BOSTON'S CENTRAL ARTERY:
AN ARCHITECTURAL APPROACH

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Architecture at the Massachusetts Institute of Technology.

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ABSTRACT

BOSTON'S CENTRAL ARTERY:

WILBUR H. TUSLER

AN ARCHITECTURAL APPROACH

Submitted for the degree of Master of Architecture in the Department of Architecture on August 20, 1958.

This thesis concerns the visual aspects of the design of the limited access high-speed highway (freeway) in the urban center. It is motivated by a belief in the city as a concept and by a realization of the necessity of the freeway within the urban center.

General criteria must be developed before a specific design solution can be attempted. The placement of the freeway should preserve or reinforce existing orientational and visual relationships in the city. The placement should allow the motorist to orient himself at a larger scale and should develop motorist delight through sequential experience, rhythm, parallax, and relation to constants. The designer has control over the following elements: Placement, elevation, city structure and freeway structure.

The author has developed a theoretical re-design of Boston's Central Artery from the Charles River Dam to South Station with emphasis on the visual qualities of the freeway in the urban center. This solution is intended to illustrate the general criteria.
August 20, 1958

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Dear Dean Belluschi:


Respectfully submitted,

Wilbur H. Tusler, Jr.
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Lora, my wife

Interested friends
DEDICATION:

TO THE CITY
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"Inside the gate is a footpath and the footpath must be winding. At the turning of the footpath there is an outdoor screen and the screen must be small. Behind the screen there is a terrace and the terrace must be level. On the banks of the terrace there are flowers and the flowers must be fresh. Beyond the flowers is a wall and the wall must be low. By the side of the wall there is a pine tree and the pine tree must be old. At the foot of the pine tree there are rocks and the rocks must be quaint. On the rocks there is a pavilion and the pavilion must be simple. Behind the pavilion there are bamboos and the bamboos must be thin and sparse!"

..............

Li Li-Wen
PHOTOGRAPH: VIEW OF CENTRAL ARTERY LOOKING NORTH TOWARDS HAYMARKET SQUARE
INTRODUCTION
MOTIVATION

Man may be measured by his creations. Of all mans' physical creations, the city stands forth as being most nearly expressive of mans' essence. The physical structure of a city reflects the simplicity, complexity, and diversity that is mans' own spiritual structure. The city is the symbol of men uniting against the outside world, whether this be wild animals, other men, or the terror of the universe. This thesis is motivated by a belief in the city as a concept.

With the expansion of the technological capabilities there has been a concurrent adjustment in social patterns. This is well illustrated in the dynamics of the contemporary American urban center. In the past five decades we have witnessed a gradual disbursement of the urban center as the result of the ever expanding capabilities of transportation. This phenomenon has led to a demand for the development of high capacity transportation facilities and has in fact made these facilities a necessity for the survival of the urban center. This thesis is based on the realization that transportation facilities into and within the urban center must be vastly expanded.
The freeway (limited access, high-speed highway) has been utilized to facilitate automotive transportation into and within the urban center. This has led to the juxtaposition of freeway and urban structure, often times with disagreeable results visually. By 1964 there will be freeways in almost every major urban center in the United States. It is estimated that of the 100 billion dollars that will be spent on highways in the United States, roughly one-third (thirty-six billion) will be spent for limited access high-speed highways in urban centers.¹ This thesis is based on concern for the visual effects of the freeway in the urban center.

¹Businessmens' Guide to the Road Program, The Chamber of Commerce of the United States, Washington D. C., p.4
A thesis provides the opportunity for abstract speculation; that is, to examine certain aspects of a given problem divorced from the whole, with the intention of developing specific ideals or goals. These criteria can then be applied to the total problem and compromised where necessary.

It is the intention of the author to examine the visual aspects of the design of the limited access high-speed highway in the urban center. This will consist of two facets: 1) an examination of the general problem in order that some general criteria may be developed, and 2) an attempt to apply these criteria to a specific design problem - namely, the theoretical re-design of Boston's Central Artery (John F. Fitzgerald Expressway) with the emphasis on the visual aspects.

There are limitations to both the general theoretical approach and to this specific problem. It is impossible to isolate the visual aspects of freeway design completely. Functional, social, and economic factors must also be considered. One can emphasize the visual aspect. The author's re-design of Boston's Central Artery must be
based on a subjective analysis of Boston's social, economic and physical structure, because statistical analysis of the problem is not feasible. Further, the complexity of the problem prevents consideration of all aspects of the visual design.
THE GENERAL PROBLEM
As a designer, one learns that the solution to a problem must be drawn from its essential nature. This is true whether the problem is the design of a can-opener or of a city. We must begin by examining the essence of the urban structure; what are its characteristics and what are its inherent potentials? Secondly, the freeway must be analyzed to determine its characteristics and potentials. From the merging of these two essences, resolving conflict with compromise where necessary, we should arrive at a solution.

What is the essence of the city? To me, a city is something notable for its diversity. In this respect a city approaches nature. The urban structure is man's greatest physical expression of the diversity and complexity that is the reflection of his own essence. It has only been exceeded by his abstract creations, e.g. music, mathematics and languages. The city is a house for millions of people, therefore it is just and proper that it should reflect the desires and ideals of these millions.
A city is also order. Again we find that the city approximates an organic structure in that, underlying the seeming diversity, there must be a fundamental order. Order is a necessity in the city if its inhabitants are to express themselves without destroying the same right for others. Order is also necessary to make the whole comprehensible to the human mind, for without comprehension there is no delight.

Thirdly, a city is flexibility. If a city is to be vital, satisfying the physical and psychological needs of its inhabitants, it must continue to change as the needs of the people change. It seems strange to say that a city must evolve when it is constructed of brick and mortar and enmeshed with existing street patterns. But evolve it must. Harbor gives way to airport, social acceptability gives way to abhorance, and so forth. The city changes or it dies.

Three things then: diversity, order and flexibility embody what to me is the essence of the city. Any combination of city and freeway must grow out of a consideration of these characteristics.

That then is the essence of the freeway? Essentially, a freeway must allow large numbers of automobiles to move
safely and at high speeds from one area to another. It also must permit the access and egress of these automobiles at intervals. The width must be great to handle the required volume of automobiles and the turning radii large to accommodate high speeds. In order to support vehicle weight it must also be ponderous. In addition a freeway is essentially continuous, similar to a river in that it must flow continuously from point to point. Finally, because it is continuous, a freeway is inflexible; one section is not easily changed or removed.
ANALYSIS

In the past there has been a predominant tendency for American City Planners to concern themselves primarily with the social, economic and functional aspects of urban design. There is yet another facet that is essential to the structuring of an urban environment; that of visual order and delight. This omission of visual considerations is particularly evident in many existing examples of the freeway within the urban structure.

Several general observations can be made as to the visual effect of the freeway in the urban environment. Three aspects of delight are usually present:

1. The motorist derives a great feeling of power and freedom while driving at high speed through the city.

2. The freeway requires less driver attention than an ordinary city street, allowing the driver to observe his surroundings to a greater extent.

3. The freeway serves to link the urban area with the surrounding areas giving the driver a broader scope for his environment.

Existing examples of the freeway in the urban environment
reveal many disturbing aspects. Among them are the following:

1. There is a disharmony created by the vast differences in scale between the freeway and the city. This results in a feeling of dissociation between them.

2. The lack of careful placement of the freeway often causes loss of orientational relationships for both the driver and the pedestrian.

3. There is a general lack of development of delight both for the motorist and for the pedestrian.

4. The freeway in the city tends to become a barrier; physically, visually and psychologically.

5. The transition between the high speed highway and slow moving city traffic is often disagreeable for the motorist.

In addition to the observable effects of the freeway in the urban environment, one must consider the long range effects of the freeway on the city. These are not yet known, since the freeway is a very recent phenomenon. Tendencies indicate however, that the freeway has a blighting effect when placed in juxtaposition with residential dwellings. There is also an indication that the freeway
promotes commercial enterprise. There are two reasons for this:

1. Easy accessibility for employees and customers
2. Advertising value (distinctive building or sign seen from freeway).
PHOTOGRAPH: CENTRAL ARTERY, FORT HILL SQUARE EXIT
CRITERIA

Having commented briefly on the essence of the problem and on the existing high-speed highways, we may seek to discover what general criteria, if any, should be brought to bear on the problem of the design of the freeway in the urban center. The following remarks are based on one fundamental assumption; that the human being is still seeking meaning in life beyond mere existence, and that he does not exist for convenience alone, but still seeks such abstractions as visual delight. To some, the visual aspects of the freeway and concern about them seems futile. Freeways such as Boston's Central Artery cost in the order of thirty-eight million dollars per mile. In the face of this, who is going to bother with the whimsy of an academic designer who would re-route a proposed freeway just to provide a slightly better view? It is the author's firm contention that the human being has the inalienable right to structure his own environment. By failing to do so, man losess a great deal of his dignity. The present chaos of the city is the result of years of passive acceptance of an existing environment.

The problem of placing the high-speed highway in the existing urban structure is similar to all problems of
city planning. How does one design a city or a part of a city? To me, the essence of a city is embodied in three things: diversity, order, and flexibility. By this definition a city could not be created by one man, nor could it be created in a short period of time. Ideally, the city planner should establish order within which the citizens could express their individuality without destroying that right for others. Even then, that order must embody flexibility. In practice, the city planner must work with physical things, and so it must be with the freeway.

Specifically, the design of the freeway may be approached from two different aspects; that of the pedestrian and the existing city, and that of the motorist traveling on the freeway. In the end result these two must merge into a comprehensive design satisfying all concerned.

In discussing the freeway from the city, or pedestrian level, one must make an assumption about the evolution of the city and the long range effect of the freeway. This is a problem which constantly plagues city planners. The designer can only muster his best faculties and make a prediction. The automobile may be obsolete in one hundred years.

One of the major problems caused by the freeway at the
pedestrian level is loss of orientation. This loss of orientation can occur in two ways; disruption of areas, or of the path system.

The area at the pedestrian level is socially defined, sometimes with visual reinforcement, e.g. Boston's Beacon Hill. It is desirable that the placement of the freeway should not destroy existing areas. The freeway at the pedestrian level tends to assume the character of a river, unfortunately without the accompanying aesthetic delights. The pedestrian has a strong linear barrier feeling. This psychological barrier should be utilized to reinforce the existing social areas in the city rather than destroy them. This would allow the pedestrian to retain the pattern of areas as a means of orientation. Where areas must be cut, it is advisable to minimize the visual barrier effect of the freeway to avoid disruption of these areas.

Loss of orientation in the city at the pedestrian level may occur by a disruption of the path system. When path system and freeway are at odds, the pedestrian tends to accept the freeway. If the pedestrian can image the position and direction of the freeway it can be utilized to clarify an existing confusion. However, when the street pattern is more imagable than the freeway (this
is usually the case) then the freeway can become confusing. If the freeway cannot be directly related to a known path, it is desirable to have it reinforce the major direction of the path system.

Visual delight created by the freeway at the pedestrian level is a major problem in the placement of the freeway. In most cases this delight is minimal. At best there is a great feeling of vitality and power created. Any further delight is diminished by the vast difference in scale between the freeway and the surrounding elements. Delight could be heightened by the close contrast of freeway and city. The pedestrian will always derive his sense of scale from the city, not the freeway. When the freeway is surrounded by large areas of open space this is not possible and the pedestrian loses a sense of scale. Delight could also be heightened by frequent pedestrian penetrations onto the freeway (visually, not physically). If the pedestrian is isolated from the freeway it will become disagreeable to him, while if he is brought into close contact with it he will tend to accept it and to delight in its power. Finally, pedestrian delight can be achieved by the design of the freeway structure and its surroundings. Clarity of structure, sensitive detailing, and proper landscaping can all contribute to this delight.
In summation, the design of the freeway in the urban core from the perspective of the pedestrian is dependent upon one primary criterion, that the freeway should create no major disharmony in its relationship with the city. Rather it should reinforce the existing delights and relationships, or create new delights if possible. The realization of this goal is a major achievement even for the most accomplished designers but it is a goal worthy of effort.

The second facet of the approach to the design of the freeway in the urban center is that of the motorist, his visual delight and orientation to the city. The following remarks must be governed by the essential nature and purpose of the freeway; to allow free, fast and safe movement of vehicles to and from the urban center.

Orientation of the motorist traveling on the freeway becomes a major factor in its placement and design. A comment should be made as to the importance of orienting the human being in the city. In essence orientation is related to psychological security which in turn is related to visual delight. This can best be appreciated by recalling a time when lost in a large city or in a forest. One feels a sense of panic that is hardly conducive to aesthetic
contemplation. Concern for orientation grows out of this. It is an attempt to place the human being at ease in his environment.

The orientation of the motorist traveling on the freeway can be accomplished at three scale levels: areas, the path system, and individual structures. Areas meaningful to the motorist can be either natural or man-made. Natural areas, such as lakes, rivers, etc., are very useful in orienting the motorist because they are easily identifiable and usually strongly related to the city structure as a whole. Man-made areas are also useful in determining one’s position on the freeway. Such things as density and activity tell one how close the heart of the city is.

The path system as a means of orienting the motorist is somewhat tenuous. In many cases the scale differential or functional factors will not allow a relationship with the existing path system to be established. It is important however, to attempt to key the freeway into the path system at intervals. One could allow certain major paths to pass over the freeway and so reinforce their position in the driver’s mind. Interchanges at major intersections also help identify the path system and the relation to it. Where a more continuous relationship with the path system can be established, it is very helpful in creating a major
scale or rhythm for the freeway, e.g. the succession of blocks passing by.

Individual structures take on major importance in orienting the motorist to the city structure. This is particularly true in sections of the urban core where the density is high. For individual structures to become useful for orientation, they must be imagable at two scales; that of the pedestrian and that of the motorist. If one sees a building while on the freeway he must also know how the building relates to the total city structure and to his image as a pedestrian.

A building must be distinctive to serve as a means of orientation for the motorist. That is, it must stand out from the matrix of its surroundings to be easily identifiable. The structure used for orienting the motorist must also be of sufficient scale to be comprehensible. In every city there are many such buildings. The freeway should be placed so as to utilize as many as these structures as possible. Existing buildings can be emphasized by removing surrounding structures. New buildings can also be utilized for orientation; either municipal structures, or carefully controlled placement of commercial enterprises.

Individual structures can be utilized at ramp exits and entrances to provide a degree of orientation and identification.
By placing exits and entrances at distinctive points in the city, the designer could use the structure of the area to reinforce whatever symbols are needed for driver communication.

The delight of the motorist while on the freeway is one of the major objectives in the design of the freeway. It is also very difficult to discuss. Currently the city provides a wonderful richness and contrast in its structure and daily activity. The freeway gives us the almost unprecedented opportunity to observe the richness and delight at a different scale. It would be unfortunate if this opportunity were neglected. The freeway is a dynamic and powerful expression of our new found freedom, the freedom of technology. It should not only provide a fast, safe trip for the motorist, but also an experience in keeping with the dynamics and grandeur of the freeway and of the city.

The delight of the motorist appears easily obtained, but from existing examples we realize that it is not something that occurs automatically. The delight of the motorist is dependent upon the sensitive placement of the freeway in the urban structure. As in any design problem, there are many imponderables that cannot be discussed or even defined in most cases. We may only generalize.
One of the primary means of achieving delight for the motorist is by creating a sense of motion. Again this seems obvious, one moves, so one has a sense of motion. This is not always true. Often one is almost completely dissociated from the surroundings by the vast scale difference between the freeway and the city. When this happens there is no real sense of motion. There appear to be two methods of achieving this sense of motion; by sequential experience, and by relationship to individual structures.

Sequential experience is difficult to define or discuss. It is the foundation of music, ballet, literature and architecture to a certain extent. It is developed by contrast and is dependent upon time. How sequential experience is achieved and to what degree, is more easily illustrated in a specific design solution. A few general comments can be made however.

Sequential experience for the motorist traveling on the freeway may be developed in many ways; variation in the width of the roadway, variation in paving textures, etc. However the primary and most fundamental means of achieving a sequence is by the utilization of space, i.e. the contrast of spaces.
"The essential issues, it seems to me are in offering relationships between city vistas, which in their sequence are not just revealing the structure of the city, but as in every artistic form offer through the relationship itself, a quality of order, as melodic line in music."

Many factors should be considered in developing a contrast of spaces by the placement of the freeway:

1. Scale - The physical dimension of objects.
2. Proportion - the physical relationship between spaces.
3. Texture - The minor rhythms within the space.
4. Time - The movement through a space and the duration of a certain frame of reference.

The degree of spatial contrast in a city must differ from that of architecture or the more contemplative arts. The essence of a city is flexibility. Therefore, consideration must be given to the continuous evolution of the city. Allowance must also be made for the expression of individual personality (diversity). This means that the contrast developed cannot be subtle as in architecture. It must be accentuated and reinforced at every opportunity to develop a strong expression.

Spatial contrast can be developed in three ways: by utilizing existing solids and voids in the placement of the freeway,
by removing existing structures, and by creating new structures. To a certain extent all of these methods are within the realm of financial feasibility at the present time. Suggesting the removal of existing structures and the creation of new ones, does not imply the wholesale removal of wide strips of buildings on either side of the freeway. This would be neither feasible nor desirable. Rather it is suggesting that existing spacial character could be reinforced by these means. The creation of new buildings could be accomplished by public structures (parking garages, etc.) or by private buildings controlled by selective zoning and special inducements where necessary.

Related to sequential experience in developing a sense of motion is one's relationship to an individual structure. In abstraction this structure could be a "point," "line," or a "plane." The "point" would represent such things as a building or a monument, an object one could see for some distance and a sense of motion could be achieved through parallax.

A sense of motion can be achieved by relation to a "line." That is, by a constantly changing relation to a seeming constant. For the motorist such things as the edge of a river or the other lane of the freeway would create
a sense of movement. This principle can be illustrated by recalling telegraph wires seen from a train window. One is at rest and only feels motion by seeing the telegraph wires loop by outside.

The delight of the motorist is dependent on the transition in scale between the freeway and the city at the exit. A delightful journey can be destroyed by this transition. Ramp exits seem to be disagreeable mainly because the transition is so abrupt. This could be minimized by bringing the motorist into visual contact with the city (parked cars, people, street signs, etc.) for a longer period of time before actually entering the city physically. This could be accomplished by having the exit ramps "finger" out into the city away from the freeway.

In summation, the delights of driving on the freeway in the urban center can be accented in several ways: by allowing the motorist to orient himself to the city while traveling, by allowing the development of a sense of motion and by improving the transition between the freeway and the city. It is not the author's intention to offer these as a set of rules by which a freeway in an urban center may be designed but rather, as a departure point from which to begin a design solution.
No one man can provide a panacea for the city or for any part of it. One can only do his best with the existing conditions and for the foreseeable future. His work will always be subject to the growth and change of the city, and to the whims and fancies of future designers. This is what makes a living city.
DESIGN ELEMENTS

The elements that can be utilized in achieving a satisfactory visual design of the freeway in the urban environment are as follows:

1. Placement - The relation of the roadway to the city structure.
2. Elevation - The relation of the roadway to the ground.
3. City structure - The city structure may be modified by removal of buildings, zoning and control of selected buildings.
4. Freeway structure - Structural elements, paving, colored guard rails, lighting, landscaping, and signs.
PHOTOGRAPH: VIEW OF BOSTON LOOKING NORTH
THE SPECIFIC PROBLEM
PROPOSAL

THE AUTHOR PROPOSES TO DEVELOP A THEORETICAL REDESIGN OF THAT PORTION OF BOSTON'S CENTRAL ARTERY (JOHN F. FITZGERALD EXPRESSWAY) FROM THE CHARLES RIVER DAM TO SOUTH STATION, PLACING EMPHASIS ON THE VISUAL QUALITIES OF THE HIGH-SPEED HIGHWAY IN THE URBAN ENVIRONMENT.

This problem was selected because the existing freeway provided the necessary traffic engineering data (capacity, speed data and ramp locations) as well as providing an opportunity to study the area and the effect of the freeway upon it. In addition, the city of Boston offers a challenging problem because of its historic richness.
DRAWING: BOSTON BEFORE THE CENTRAL ARTERY
ASSUMPTIONS

The design solution is based upon the following assumptions:

- Central Boston requires a high-speed limited access highway with the capacity of the existing Central Artery.

- The highway and its interchanges must be placed in approximately the same location as the existing Central Artery i.e. it may not follow the periphery of the peninsula.

- Traffic engineering standards established by the existing Central Artery must be maintained.

- The proposed Government Center (Boston City Planning Board, 1958) will be built as suggested.

- Future redevelopment and re-zoning proposed by the Boston City Planning Board will be accomplished.
DRAWING: BOSTON WITH EXISTING CENTRAL ARTERY
PHOTOGRAPH: VIEW OF BOSTON LOOKING SOUTH
EXISTING SOLUTION

The following general observations of Boston's Central Artery were noted. 3

MOTORIST
Strong feeling of dissociation from both the ground and the path system as a result of vast scale differential and position of the ramps.

No spacial delight. Relation to ground, and space development are monotonous.

General lack of utilization of available "imagable" buildings and proposed structure (Government Center).

PEDESTRIAN
Disruption of pedestrian relationships throughout the length of the freeway. Hanover Street is the most serious.

Highway structure is depressing, ugly, and confusing.

3 For specific analysis of the Central Artery see Appendix "A"
PHOTOGRAPH: VIEW OF CUSTOMS HOUSE TOWER & HAYMARKET SQUARE
DRAWING: BOSTON WITH PROPOSED FREEWAY
DRAWING: VIEW OF PROPOSED FREEWAY AT THE GOVERNMENT CENTER
DRAWING: SECTION THROUGH PROPOSED FREEWAY AT THE GOVERNMENT CENTER
DRAWING: VIEW OF PROPOSED FREEWAY AT THE FORT HILL SQUARE EXIT
DRAWING: DETAIL OF PEDESTRIAN OVERPASS
DRAWING: VIEW OF PROPOSED FREEWAY AT THE MYSTIC BRIDGE INTERCHANGE
SOLUTION

The design solution is intended to be general. It is not the purpose of this thesis to develop a finished freeway, but rather to illustrate a general solution to the problem. Structural development, detailing and other refinements are beyond the scope of this thesis.

In modifying the city structure an attempt was made to confine the changes to areas slated for redevelopment. The buildings that were removed were of minimal economic value in most cases and an attempt was made to utilize open spaces as a valuable adjunct to the city as well as to the motorist.

There has been some comment as to the advisability of closely relating a building and the high-speed motorist. The question was raised as to motorist comprehension. It is the author's opinion that, although the motorist will not perceive the intricacies of a building as would a pedestrian, nevertheless, the mass of the building will be meaningful and the details will be perceived as texture. The situation is similar to driving through a tunnel with an intricate mosaic design on the walls; one does not comprehend the pattern but rather feels it to be there, (texture).
A comment should also be made as to the author's concept of "control zoning." With the advent of the high-speed highway in the urban environment, the city must provide order on a larger scale, as well as at the pedestrian level. In this solution, control of building heights can provide visual space without rendering the adjacent land unusable. Spot zoning provides the proper structure for the proper position and so enhances the spacial qualities of the city. Spot zoning, of course, does not insure that a building will be built in a given position. This can be solved in two ways: 1) By special inducements and 2) by municipal building, either office buildings or parking structures. Some structures will of necessity be of confined usage. For example, the enclosed areas under the freeway would probably be best utilized as parking garages.
PHOTOGRAPHS: MODEL OF EXISTING CENTRAL ARTERY
PHOTOGRAPHS: MODEL OF PROPOSED FREEWAY
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Urban Freeways, Committee on Urban Transportation, American Institute of Planners, New York, N.Y.
Specific - Trip from Charles River Dam Circle to Fort Hill Sq.

Charles Circle becomes confused with the parked cars on the approaches, the elevated with its ugly station, the foot overpass, the cars going every which way, and the confused relation to the water and the adjacent playgrounds.

There is an excitement and a sense of adventure in sneaking below the elevated and then rising to its level parallel to it. Some confusion as to where to go accompanies this.

The open space near the Public Works Building could be better utilized to give a sense of direction and relation to the river, at the moment it is confused.

There is a very nice relationship created by the Public Works Building, the Manger Hotel, etc. (with the removal of the Edison Co. Building)

The "Calverts" sign near the Manger Hotel is very distracting.

North Station is not identifiable from the back and so it does not become the landmark people know from the front.

From the approach to the bridge one can see the Custom House tower, but in general there is a sense of confusion because one is at the level of the rooftops and these are chaos.

The double bridge is quite successful in that it gives a good sense of direction (different images in different directions) and it is exciting because of its height. It
becomes a brief pause between the confusions of the circle and the attention requiring interchange with the Mystic Bridge.

There is no sense of the railroad tracks or the water, only ugliness. This could be a place to sharpen the image of the peninsula and at the same time give a wonderful sensation.

Merging with the Mystic traffic in the narrow space between the tall building on the right and the heavy edge of the roadway is quite exciting. In general the approaches to the bridge are quite good both coming and going.

Rounding the corner and having the panorama of the city with the Custom House Tower as a focal point is quite exciting. There is seemingly a sea of road before you however, and this is out of scale and character with the rest. This is one of the few places where the driver may contrast the roadway and the city and the contrast is bad.

As one passes North Station one can see the little gold dome of the old State House. This could be made more apparent so as to become a significant landmark.

In the Haymarket Square and Dock Square area there is a very strong feeling of dissociation with the ground and a feeling of unrelatedness. This is most disagreeable and rather dull. There are no high buildings in the area, therefore no way to get ones bearings or even a strong sense of movement. The only saving grace is the extraordinary view of the Custom House Tower.
The Custom House Tower fails in that one doesn't achieve the maximum from it. The approach is fine, but when one is close and is passing by, it disappears, so there is not the full sense of motion achieved. Also it fails as an orientation point in that from the pedestrian point of view the base is not imaged or related to the city structure.

In the Haymarket, Dock Square stretch, the Traffic Tunnel Authority Building stands out as a thing of delight in the general urban matrix.

The Haymarket Square exit is the worst of the three. There is very much the feeling of being pushed into a shapeless world. The large amount of open space doesn't seem to help and even this is destroyed by the bus shelter.

The Dock Square exit is slightly better in that there is an interplay with the entrance at the same point. The wall of the ramp provides some visual direction and order.

The Fort Hill Square exit is by far the most satisfactory of them all. It is exciting mainly because one weaves in between very tightly packed buildings to get down. One has the feeling of having more of a controlled entrance to the city.
Specific - Trip from Northern Avenue to Charles River Dam Circle

The Northern Avenue entrance is quite satisfactory. The view is blocked at first by the Peabody Office Furniture Co. Building and then suddenly opens up before you to expose a wonderful little space formed by the Custom House Tower, The Grain Exchange, and several other buildings. This entrance could be improved by having lower railings so the water could be seen between the buildings. The importance of architectural character is illustrated at this point by the Foster's Wharf Building with its bazaar appearance. It becomes an important landmark from both directions merely because it is distinctive.

The Dock Square exit is good because of the interplay of the ramps at that point and the distinctive features of the market buildings. One has the feeling of descending into an atmosphere of mystery and excitement.

The Sumner Tunnel exit provides the best view of the Suffolk County Courthouse for whatever that is worth. The Traffic Tunnel Administration Building becomes important and somewhat compensates for the confusion of the traffic at the tunnel entrance. This building will become a landmark for the tunnel entrance.

The Sumner Tunnel entrance is too close to the tunnel exit. When a driver emerges from the tunnel he is immediately faced with a decision before he gets time to find his bearings.

The trip from Northern Avenue to North Station is rather dull. The large beer sign (also telling the temperature) and North Station (identified by the Boston Garden sign)
become the focal point (replacing the Custom House Tower in the other direction). The only diversion is a Gulf Oil sign off to the left.

As one approaches North Station and the road begins to rise one gets the impression of a sea of paving before him, there is no feeling of ground, but rather a feeling that the ground has been placed up in the air.

If one continues on over the Mystic Bridge this becomes quite an exciting experience. The sea of paving merges into a view of nothing but sky. Suddenly you crest and the whole of Boston Harbor opens up on your right, a wonderful feeling.

The swing out to the right and then back to the left under the bridge is somewhat exciting. It could be improved by making the swing wider. Also the direction of the roadway at that point is so strong there is a tendency to miss the turnoff.

The North Station exit is good because it provides a powerful view of the underside of the freeway and the double-decked bridge. There is also the same air of mystery and confusion found at the Dock Square exit.

One becomes slightly depressed going under the double-decked bridge, but this is so short a span of time and the contrast is so rich that it is not objectionable.

Going under Charles Circle is a little confusing for two reasons. One always wonders what happened to the circle (there is no view of it before entering the tunnel). Also the curve in the tunnel is confusing.
THE PEDESTRIAN:

General

The freeway in any form is at a disharmony with the city. One can only attempt to minimize its effect. There is such a vast contrast of scale between the high-speed vehicle and the pedestrian that it becomes a disruptive element by its very nature.

The elevated freeway is the most objectionable. One can see it from a great distance and the closer one gets the more of a visual barrier it becomes.

There is a strong tendency for the freeway to spread blight in whatever area it is placed. Probably this tendency could be reduced by placing it in the healthier parts of a city. Unfortunately this is usually incompatible with the economic structure.

Probably the best location for a freeway would be as a reinforcement for an existing edge; this would minimize its disruptive effect.

Specific

The area below the freeway has an atmosphere of mystery, excitement, and power, coupled with confusion. The street pattern is particularly chaotic below the freeway.

The disruptive effect is particularly bad where people are effected, that is in the Haymarket Square area. In the areas where there is a low level of pedestrian traffic
even though there is a high level of vehicle traffic it is not as serious.

The spaces under the freeway are very disagreeable. The parking is inefficient, there is no spacial quality, and in general filth prevails.