and air pollution; the preservation of a balance between zones of activity and of tranquillity and between work and residential areas; and the smooth functioning of the city as well.

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Even though selected alignments may run contrary to the best local interest, the design of the road, and of the joint development accompanying it, must take into account those interests viewed in the light of the factors listed above. It must also be conceived with a view to compensating, through intelligent design and prompt implementation, for the inconveniences and losses which such areas may suffer.

It is no longer possible, and it was never admissible, to try to accommodate the new scale of volume and speed of goods handling and transportation into the old web of streets and buildings without reconsidering and reorganizing the physical milieu so as to control the harmful effects and to exploit fully the benefits which can and should derive from such construction.

With the severe competition for space which characterizes Manhattan, it is unthinkable to abstract unnecessarily some 50 acres of usable area from the City. The air-rights of the roadway must be used to return built space for public and private use to the City. In order to assess intelligently what kinds of space should be built in the air-rights of the road, and what kinds of development can and should be encouraged in the area, an Urban Design study as previously outlined is necessary.

The need for careful, imaginative design is evident in order to make acceptable, or even possible, the interaction of expressway scales of speed and volume of traffic with the existing city scale. Without preliminary architectural and urban design studies, in coordination with the engineering design of the expressway, the



risk of congestion, pollution and environmental degeneration, followed by social, economic and political disaster is too great to be entertained. Moreover, the Urban Design study will reveal the advantages to be gained from comprehensive development. It is clear that the agencies involved in the work of completing the network of highways through the construction of the most difficult links, those which must traverse intensely used urban areas, will not and cannot remain indifferent to the problems which the building of these links entail.

The Urban Design study, and the subsequent implementation of its findings, constitute sine qua non conditions for the construction of any transportation facility in any city. To consider proceeding with the Lower Manhattan Expressway without joint development based on an urban design study would be folly, and would be clearly an intolerable waste of present and potential resources.

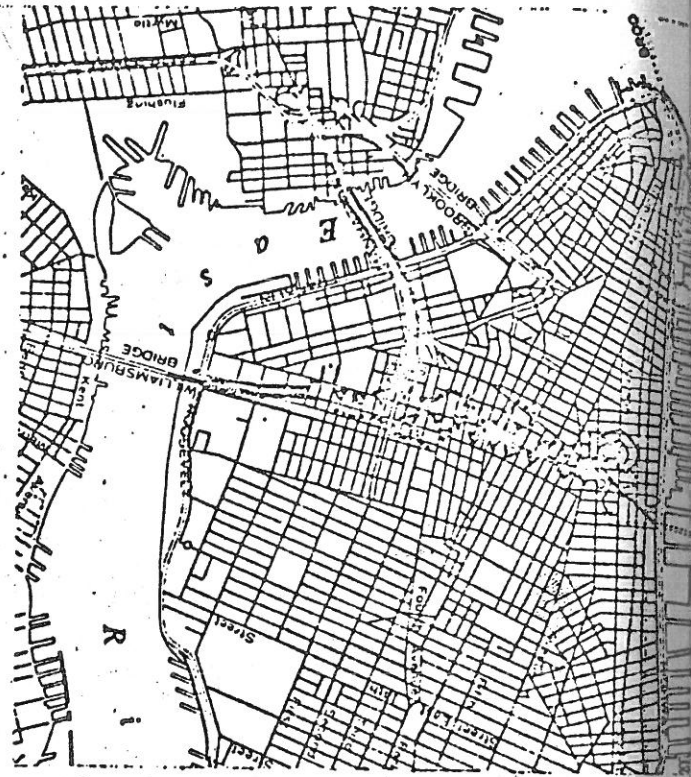
The city is the natural habitat of western man. Its organization, its nature, the physical and psychological conditions of life that it creates, are properly the concern of all citizens acting through their representatives. Opportunities such as that presented by the Lower Manhattan Expressway project should not be let pass without close examination of their positive and negative effects on the entire physical, sociological, and economic context. The only reasonable way to conduct such an examination is to undertake an Urban Design study which evaluates the complementary and contradictory factors affecting a problem so complex. In this way, local as well as citywide interests can be considered; communities can be

consulted as to their goals and needs, long range economic and short
range financial considerations can be situated, and physiological,
sociological and esthetic implications can be appreciated by the
responsible authorities.

1. Highway design engineers have, since 1943, studied many possible alignments. The inescapable conclusion is that a grade-separated facility must link the Tunnel to both the Williamsburg and Manhattan Bridges. It must be either elevated or depressed.



3. Comprehensive planning and development has been advanced as a means of reconciling transportation needs with effective land use.



Concern for the impact of an expressway over Manhattan has led to the production of three alternatives to the Expressway: a tunnel, a bridge or a bypass. Each of these alternatives requires enormous expenditure. None of them satisfies the functional traffic needs.



I. WORK PRELIMINARY TO THE ORGANIZATION OF THE URBAN DESIGN STUDY

PART TWO

Investigation of Similar Comprehensive Planning and Development Studies

A survey of similar projects, including the Chicago Crosstown

Expressway Urban Design Study, the Interstate Highways System in

Baltimore Urban Design Study, and the Cross Brooklyn Expressway

(Linear City) Urban Design Study, was made. The Chicago and Baltimore

design offices were visited in order to examine the work programs and

methods adopted by the Urban Design Concept Teams, and to consult

with them on specific problems arising out of such studies.

These projects present similarities and basic differences with

the Lower Manhattan Expressway Urban Design study. All of them include

highway engineering design in their programs while the Lower Manhattan

Expressway engineering design is to be performed separately by the

State's consultants. The urban design and architectural components

of these studies are less central to them than is the case for

Lower Manhattan, in which intensive major development is expected,

some of which is already committed under various programs (schools,

housing, garaging, etc.). Land value, both present and potential, is

very much higher in the path of the Lower Manhattan Expressway than

it is in any of these other projects.

Documentation on existing and proposed air-rights construction

was assembled. The evolution of public policy, City, State, and

Federal, in regard to the problems inherent in the study was examined.

From this research the complexity of the problem in regard to

the interweaving of economic and legal considerations with highway

A preliminary investigation of the Impact Area and the Expressway corridor was undertaken. Starting from an appreciation of the history of the area's development, the socio-economic and physical characteristics of the area, and the planned developments that will affect the area, studies were made to determine the necessary scope of research needed for the comprehensive planning and development study. This survey also included research into previous reports on the Impact Area of the Expressway, such as the EBS Transportation Study of 1968, the Chester Rapkin report on the South Houston Industrial Area; the City's reports on relocation and industrial move-outs; various reports from the State's consulting engineers, Madigan-Hyland; the Lower Manhattan Plan report; and other salient information. Direct observation of the area was very important for the evaluation of the vast body of statistics gathered in many reports. There is no safety in numbers since most of the data are extrapolations of extrapolations ("updated figures"). A few days observation of both the traffic and freight handling problems is far more convincing than

Investigation of the Impact Area
To Determine Scope of Necessary Research

expressway in Lower Manhattan.
economic and environmental problems caused by the construction of an
this manner can the study bring some beneficial answers to the social,
characteristic of most previous air-rights development. Only in
comprehensive development should replace the "add on" approach
design criteria and air-rights development was demonstrated. Truly

the ever-debatable traffic counts and projections.

A preliminary examination of the problem leads to the suggestion that the Urban Design study should be concerned essentially with

three subjects: 1. The area of Manhattan affected by the Expressway Impact Area; 2. The air-rights in the Expressway corridor; 3. The Expressway itself as it is affected by the first two.

The study will produce the following: 1. a plan for the future development of the Impact Area; 2. a schematic architectural design for the use of the Expressway air-rights; 3. a determination of the definitive design specifications for the Expressway itself in collaboration with the State's engineers.

Programs for present and future development will be determined as a result of studies based on the desirability and the feasibility of various uses and cost or rent categories. Opportunities for public and private development will be identified and described.

The Urban Design Consultant will then work from data and expert opinion to develop programs for the area and the air-rights, and to specify the performance of the elements to be designed. He will develop diagrammatic sketches to verify both the program input and the performance specifications. These sketches will be evaluated against relevant accumulated data and experience.

From these, a schematic design will be developed which will account for the uses and functional relationships in the air-rights and in the Impact Area, and between them. It is important that the design be developed in such a way as to remain adaptable to future program changes, within reason, and even to some eventual changes in use.

be projected including land and improvement values, investment trends,
Economic data will be collected and evaluated and trends will

2. Economic Factors

urban development.
be made for improvement of sociological standards in relation to
effects of built form will be investigated. Recommendations will
be situated in the context of the project and the sociological
local action programs. Sociological factors influencing design will
land use and investment will be made as well as recommendations for
Recommendations for change or conservation of patterns of activity, of
distinguished and the effects of dislocation and relocation assessed.
and community identification. Constraints and opportunities will be
various housing conditions, attitudes and aspirations, social problems,
and analyzed on occupations, welfare and relief, education, effects of
In addition to demographic data, information will be collected

1. Sociological Factors

will be investigated with the assistance of competent specialists:
air-rights will be conditioned by the factors listed below, each of which
The planning and design of the Impact Area and the Expressway

Definition of Needed Expertise

to changes of use as the project progresses.
mechanical servicing and access, of structure--which can remain open
action of uses into systems--of relationships, of circulation, of
This suggests that great attention should be paid to the organiz-

employment and production activities, and these will be related to the Standard Metropolitan Statistical Area or other relevant context. Costs and methods of financing and accounting will be identified and the economic impact of the Expressway and of multi-development will be estimated. Recommendations will be made for programs that will influence and/or induce development. The most advantageous and the most productive uses for multi-development will be enumerated. Phasing and amortization of investment will be suggested. The economic costs and benefits of social action will be assessed.

3. Law and Administration

Existing legal and administrative constraints will be researched and reported. Recommendations will be made as to procedures for implementation of the project. Eventual changes in the legal and administrative context will be recommended.

4. Stress Factors

Data will be collected in order to determine standards and criteria for noise, air pollution, crowding, traffic hazards, inconvenience, climate and the micro-climate created by buildings.

5. Circulation

Data will be collected and evaluated concerning the distribution of goods and services, public and private transport, and the pedestrian network. Alternate systems will be investigated and comparative costs will be determined. Existing systems will be explored in order to optimize accessibility in the area. Specific design inputs, such as ramp locations, connections to public transport, extension of pedestrian network, delivery systems, garaging, warehousing and ancillary activities will be developed.

6. Technological Inputs

Surveys will be made of recent technological advances in

engineering and building techniques, in new materials and their

applications, in rehabilitation techniques, in building components and

systems buildings, in computer graphics and in other aids to

organization. Recommendations will be made for the testing or

application of methods, materials and structure, and for the

development of design criteria.

7. Urban Planning and Architectural Design

Included in the list of inputs specific to the project are

physiological and psychological factors relevant to the lighting,

signing, geometrics, and materials of the Expressway and its envelope,

special user criteria which derive from the programs proposed for the

air-rights and environs; physical constraints arising from the

multi-development of air-rights over the Expressway, such as access

and servicing systems; the existing milieu and its influence on

programming and design; the integration of new elements into the

existing fabric; the influence of the recent history of the area and

landmarks and cultural assets.

As a result of this research it was determined that the urban

Design study would require information and evaluation from experts in

the social sciences as well as in technical and engineering professions.

These experts are from the following areas:

Social Science

Economics

Realty and marketing

Sociology

Education

Government

Law

Medicine and Public Health

recommendations of the communities solicited.
 the programs and proposals will be scheduled and the opinions and
 with various community groups or their representatives to discuss
 concerned in this study through their representatives. Regular meetings
 that constant and close collaboration be assured with the communities
 In addition to the consultation outlined above it is essential
 as the cost estimate.

establishing and verifying the work program and time schedule as well
 proposals obtained from them. These proposals have been used in
 Consultants in the fields listed above have been interviewed and
 specific tasks are assigned to them.
 The allocation of their time is detailed in the work program where

- Structures
- Mechanicals
- Acoustics
- Transportation
- Technical
- Law
- Reality → real estate
- Economics
- Sociology
- Social Science

full-time consultants will be:
 will be working consistently with the Urban Design Team. The principal
 some of these consultants will be used only on an occasional basis; others

- Technical and engineering
- Structures
- Acoustics
- Mechanicals
- Lighting
- Transportation & movement systems
- Landscaping
- Other specialists
- Housing
- Industrial development
- Management
- Statistics and mathematical analysis
- Graphic designers (& film makers)

It is estimated that a 12-month period will suffice for the

completion of a well-organized study. Given the complexity of the

work to be accomplished and the sensitivity of the inner-city urban

fabric, it would be dangerously irresponsible to attempt to reduce

the time spent on it at the risk of compromising seriously the

recommendations for future action. What is at stake here, a sig-

nificant attempt to mobilize social and economic forces and to

organize a reasonable future for this part of the City, cannot be

based on hasty judgment or precipitate action.

Fortunately, the alignment studies for the route have been com-

pleted and can be taken as given for the greater part of the route.

Only the details of ramp location and configuration, and the precise

connections to the Tunnel and to the bridges, need further study. These

and other technical details of the roadway can easily be determined

in the course of the 12-month study. It is not, therefore, antic-

ipated that the time required for the Urban Design study will delay

design and construction of the Expressway to an appreciable degree.

The engineering design of the foundations, roadway and envelope of

the Expressway, to be performed by the State's consultants, can be

advanced simultaneously with the Urban Design Study. The maximum

time lag in the engineering design can be estimated at not more than

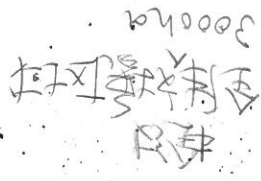
six months, which is almost negligible for a work of this importance

involving the demolition and reconstruction of some 50 acres of

densely-built area.

area = 4050 m²

20.25 ha



An analysis of the twelve month program reveals that the activities to be carried out during the study are concerned with the following:

1. A research phase including
-the collection, collation and
evaluation of information
-the elaboration of programs;
2. A design phase including
-the testing of program alternatives
through design
-the development of a schematic design
for the air-rights and of a plan for
the area;

3. The formulation of a schedule of
development phases;
4. The preparation and printing of reports.

Naturally these activities overlap to a certain degree but

generally it is anticipated that the research phase, including pro-

gramming, will have been completed at the end of six months, and

at that time the various program opportunities will have been

identified in agreement with the communities and agencies concerned.

A formal report could be produced then if such a report is

thought to be necessary. In any case, the programs proposed should

be approved at that time so that a definitive design phase can be

started. The design and reporting phases will occupy the second

six month period. A necessary part of the design activity will

be to determine a phased progression for the construction of the

Expressway and the space within its air-rights.

The development of the multiple use concept in the air-rights above and contiguous to the Expressway requires that the engineering design of the roadway take into account the Urban Design generated by the construction of the roadway, and that the Urban Design proposals be governed also by roadway design criteria.

It has been estimated that the cost of air-rights construction is about 3% above the cost of normal construction when the design is integrated with the highway's design, and that this supplemental cost is around 6% when the air-rights design is added later as an after-thought. [U.S. Department of Transportation, "A Study of Airspace Utilization, Washington, 1968] The differential of about 3% represents, in the present case, between 3 to 5 million dollars. The extra cost attributable to the Urban Design study would be amortized by direct savings on 1/5 to 1/3 of the possible volume of construction in the air-rights. The other benefits of the Urban Design study are, then, free of cost.

This calculation does not consider what additional costs for roadway redesign or adjustment might occur during construction to accommodate "add on" air-rights construction.

It is clear then that the City's Department of Highways, the state's highway engineers, and the Urban Design consultant will find it mutually beneficial to work in close cooperation of the joint use proposals which may be developed and on their highway planning and structural implications.

The method suggested for close cooperation between the highway engineering team and the Urban Design concept team comprises:

- 1) regularly scheduled meetings and 2) assignment of responsibility for liaison to designated members of each team. This is to be coordinated with the Project Manager appointed by the City, and representing the city agencies (Department of Highways, City Planning Commission, Housing and Development Administration, Office of Lower Manhattan Development) which make up the Policy Committee for the Expressway.

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II. WORK PROGRAM, SCHEDULE AND COSTS
FOR THE URBAN DESIGN STUDY OF THE LOWER MANHATTAN EXPRESSWAY

The work program breaks down into specific tasks to be accomplished by the Urban Design consultant and other consultants working under his guidance. These tasks are distributed by area of expertise. The length of time required and available for each task is estimated, and the order in which they are to be done is defined.

There are to be quarterly reports: The first report to contain

the data collected and evaluations made from those data; the

second to outline the program opportunities proposed for design and

development, with supporting information; the third report to

present a preliminary design of the development proposed in the air-

rights and the Impact Area; the final report to comprise the

schematic design of development in the air-rights; the plan for

future development of the area, supporting information on feasibility

and implementation and written reports from consultants in various

disciplines.

The quarterly report provides a way for the City, through its

Policy Committee, to control the progress and directions of the

study. In addition to these reports it is suggested that regular

monthly meetings of the Policy Committee be scheduled to discuss

with the Project Manager and the Urban Design consultant all current

aspects of the study, and to take necessary decisions as the need

arises.

The product of the Urban Design study will consist in a plan for the area, a schematic design for the air-rights and various reports which are listed below.

The plan for the Impact Area will be developed to a scale of 1"=200', with selected details at suitably larger scales for complete comprehension of the principles involved. The plan will be accompanied by a written report giving details of the investigations, observations, conclusions, and recommendations made in the course of the study. The report will be illustrated by those charts, graphs, and tables which are necessary to support its conclusions and recommendations. It will include:

Proposals for the organization of public and private transportation systems, and suggestions for the implementation of these proposals

A review of the zoning of land uses, identification of elements worthy of preservation with suggestions for continuing or altered use of such elements

Suggestions for community action and for administrative intervention

Identification of opportunities for future development
Identification of critical areas which may require immediate action

Assessment of socio-economic and political trends within the area, as well as demographic characteristics

Definition of areas apparent conflict between the local interest and that of the City as a whole.

The schematic design for joint use of the Expressway corridor

will be developed to a scale of 1"=50', with selected details

at suitably larger scales for complete comprehension of the design.

It will explain the architectural implications of the various

programs for joint use and will demonstrate how these can best be

accommodated. The schematics will include access and servicing

systems, functional relationships between various uses and

structural and mechanical systems, and will indicate possibilities

for expansion and modification of the initial scheme.

The final reports, which will be presented at the end of

the twelve month work period, will include:

The background and history of the study;

Information necessary for the continuing Expressway
and air-rights design;

Descriptions of the programs evolved during the study
including recommendations made by consultants;

Reports on feasibility, implementation and
administration;

The schematic design of the air rights;

The plan for future development of the Impact Area.