

Chicago Studies Novel Highway Plan

By HAL FOUST

CHICAGO'S elevated highway plans have been inverted into a suggestion for a system of vehicular subways. Instead of carrying express traffic safely overhead, this new idea would carry express traffic safely underfoot. Instead of building trestles on existing streets, roadways would be built below the present pavement levels.

The suggestion is being studied by the city council committee on traffic and public safety. This same aldermanic group has the elevated highway proposals on its conference table.

Unique in the subway suggestion is the employment of an open steel grid for pavements. By using this type of pavement on the normal ground level, air and light are admitted to the lower level. The lower level becomes a concrete trench rather than a tunnel.

In the designs prepared by Lewis Russell, engineer for the council committee, the sublevel pavement is also of open steel

the depressed type. In other words, about three times as much elevated highway could be built with the same amount of money.

The scheme to use an open steel mesh for paving a double-decked street is novel. There are, however, a few installations of such design for bridge decks.

In East Chicago, Ind., a reconstructed bridge in Indianapolis boulevard over the water-

Express Auto Traffic Would Be Carried in Depressed Steel Grid Roadways

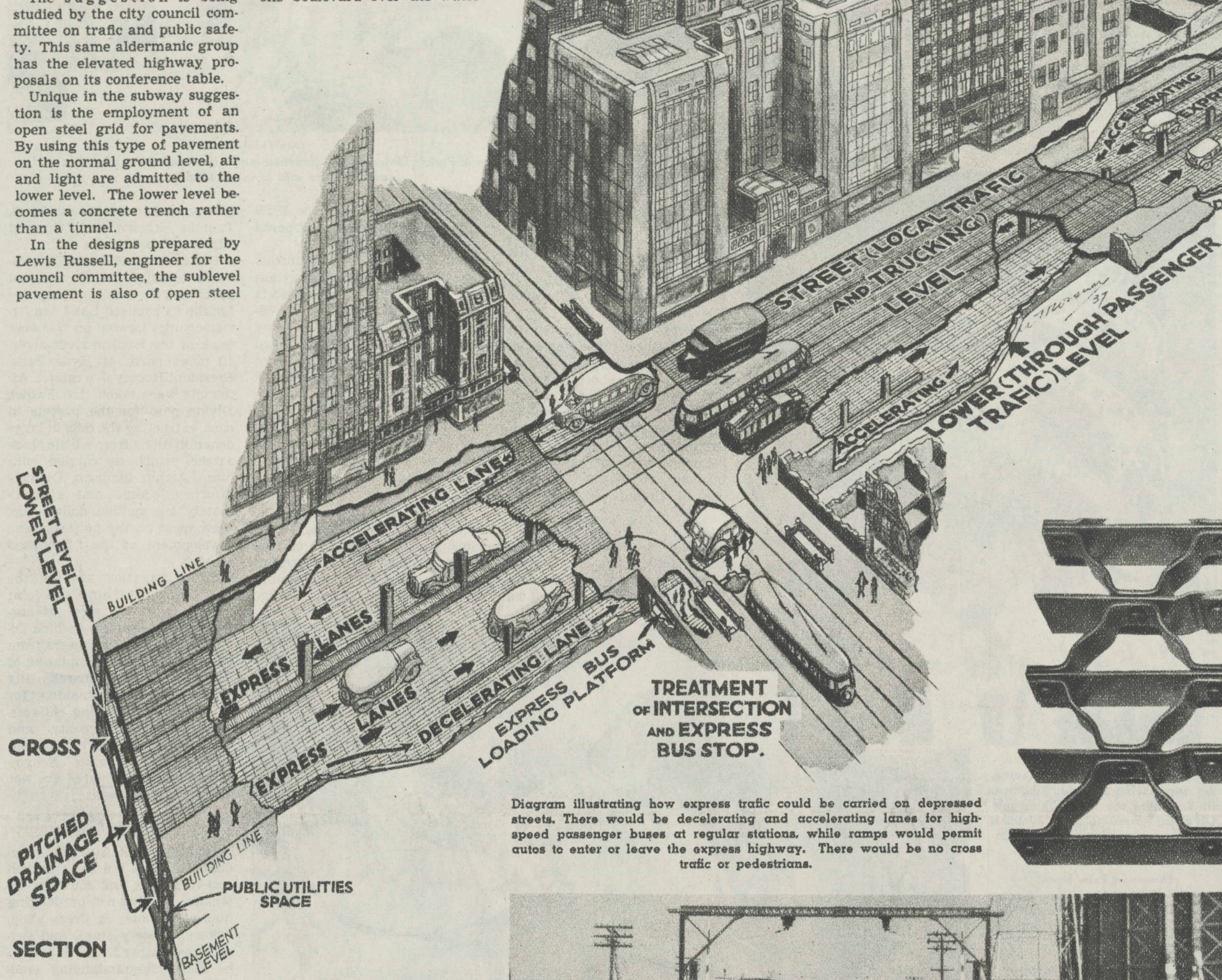


Diagram illustrating how express traffic could be carried on depressed streets. There would be decelerating and accelerating lanes for high-speed passenger buses at regular stations, while ramps would permit autos to enter or leave the express highway. There would be no cross traffic or pedestrians.

TREATMENT OF RAMPS TO AND FROM LOWER LEVEL EXPRESS LANES.

TREATMENT OF INTERSECTION AND EXPRESS BUS STOP.

grid, which drains and removes snow automatically. Rain and snow would pass through both upper and lower pavement meshes onto a slanting concrete floor one to three feet below the lower pavement, and this floor could be flushed.

"All of the safety and convenience factors of the elevated highway can be built underground," said Ald. John A. Massen (Forty-eighth), chairman of the council committee. "In both designs there is a freedom from the types of accidents that cause 98 per cent of Chicago's automobile toll."

"In both the elevated and subway designs for express motor routes there is no cross traffic; there are no pedestrians on the roadway; there is no parking; there are no red lights; and head-on collisions are physically impossible."

"For both the elevated and the depressed types plans have been provided for fast, light-weight buses for rapid transit common carrier service."

"The advantage of the subway design is that it eliminates the complaint, mainly imaginary, I believe, that elevated highways will detract from the value of abutting property. The main disadvantage of the depressed highway plan is in the costs."

Mr. Russell estimates that the two-level streets with the second level underground could be built for \$1,430,000 a mile on thoroughfares without car tracks and for \$1,900,000 on thoroughfares with car tracks. The street cars for local service would remain on the ground level, while the express service would be by bus underground.

The engineer estimates that double-decked streets with the express automobile roadway and bus service overhead could be built for \$575,000 a mile. This is about a third of the cost of

way canal has a grid deck. It was opened to traffic last December and through the winter demonstrated its value in automatic snow removal.

The bridge tender, Frank Potesak, was interviewed during a March snow flurry. Concrete roadways on the approaches were covered with snow. The steel deck of the span was clean.

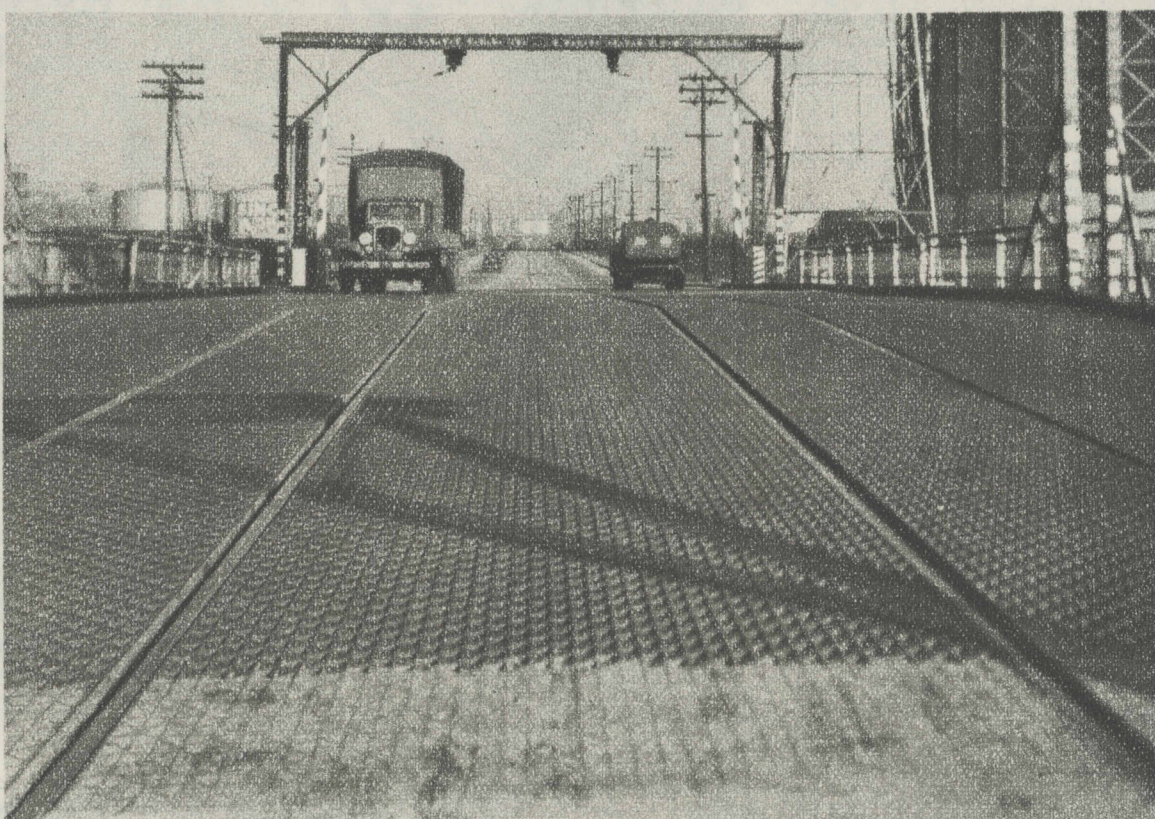
"There was the same contrast during the cold spells this winter," said Mr. Potesak. "There would be ice on the streets, but the steel mesh would be clean. The mesh won't hold ice or snow. Tires force snow, ice, or sleet through the open spaces as quickly as rain passes through the deck."

The mesh on this bridge, reconstructed by the Lake county, Indiana, highway department, is of a patented type. Longitudinal bars of steel 2.5 by 1/4 inches are set 2 1/2 inches apart, with a criss-cross member 1 1/2 inches deep and 1/4 inch thick that forms part of the riding surface as well as a transversal brace.

The manufacturers of this patented pavement have photographs to support their contention that the surface resists skids. The pictures show the rubber tread slightly distorted to conform to the irregular pavement, snugly gripping the surface.

In skid tests with The Tribune roadster, however, the bridge deck was not so good. Needless to say, it wasn't as slippery as the Michigan avenue bridge on a rainy day. The traction was not as good as on a gritty bituminous pavement or a brushed concrete slab. In locking the brakes at twenty miles an hour the car slid four feet in coming to a stop.

This is just one design of steel



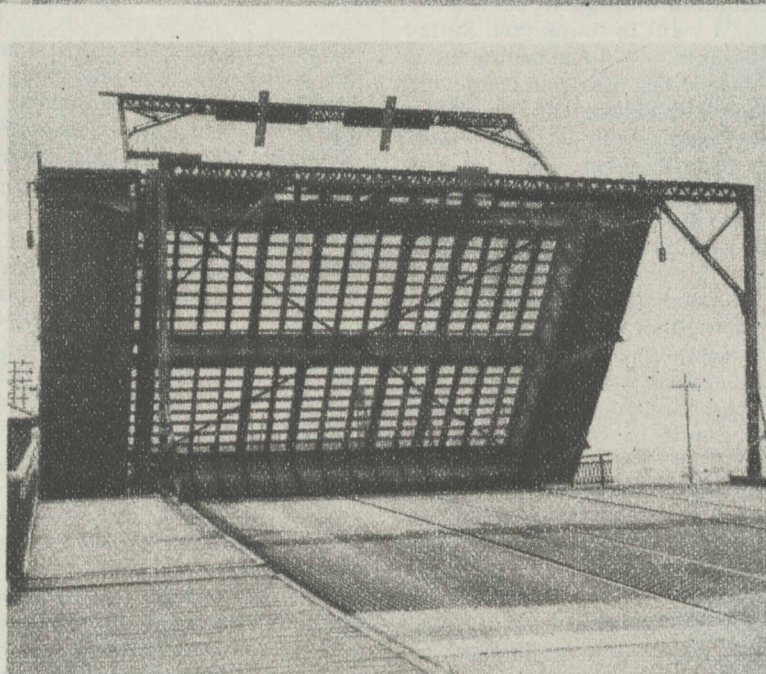
(Tribune photos.)

Two views of a steel grid type road surface now in use on a bridge in Indianapolis boulevard. The picture above shows the bridge surface, while the one to the right shows a bridge leaf raised to demonstrate how the surface permits the passage of light.

pavement, and the material is subject to treatment in a wide variety of patterns, some of which doubtless would resist skids. Dr. Miller McClintock, head of the Harvard university bureau of traffic research, in his 1932 report to the council recommending elevated highway construction wrote as follows:

"Open grid deck may be designed so as to be practically nonskid in operation even with smooth tread tires. A large portion of the deck is in open space, and into these interstices the tire surfaces tend to form themselves under the pressure of the vehicle weight, making in natural operation a continuous nonskid impression on the tire."

"Steel grid deck can be de-



signed with a dead weight approximately 16 per cent of that imposed by solid slab pavement for maximum vehicle loadings. Grid deck permits a lightness of design which makes the struc-

ture less obstructive and less costly.

"The light and air advantages of grid surface are self-apparent. With a large portion of the pavement open, a large

One of the types of steel grid construction suggested for both surface level and depressed streets. Snow and sleet would sift through both surfaces to a drain below the lower level. The open grid would also bring light and air to the express highway.

(Tribune photo.)

amount of natural air and light will be passed."

Engineer Russell estimated that a grid pavement at ground level over the depressed streets he has designed would admit 80 per cent of the daylight. He said that automobiles traveling through these trenches would create a draft bringing the passengers more fresh air than they now receive in congested traffic on a still day in Michigan avenue north of Randolph street or in Jackson boulevard at La Salle street.

Perhaps a more decided novelty than the steel mesh pavement is the express bus service included in Mr. Russell's depressed thoroughfare plans and in Mayor Kelly's elevated highway plan.

"The bus system," said Ald. Massen, "would not be an auxiliary to the local service that is now furnished by street cars and buses on surface streets. The operation can be compared better with the rapid transit as advertised by our elevated railways."

"The stations in outlying districts should be no more numerous than those of the 'L' lines, and less numerous in neighborhoods nearer the loop. This would enable express service for downtown workers."

"The vehicles should be different from any of the buses now in operation. Recent developments in metallurgy will let them be of light weight, of aluminum or stainless steel, for example. With power plants of conventional size, this light weight would give rapid acceleration and deceleration, quick stopping and starting."

"It is only with such vehicles that bus traffic can move with automobile traffic without causing a conflict. Even with buses able to perform like passenger cars, special roadways must be constructed for them to accelerate and to decelerate while

approaching and leaving stations. Of course, they couldn't stop in a moving traffic lane, as they now do on the boulevards."

By placing bus service on either elevated or depressed motorways as part of a unified traction plan a new source of possible construction funds becomes available, the city's \$67,353,657 traction fund, consisting of a percentage of street car fares that has been accumulating for years. A recent report shows that \$23,625,207 of this fund is in liquid form, while \$43,728,450 is nonliquid.

Other sources of revenue include the state automobile license and gasoline tax collections. Motorists this year will pay approximately \$20,000,000 for state license plates and \$33,000,000 in Illinois gasoline tax. The 3-cent tax is divided equally three ways—1 cent to the state highway department, 1 cent to counties, and 1 cent to cities.

The state highway department, with its 1 cent, spends a few million dollars in Chicago each year on street improvements of a somewhat local nature. Chicago, getting \$5,000,000 a year gas money, is now allotting half of it to the board of education. The bulk of Cook county's 1 cent goes for interest and retirement of relief bonds.

In addition to its gasoline money Chicago collects about \$5,000,000 a year from its wheel tax, another possible source for construction of modern automobile traffic facilities.

Federal financial aid also seems appropriate. New York has been receiving millions of government money to build bridges and subways. Even San Francisco in its grants for bridges has received enough money from Washington, D. C., to have built a comprehensive elevated highway system in Chicago.