

4 LANES WEIGHED FOR TUNNEL ROAD

Downtown Street Patterns May Change—Questions Raised on Engineering

By **PETER KIHSS**

The city was reported yesterday to be thinking of a four-lane tunnel for the Lower Manhattan Expressway along with changes in downtown street patterns.

Together the tunnel and street changes would be designed to handle all the traffic a previously proposed 10-lane elevated roadway would have accommodated.

The still-unpublicized plans have brought engineering questions about the tunnel's effectiveness—and about whether more land-taking and disruption of the downtown area might be needed for tunnel ramps and the street changes. The original overhead project would have displaced 2,000 families and 800 businesses.

An alternative to the tunnel proposal was understood to have been turned down by Mayor Lindsay's administration during the Federal-state-city confer-

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once last month that decided on studying the feasibility of a tunnel.

The alternative was proposed by the Federal Bureau of Public Roads, which administers the 90 per cent Federal aid grants for interstate highways. It would have taken as much as 1,000 feet of property on either side of the roadway for what the bureau call "joint development of urban freeways, replacement housing and other community facilities."

Tunnel Called Feasible

Arthur E. Palmer Jr., the city's Transportation Administrator, indicated some of the thinking during a WABC Radio Press Conference broadcast yesterday when he said:

"We are assured by competent engineers that it is feasible to construct a usable tunnel under that portion of Manhattan. And the question now is whether, in the light of the over-all cost, in the light of the nature of the entrances and exits, is it a wise solution?"

"There are many who think that it is, and it certainly is worth looking at very carefully, because such a solution would avoid the mass destruction of the area that would result if 10 lanes of concrete were put across Lower Manhattan."

"Other elements of the solution would be a revision of the street system in that part of the city which is particularly congenial to such revision," he continued, "but over-all, it is hoped that this would be a unified program which would be congenial to the over-all Federal plans."

Under an agreement between Mayor Lindsay and Governor Rockefeller, the engineering concern of Madigan-Hyland, Inc., is to make a cost analysis of the tunnel project on a still-undecided route in the Canal Street area. This financial study is to be part of the general plan, which the city's Traffic and Highways Departments are seeking to develop.

Two Projects Finished

Actually, two projects in anticipation of the elevated expressway have already been completed. One underpinned the Chrystie Street subway, and built a stretch of depressed roadway there. A Bureau of Public Roads spokesman in Washington said this cost \$913,986 to construct, including \$758,000 in Federal aid; the other was a \$712,700 Manhattan Bridge approach, with \$593,000 in Federal aid.

The balance of the costs has been borne by the state. Whether the two projects can be used in conjunction with a tunnel is among the questions.

Another issue is how much Federal aid the city can count on. In a report last July on still another alternative—a depressed roadway suggested by the Regional Plan Association—Madigan-Hyland wrote that Federal policy was against paying "additional costs resulting from local options where a more economical solution is available."

That project had envisioned a depressed roadway generally along Broome Street, 44 to 60 feet below street level, as against 60 feet for the tunnel. Even this would require a 5.2 per cent grade to approach the Holland Tunnel, "steep enough to cause a serious slowdown of trucks," the report said. West Side Highway connections were estimated at a 6 per cent grade.

Engineering Problems

One city official said a satisfactory climbing grade for trucks would be 3 per cent. To achieve this, a more winding loop would have to be built, which in turn might require more taking of property. Another official said that anything higher than a 4 per cent grade might not qualify for Federal funds.

Engineering problems arise in boring a tunnel tube as close to the surface as 60 feet. A tube is driven with its front end under air pressure to keep material from caving in. Air pressure at a shallower depth might force the street surface to open up.

If tube construction were unfeasible, the project might have to be built by digging from the surface and then filling. In any event, nearby buildings may have to be underpinned, along with the five subway tunnels in the area.

The 10-lane depressed roadway had been depicted as encountering problems with ground water, 12 to 42 feet below the street.

Some quarters have informally talked of a \$250-million cost for the tunnel project. A third Queens-Midtown Tunnel two-lane tube under the East River, costing about \$90-million, has been discussed.

Madigan-Hyland estimated the depressed roadway's construction cost last July at \$136-million. In addition, it said it would affect 12 more buildings, assessed for \$1,175,000, than the overhead project.

The overhead project had been estimated in November, 1965, as involving \$76.8-million for construction and \$39.5-million in land cost.

Another question is whether a tunnel could be designed and built before the deadline for completing the \$46.8-billion interstate highway system, 90 per cent of which is paid for with Federal aid, with state paying for the rest.

The present deadline for completion is Sept. 30, 1972. A Federal roads spokesman said \$27.3-billion had been committed as of last Sept. 30. Alan S. Boyd, the new Secretary of Transportation, has suggested an extension to 1974. The depressed-roadway project had been estimated to need a 1975 date.