Report On

The

Lower Manhattan Expressway

Prepared By: New York City
Department of Traffic

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BACKGROUND

The need for additional street capacity across the island of Manhattan within the general corridor of movement between the Williamsburg and Manhattan Bridges on the east side, to the Holland Tunnel on the west side, has long been recognized by the Department of Traffic as well as by many other public and private organizations. Even the most casual observer is impressed by the daily congestion which plagues this area.

Numerous studies have been made over the past years to quantify the extent of this congestion and analyze the characteristics of the traffic which moves within this corridor. These studies are in agreement concerning the dimensions of the problem.

On an average day, 150,000 vehicles travel east and west through the corridor while an additional 200,000 vehicles cross the corridor travelling in a north-south direction. The existing street system is inadequate to handle these volumes of traffic -- as evidenced by the massive traffic jams which occur daily -- and anticipated traffic growth will make the situation worse in the years ahead than it is today.

The costs of the existing congestion have been estimated at some $35,000,000 per year in added time and vehicle operating costs. Additional congestion, created by increased traffic demands, will not only add significantly to this figure but, most importantly, will seriously hamper the servicing of this area by emergency and service vehicles.

Recognizing that this situation cannot be ameliorated by application of the "signs, signals, and markings" approach of the traffic engineer, the Department of Traffic has consistently stressed the need for additional street capacity as the only viable solution to this most pressing problem.

Immediately following the rejection of the elevated expressway concept, a concerted effort was initiated to develop an alternate solution to provide the desperately needed additional capacity on a facility of such design as to be acceptable to the Community. The elevated concept of the original design was particularly criticized as creating a "China wall" affect on the community and it was, therefore, recognized that any "acceptable" alternate would necessarily eliminate this feature.

This report summarizes the Department of Traffic's evaluations of the various proposals which have been presented in search of a viable solution. While not having the final say about this project still, the Department of Traffic's evaluation of a proposed facility's traffic-carrying ability, and operational characteristics, is of vital importance in the determination of a workable plan.

ALTERNATE PROPOSALS

Plan I) Madigan-Hyland Depressed Solution

Following the rejection of the elevated expressway concept a plan was developed by consultants (Madigan-Hyland) for the T.B.T.A. which retained most of the features of the elevated plan but as a depressed facility.

In addition to the substantial additional costs of this proposal, the Department of Traffic rejected the plan for the following reasons:

1. Since the main roadway would be fifty (50) feet below street level the connections to the facility from the local streets would have to be accommodated on steeply inclined ramps causing the interchange of traffic to the street system on both the east and west side of Manhattan to be made in a much more circuitous fashion. This would result in additional turning movements (with the inherent vehicular-pedestrian conflicts) for all Manhattan-oriented traffic using the facility. This particular point is extremely important from an operational point of view and represents a significant change in comparison to the elevated design.

2. Grand Street would no longer be a continuous east-west artery but would dead-end in the vicinity of the Bowery. Since this is one of the few continuous east-west streets, this dead-ending would seriously hamper the circulation of traffic in this area.

3. Traffic entering the facility from the west side of Manhattan (vicinity of Avenue of the Americas) and destined for the Williamsburg Bridge would have to weave with the main roadway traffic destined for the Manhattan Bridge. Since this weaving distance is relatively short, this maneuver would cause congestion and present a safety hazard.

4. The 4.4 per cent grade which would exist between the main roadway of the facility and the upper roadway of the Manhattan Bridge would result in congestion due to the inability of large, heavily loaded trucks to maintain a minimum desirable speed.

   This would be aggravated because the movement of these trucks would be further hampered by the weaving maneuver in advance

of the upgrade which would further reduce their speed at the very point where they should be accelerating in preparation for the upgrade.

Plan II) Combination of Improvements with Shield Driven Tunnel

Recognizing the urgent nature of the problem and the great necessity for the speedy development of an acceptable alternate, the City retained a consultant (E.B.S.) to study the transportation problems of Lower Manhattan between Houston and Canal Streets. This study reinforced the rejection of the elevated concept as being detrimental to the future development of the area. In addition, the study presented alternatives for further study including:

1. Tunnels and/or open-cut construction.
2. Local street improvements.
3. A combination of 1 and 2.

Working within the framework of these recommendations, the Department of Highways prepared a plan encompassing the following combination of improvements:

1. A limited access route, two lanes in each direction, from both levels of the Manhattan Bridge running north between Chrystie and Forsyth Streets in open cut then turning west running underground as a tunnel north of Broome Street to west of Mulberry Street,

then continuing in open cut alongside Broome Street with direct access to the Avenue of the Americas, Holland Tunnel and the West Side Highway.

2. The extension of Kenmare Street west of Lafayette Street leading to a new street over the limited access roadway.

3. The conversion of Broome Street to a new street over the proposed limited access roadway with an extension between Elizabeth Street and the Bowery to connect with Delancey Street. Proposals "2" and "3" would make available an east and west route from Delancey Street to the Avenue of the Americas.

4. The construction of a ramp from the Williamsburg Bridge to carry westbound traffic from the bridge north on Pitt Street into Houston Street.

5. The extension of Houston Street through Verrazano Street from the Avenue of the Americas to Seventh Avenue.

6. The construction of tunnels from the Brooklyn

Although a greater quantity of traffic would be accommodated on the improved surface streets, congested, "stop and go" conditions, would exist as a daily occurrence in 1975 as well as in 1985. Congestion on the east-west street system would also adversely affect north-south movements due to "spill-overs" at signalized intersections.

Detailed figures developed by the Department of Traffic in its evaluation of this plan are shown in Figures 2, 3, and 4.

The Department of Traffic placed particular emphasis on the following points of this plan:

1. "Through" traffic using the Williamsburg Bridge would be forced to use the surface street system as no direct, controlled access, connection is provided.
2. By 1975 the total system would have a deficiency of some 5%, i.e., about 1/20th of the traffic would not fit on the street system. Some 51% of the east-west traffic would be forced to travel on a congested "stop and go" surface street system. Hardly a desirable situation.
3. By 1985 the total system would have a deficiency of some 21%, i.e., about 1/5th

of the traffic would not fit on the street system. Some 42% of the east-west traffic which could fight its way through the corridor would be faced with severe congestion and "stop and go" conditions on the surface street system.

Because of the aforementioned reasons, this plan was rejected by the Department of Traffic as a desirable solution.

While the Department's recommendation regarding this plan was generally in the negative, still a great deal of benefit was derived from the evaluation of this proposal. Information developed during this evaluation was of extreme importance in developing the subsequent proposal which further attempted to overcome the shortcomings of the original Highway Department plan. Specific shortcomings which are dealt with in the second proposal of the Highway Department include:

1.) A direct connection is necessary from the Williamsburg Bridge.

2.) Additional capacity is required on the controlled access facility to relieve, to a greater extent, the overburdened surface street system.

3.) Additional refinements are required to increase the capacity of the surface street system.

Efforts by the Department of Highways analyzing the costs of a shield-driven tunnel in conjunction with this plan resulted in abandoning this concept due to excess costs in comparison to the benefits derived.

Plan III) Cut and Cover Depressed Expressway with Surface Street Improvements

The most recent plan of the Department of Highways has the following basic characteristics:

1. Direct six-lane (three in each direction) connections are provided from and to the Williamsburg and Manhattan Bridges.
2. A central, controlled access, section of ten lanes (five in each direction) is provided. This section is basically a depressed roadway using the cut and cover method of construction.
3. Extension and widening of Broome and Kenmare Streets thereby creating additional surface street capacity. Portions of these streets will be cantilevered over the depressed expressway minimizing property acquisition.
4. Elevation of the Avenue of the Americas and Varick Street to improve connections to the Holland Tunnel.

While all of the specific design details have not as yet been developed for this plan, sufficient information does exist with which to evaluate the proposal

regarding general traffic-carrying ability and overall desirability.

This evaluation has been completed by the Department of Traffic and has led to the following conclusions:

1. All traffic would be accommodated by the expressway and improved surface street system both in 1975 and in 1985, i.e., no deficiency will exist.
2. The surface street system will benefit in terms of improved traffic flow, i.e., there will be less congestion on the surface street system in 1975 and 1985 than we have today.

While these two points satisfy the basic criteria required for Department of Traffic endorsement of the proposal, it should also be noted that:

1. Less land acquisition is required by this plan than any other which satisfies the traffic demands.
2. The proposed design is simpler (more direct) than any other plan which satisfies the traffic demands.
3. Fewer displacements and relocations are required in comparison to any other plan

which satisfies the traffic demands.

Although it has been pointed out that all details are not as yet available, it should be noted that no insurmountable obstacles are anticipated. A coordinated effort between the Department of Highways and the Department of Traffic is in progress and both agencies are confident that all details can be designed in such a manner as to assure the development of an acceptable plan. The overall operational aspects of this plan will provide for the safe and expeditious movement of traffic through this corridor both by 1975 and even by 1985.

This plan, as nearly as we can ascertain, is equally as good trafficwise as the original elevated highway plan, but without having the blighting effect the elevated structure would create.