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# ARTERIAL PLAN

FOR

# HARTFORD

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ARTERIAL PLAN  
FOR  
HARTFORD

ROBERT MOSES, Advisor

ANDREWS & CLARK  
Consulting Engineers

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1949

WEST HARTFORD



MAP OF ARTERIAL IMPROVEMENTS IN HARTFORD

- ARTERIAL IMPROVEMENTS PROPOSED IN THIS REPORT
- CONNECTING ARTERIAL IMPROVEMENTS
- SURFACE STREETS
- RAILROAD TRACKS
- DIKES AND FLOOD WALLS
- PARKS AND GROUNDS
- C = CEMETERY S = SCHOOL

ONE HALF MILE

ANDREWS B. CLARK  
CONSULTING ENGINEERS

NEW YORK  
MAY 1949

ROBERT MOSES  
NEW YORK

AETNA LIFE INSURANCE COMPANY  
THE ARROW-HART & HEGEMAN ELECTRIC COMPANY  
CONNECTICUT GENERAL LIFE INSURANCE COMPANY  
THE PHOENIX INSURANCE COMPANY  
PHOENIX MUTUAL LIFE INSURANCE COMPANY

May 16, 1949

Gentlemen:

Your Committee employed Andrews & Clark to make a general report on the arterial program proposed for the City of Hartford including but not limited to comments on specific projects recently proposed for this area. This report was to be based on sufficient engineering investigation to support recommendations for a practical solution of traffic and related incidental problems. You asked me to prepare a covering letter to be printed as part of the report setting forth my diagnosis based on the information collected and analyzed by Andrews & Clark. Pursuant to this request, I have followed the preparation of the report of the consulting engineers, and have discussed and reviewed their findings with them. I concur in their conclusions and offer this summary in my own language.

As to the recommendation of the Flood Commission to extend the existing Whitehead Highway south of the Capitol and Bushnell Park, we believe this is without substantial merit. Regarding the State Highway Department plan to facilitate movement to the new East-West Expressway from the central area by drastic widening and grade-separation structures along Jewell Street, we feel that the mere distribution of traffic does not justify these expensive and relatively ineffective changes.

As to the City of Hartford Department of Engineering proposal to continue the Whitehead Highway under Pulaski Circle in a cut and tunnel through Bushnell Park to a connection with the projected East-West Expressway, in our opinion, for what value the public officials concerned and the people of Hartford may attach to it, the continuation of this

spur — and we believe it should be essentially nothing but a spur — would be an irreparable mistake, of such magnitude that it would become more and more obvious as increasing traffic is drawn into the Capitol grounds.

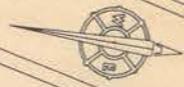
No persuasive arguments have reached us for cutting through Bushnell Park. Only three reasons, or rather excuses — none of them valid — are conceivable. First, there is the assumption of some right-of-way engineers that parks exist primarily to afford cheap, convenient and easy locations for heavy traffic. We may dismiss this argument with the assertion that it proves only that the curricula of our engineering schools need broadening. The extent to which this school of thought will go in using relatively small and narrow park areas for heavy vehicular mixed traffic, as distinguished from genuine restricted parkways, is illustrated by a recent proposal of local engineers not only to cut through Bushnell Park with the East-West Expressway, but to continue through Pope Park where even traffic needs are not served.

Second, we have the motives to save land acquisition costs, to avoid slum clearance and other difficulties and to follow what seems superficially the line of least resistance by postponing indefinitely the inevitable west crosstown route from the main North-South expressway along the Connecticut River.

The third possible argument for the Bushnell Park route is, if possible, even less impressive than the other two. This is the theoretical planning rule that all arteries should be rims or spokes of a wheel feeding the hub of some all-important midtown area — a piece of academic slide-rule reasoning which has



ONE QUARTER OF A MILE



Park River

STATE ARMORY

HIGH SCHOOL

STATE CAPITOL

BUSWELL PARK

PULASKI CIRCLE

TUNSEL PARK

Connecticut River

FROM PLAN BY CONNECTICUT STATE HIGHWAY DEPARTMENT

NEW YORK MAY 1949

UNDER CONSTRUCTION

RIVERSIDE PARK

little support under actual conditions, and none where a small landscaped hilltop enshrines the traditions and government of a conservative New England state.

There are, to be sure, public places where deep, new traffic inroads are inescapable but there have been enough major disturbances of hill and stream in Bushnell Park — no doubt justified by recurring river floods — and further uprooting of topography there should not be encouraged. Our advice, therefore, is to leave Bushnell Park alone, excepting an increase in the size of the Pulaski Circle and a slight widening of Jewell Street.

Doctors, we are told, bury their mistakes, planners by the same token embalm theirs, and engineers inflict them on their children's children. Of these three types of error, the engineering variety is in the long run the most costly to the community.

As to the location of the North-South Expressway from the Conland Highway north along the Connecticut River and the East-West Expressway, we believe that a new location through the slum area north of the business section would be preferable to the Morgan Street route proposed by the State and City, that the Bulkeley Bridge intersection should be redesigned, that changes should be made in the grading under way at North Meadows, that there should be formal service roads on both sides of the East-West Expressway to protect it, to separate local from through travel and to encourage restrictive zoning and favorable developments along its borders. Finally we feel that the federal slum-clearance and public housing provisions of the federal housing law should be invoked and taken advantage of to reduce right-of-way costs, wipe out two bad substandard areas between Main Street and the Connecticut River, facilitate the orderly moving of tenants to adjacent decent quarters, prevent further obstructions, and fix up the East-West Expressway right-of-way in this presently rundown area so that all those

directly or indirectly concerned with the coming improvements may in their own planning be guided accordingly.

We know that the substandard tenement land west of the tracks is zoned for future business and industry, but such zoning is little more than a gesture which establishes a non-conforming use. It is impossible to assemble so large an area otherwise than by condemnation, and this is the opportunity to accomplish at once slum clearance, re-housing and business and industrial development by a combination of Federal, State, City and private initiative.

We suggest one public parking garage to be acquired as part of the Expressway or separately and sold or leased with proper restrictions under new legislation.

Finally, we must accept the condition that the cost of these proposed Hartford arterial improvements is so great and the demand upon highway funds so heavy that this expense must, at best, and under whatever method of financing its share the State may adopt, be spread over a long period. This, however, constitutes no excuse for failure to fix location and limits now, to begin land acquisition and site clearance, especially in strategic areas, and to complete detailed plans.

State and municipal officials have extended every aid and courtesy in the preparation of this report. Where we have disagreed with previous plans it has been with complete respect for their authors, and if it should seem that such differences have been magnified and sharpened, our sole object has been to distinguish principles from details. The group which called us into this picture has in no way sought to influence our conclusions. None of us lays claim either to long and intimate acquaintance with local conditions and sentiment or to omniscience in the urban arterial work. We bring to this analysis only honest minds and a somewhat intimate experience with similar problems elsewhere.

ROBERT MOSES



THE STATE PLAN FOR THE EAST-WEST EXPRESSWAY AVOIDS BUSHNELL PARK BUT INCLUDES THE JEWELL STREET CONNECTOR WHICH WOULD BE BUILT ON PARK LAND BELOW THE CAPITOL.



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THE PHOENIX INSURANCE COMPANY  
PHOENIX MUTUAL LIFE INSURANCE COMPANY

May 16, 1949

Gentlemen:

There have been three studies of arterial routes recently proposed by public agencies for the City of Hartford. The first was prepared by the Connecticut State Highway Department in 1945, the second by the Hartford Flood Commission in 1946 and the third by the Department of Engineering of the City of Hartford in 1947. A recent study by the West Hartford and Hartford Engineering Departments proposed some modifications to the 1947 plan of the Department of Engineering of the City of Hartford. These plans, which for convenience we describe as the State, Flood Commission and City Plans, have been redrafted to common scale and standards, as nearly as they could be, and are shown on the maps in this report. Where there have been conflicts in the designation of streets and areas, the names shown on the latest Department of Engineering map of the City of Hartford have been used.

#### THE STATE PLAN

The State Plan proposes an East-West Expressway which follows Morgan Street from Bulkeley Bridge to Main Street. The expressway line then goes through the middle of the business blocks between Chapel and Church Streets, crosses the railroad north of the depot and then skirts the New

Haven Branch of the railroad until it curves away at the valley of the North Branch of the Park River. From there it continues almost due west of the City line into West Hartford.

A spur, called the Jewell Street Connector, curves south from the expressway through Bushnell Park terminating near Trumbull Street. A grade-separation bridge is shown near Trinity Street. The State Highway Department obviously considered this a local connector which would serve as a traffic distributor for expressway users from the west in the same manner as the Whitehead Highway now distributes traffic from the east. The fact that the two do not quite join indicates that the State Highway Department did not plan that they were to form a through expressway.

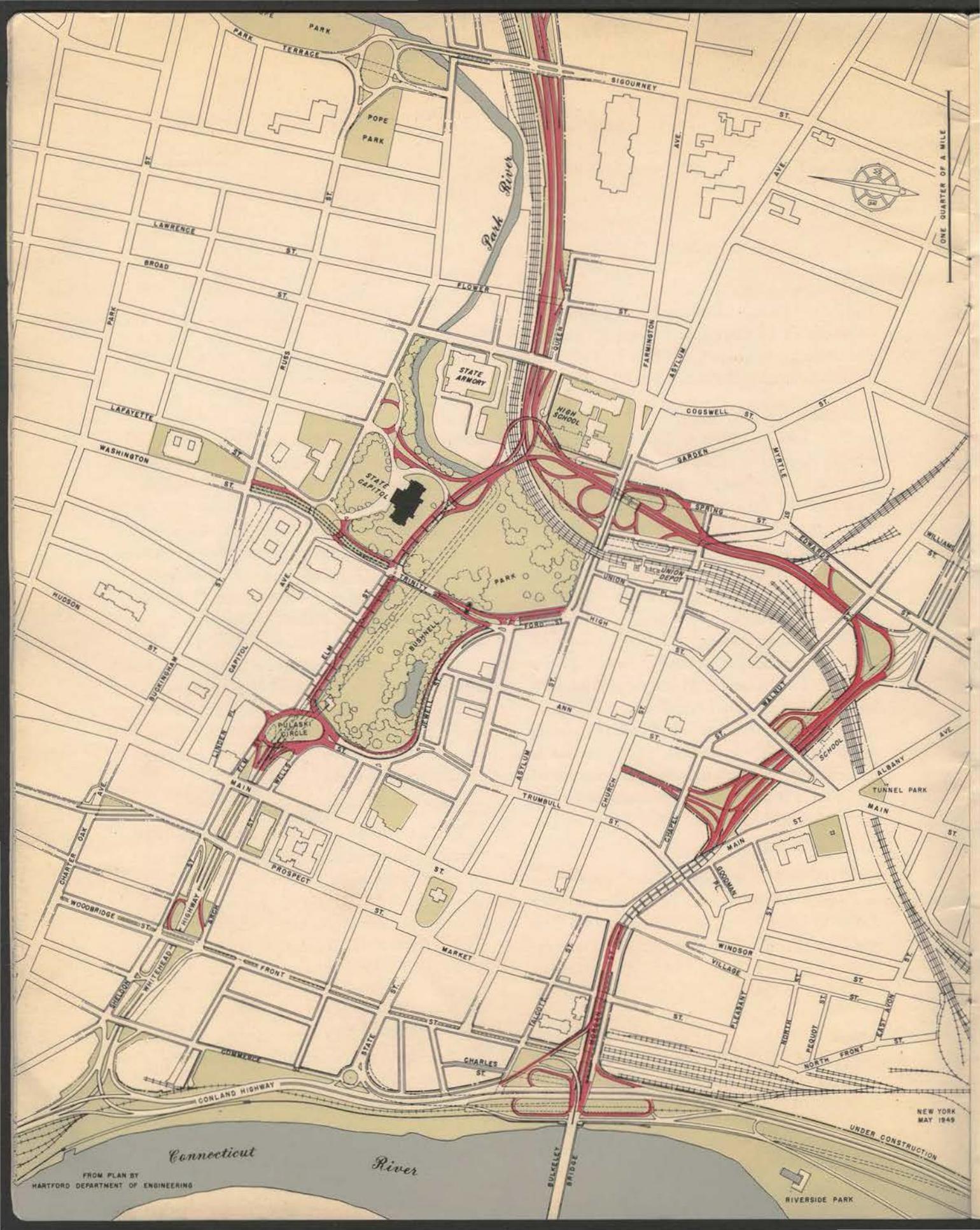
#### THE FLOOD COMMISSION PLAN

The Hartford Flood Commission plan of 1946 proposes a west extension of Whitehead Highway around the south of the Capitol and Bushnell Park. Leaving Whitehead Highway in the vicinity of Main Street, this route passes diagonally under Capitol Avenue and Buckingham Street to a connection with Russ Street, at which point there is provided a complicated underground access at Lafayette Street opposite the corner of Bushnell Park. The route then follows Russ Street, crossing the River and the railroad to connect with the State route in the vicinity of Laurel Street.

This plan also calls for widening Woodbridge



THE FLOOD COMMISSION PLAN FOR THE EAST-WEST EXPRESSWAY GOES SOUTH OF BUSHNELL PARK BUT INCLUDES A FEEDER FROM THE BUSINESS DISTRICT ACROSS THE PARK AND AROUND ITS NORTH EDGE.



ONE QUARTER OF A MILE



NEW YORK  
MAY 1949

UNDER CONSTRUCTION

Connecticut River

FROM PLAN BY  
HARTFORD DEPARTMENT OF ENGINEERING

RIVERSIDE PARK

BILSELEY BRIDGE

CHARLES ST

MARKET ST

PROSPECT ST

MAIN ST

ELM ST

STATE CAPITOL

STATE ARMORY

HIGH SCHOOL

PARK TERRACE

PARK

PARK

TUNNEL PARK

ALBANY AVE

WALKUT ST

EDWARDS ST

MYRTLE ST

COGSWELL ST

AVE

SIGOURNEY

FARMINGTON

CLARET ST

FLOWER ST

BROAD ST

LAWRENCE ST

WINDSOR VILLAGE

FLARARY ST

WINDSOR ST

and Front Streets and a grade separation at Trinity and Jewell Streets, the latter requiring substantial construction in Bushnell Park.

#### THE CITY PLAN

The City Plan, the most ambitious of all, aims at an expressway circuit around the central district with radials to the suburbs.

The Conland Highway and its proposed extension across North Meadows form the east side of the loop. The north and west sides are created by the East-West Expressway located along a line close to that proposed in the State Plan. The south side consists of an expressway extension of the existing Whitehead Highway, occupying an open cut and tunnel across Bushnell Park in front of the State Capitol. Radials to the suburbs are the Conland Highway, its extension across North Meadows, an expressway to West Hartford along the same general line as the State route and a future route to the northwest following the central New England branch of the New York, New Haven and Hartford Railroad. The City plan also includes the widening of Woodbridge and Front Streets and a grade separation at Trinity and Jewell Streets.

#### JOINT STUDY OF HARTFORD AND WEST HARTFORD ENGINEERING DEPARTMENTS

A recent joint study made by the Engineering Departments of Hartford and West Hartford proposes that the City route from Pulaski Circle through Bushnell Park be altered to follow the Park River along its south branch. It would proceed from the Armory through Pope Park, crossing the railroad near Flatbush Avenue, then continue west to Corbin Corner. This plan avoids the Hartford residential areas and the more densely built-up sections of West Hartford.



THE CITY PLAN INCLUDES TWO EAST-WEST EXPRESSWAYS. ONE GOES THROUGH BUSHNELL PARK ALONG THE LINE OF ELM STREET IN A TUNNEL WITH SEVERAL RAMPS TO THE SURFACE. SPURS ARE ALSO SHOWN THROUGH THE EDGES OF THE PARK.

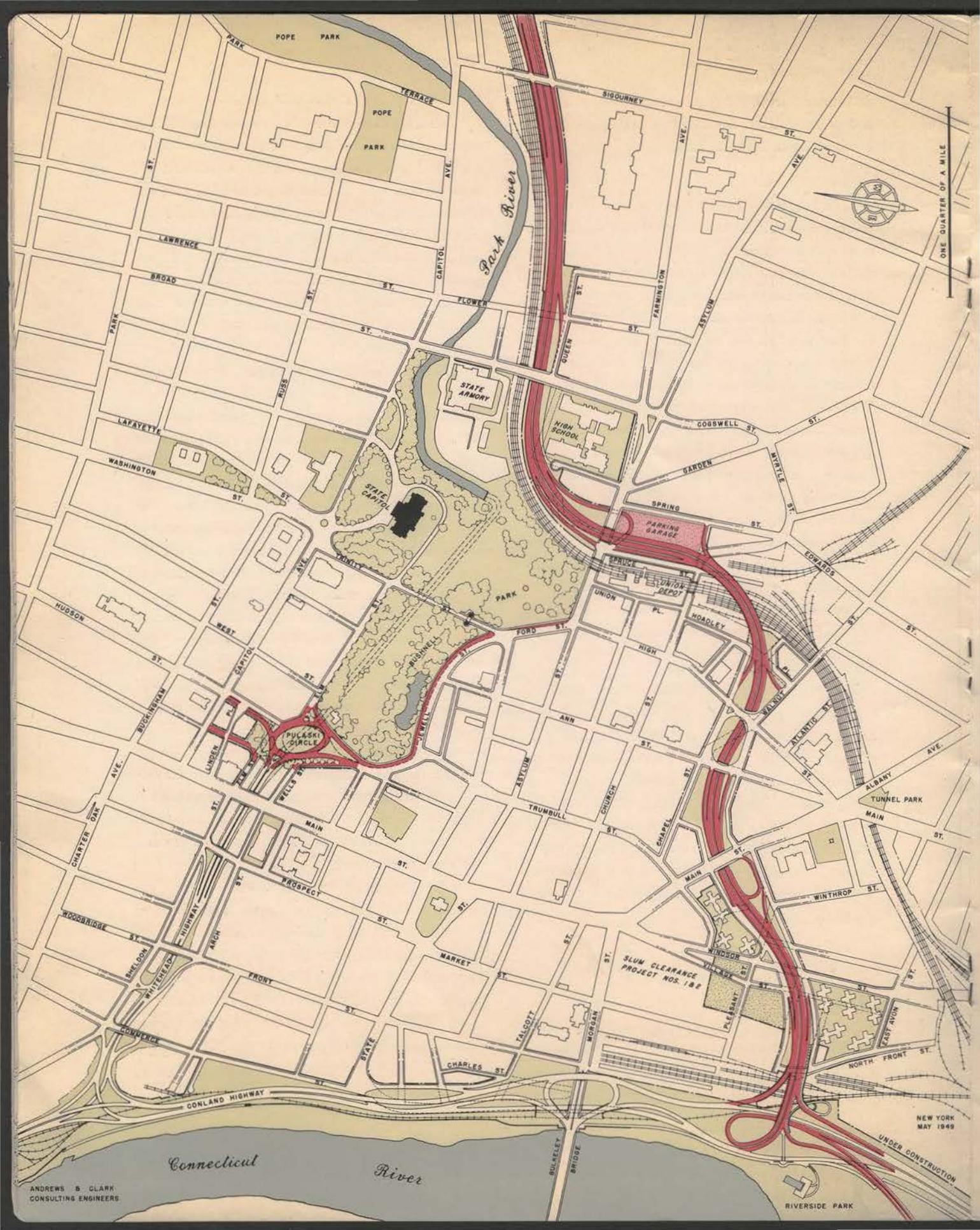
#### REVIEW OF THE PROPOSED PLANS

Unusually complete traffic data was available for our studies in Hartford. It was obvious to us as to the others who had analyzed the statistics that the main problem was the everyday traffic between the business center and the surrounding residential areas. The Conland and Whitehead Highways, planned and built in connection with the Flood Control program, have made a substantial contribution to the solution of Hartford's problem. Few cities of comparable size have made as much progress in their arterial programs.

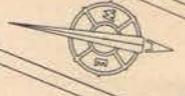
The route through the north part of the business area with a connection to the Bulkeley Bridge, selected in both the State and City plans, is in accordance with the traffic demands. We recommend the building of a single East-West Expressway, to be strongly connected with the established north-south routes, the bridges and the expressway across the river. We do not believe that any other addition to the arterial program is either necessary or feasible at this time. A parallel route around the south side of the central area is not required. The City of Hartford cannot afford two main express east-west routes. This conclusion is reached without considering the damage which would be done in pushing through the Capitol grounds and Bushnell Park.

The City and State proposals for the expressway through the north part of the business area follow the same general route between the Bulkeley Bridge and the railroad depot, although they vary considerably in arrangement of details and basic standards. The City route also is complicated by the grade separation planned for the future northwest expressway along the railroad.

We concur in the location selected by the City and State west of the railroad depot. Basically, it is designed to serve both the large residential area of West Hartford and through traffic from the west. The route along the South Branch of the Park River, proposed in the Hartford-West Hartford engineers' study, fails to serve adequately suburban traffic. Essentially, all it amounts to is a bypass which would provide relief for through traffic only. The industrial neighborhood west of the State Armory, pierced by



ONE QUARTER OF A MILE



Park River

Connecticut River

ANDREWS & CLARK  
CONSULTING ENGINEERS

NEW YORK  
MAY 1949

UNDER CONSTRUCTION

SLUM CLEARANCE  
PROJECT NOS. 188

STATE  
ARMORY

STATE  
CAPITOL

HIGH  
SCHOOL

PARKING  
GARAGE

PULASKI  
CIRCLE

UNION  
DEPOT

TUNNEL  
PARK

RIVERSIDE PARK

the bypass route, poses some extremely difficult construction and right-of-way problems.

The Flood Commission plan has nothing in common with the other two as far as the State Capitol area is concerned. This proposed expressway is placed on the wrong side of the business area and too far away from it. Right-of-way taking and construction to modern standards would be very expensive.

There are no essential differences in the State and City plans for the section of the West Hartford Expressway between the railroad depot and West Hartford. The Flood Commission route joins this section in the vicinity of Laurel Street.

#### PROPOSED ADJUSTMENTS AND MODIFICATIONS

We have shown our own recommendations on a map of comparable scale to those of the other surveys. The enlarged development plan at the end of this report shows more details and covers the route all the way through Hartford. The junction with the North-South Riverside Expressway would take place a quarter of a mile north of the Bulkeley Bridge. This location was chosen for several reasons. The expressway should not be an extension of the Bulkeley Bridge along Morgan Street, as this street now serves as an important local feeder into the business district; it should not be occupied by a viaduct or other structures, particularly at the intersection of Morgan and Main Streets.

A very much improved traffic interchange at the Bulkeley Bridge could be accomplished by moving the junction to the site of the existing steel pedestrian overpass over the Valley Branch of the railroad, as shown on our plans. The expressway then would pass through considerable rundown slum property between the Connecticut River and Main Street, thus avoiding large-scale taking of business frontage.

Between Main Street and the railroad depot the proposed line would pass through a business area



THE PLAN PROPOSED IN THIS REPORT FOR THE EAST-WEST EXPRESSWAY INCLUDES NO SPURS OR BRIDGES IN BUSHNELL PARK. PULASKI CIRCLE WOULD BE IMPROVED AND THE NORTH BOUNDARY PARK STREETS WOULD BE WIDENED TO 60 FEET.

consisting mainly of one-story garages, parking lots and gas stations. Extensive acquisition of substantial buildings would not be necessary.

West of the depot, the expressway would hug closer to the railroad than either the City or State routes. Somewhat less right-of-way would be required.

#### ESTIMATED COSTS

The East-West Expressway, as we recommend, is estimated to cost \$12,530,000 for construction (exclusive of right-of-way costs) at present day prices. Cost by sections is shown in the following tabulation:

	Length	Estimated Costs
1. North Meadows to Asylum Street.....	0.97 miles	\$ 6,690,000
2. Asylum Street to Sisson Avenue.....	1.36 miles	4,330,000
3. Sisson Avenue to Prospect Avenue.....	0.43 miles	1,510,000
Totals .....	2.78 miles	\$12,530,000

Our proposed expressway is almost exactly the same length as the State's route and slightly shorter than the one proposed by the City. Assuming the same standard of urban expressway design for all three, our route north of the business area would cost about the same to construct as the State's and less than that of the City. These comparisons naturally do not include the costly City plan for a tunnel through Bushnell Park or the extensive reconstruction along Jewell Street as proposed by both the City and the State.

The assessed valuation of the right-of-way required for our expressway line is at least \$2,000,000 less than the State route, if the same standards of design, including the provision of service roads, were used for both. On the same basis, the assessed valuation of the land for the City's route is somewhere between that of the State and our proposal.

Assessed valuations of the right-of-way by sections are shown in the following tabulation:

1. North Meadows to Asylum Street.....	\$2,675,000
2. Asylum Street to Sisson Avenue.....	1,250,000
3. Sisson Avenue to Prospect Avenue.....	335,000
Total .....	\$4,260,000

No attempt has been made in this report to indicate how much condemnation awards would vary from assessed valuations, but we have been informed

that the general average of values shown in the assessment rolls is about the true present value.

#### OFF-STREET PARKING TERMINALS

West of the railroad and opposite the station, our expressway plan provides an off-street parking garage with a capacity of 900 vehicles. The main roadways and ramps have been arranged to accommodate traffic to and from the garage, thus reducing street congestion in the area. The frontage on Spruce Street, Asylum Street, Church Street, and around the corners to Spring Street would be needed for the expressway and its connections even without the garage. The additional land along Spring Street, assessed for \$85,000, should be acquired as an incidental and paid for with expressway funds. The Federal Bureau of Public Roads should aid in the cost of these terminal parking facilities as part of the expressway.

The garage construction would cost approximately \$2,250,000. If the land be contributed to the garage project and partial or complete tax exemption provided for a reasonable period, with revenue from sale of gas, oil, accessories and realistic parking

charges, the garage should produce income enough to pay for its construction and operating costs.

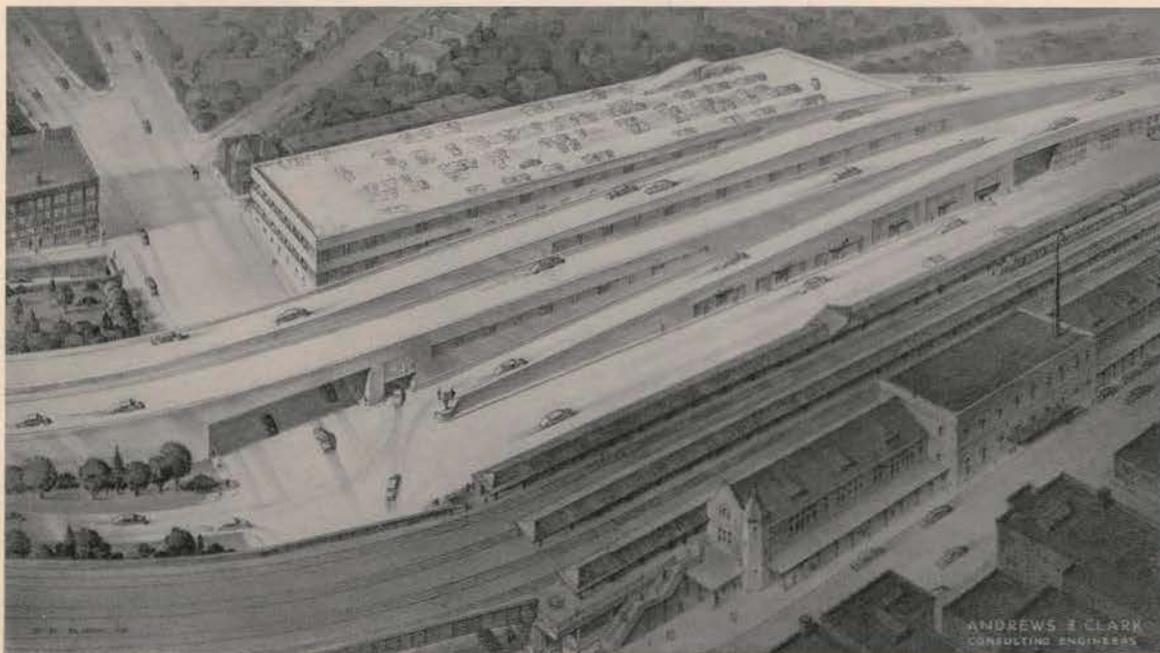
Sale or lease to a private firm for construction and operation, or operation only, should be studied carefully. Any such sale or lease should be made under reasonable restrictions as to rates and operating conditions. Chapter 453 of the New York State Laws of 1949, shows how this can be done in New York.

#### BASIC STANDARDS

Highway officials in Connecticut and Hartford are thoroughly familiar with engineering standards for expressways carrying mixed traffic. It is unnecessary to elaborate on them. Our cost estimates include stone or brick facings for all concrete exposed to weathering on bridges and walls. There would be maximum five per cent grades on the central expressway. Parking shoulders for disabled vehicles, adequate side clearances at structures, landscaped slopes and banks and continuous lighting are features of urban expressway design which may seem expensive but are essential to good municipal planning.

Six lanes of expressway pavement would be pro-

A PARKING GARAGE FOR 900 VEHICLES WOULD CONNECT WITH THE EAST-WEST EXPRESSWAY PROPOSED IN THIS REPORT BY DIRECT RAMPS TO REDUCE STREET CONGESTION.



vided from the riverside expressway west to the junction with the future parkway feeder along the North Branch of the Park River. Four lanes would be constructed west of that point.

Remnants of right-of-way beyond pavements and not needed for highway purposes would be developed for neighborhood use as small parks or landscaped places. The borders of the improvement would be fitted neatly to adjacent streets, structures and other natural terrain features to encourage orderly related improvements.

To maintain and improve the residential character of the west part of this expressway, marginal service roads at surface level are essential and these have been provided in our plan. Service roads also are included throughout the business and industrial areas to the east, both because they are existing natural right-of-way boundaries and are required for traffic circulation.

Access drives and ramps have been simplified as much as possible and extravagant features such as clover-leaf connections, complicated loops, pretzels and multidecked structures have been avoided. All these have their proper places in arterial design, but take up too much room in congested business areas and often complicate rather than simplify the movement of arterial traffic in cities. Adequate entrance and exit connections have been made at proper places.

The interchange at the North-South Riverside Expressway is designed to operate in conjunction with the Bulkeley Bridge interchange and to eliminate unnecessary access roads. All important movements are designed to operate as direct connections. Ramps to the surface streets north of the business district are provided to service this central area.

#### FEEDERS FROM CENTRAL DISTRICT

An adequate interchange is planned between the elevated expressway and Asylum Street. The adjacent railroad bridge over the same street is wide enough to carry the traffic from the expressway into the business district for a long time into the future. We do not believe that the roadway on Asylum Street in front of the Capitol need be widened,

although it will require some ironing out of minor kinks. Nor do we think it necessary to go into the park for grade-crossing eliminations or a parkway spur as recommended in the State and City plans. Jewell and Ford Streets should be widened to 60 feet of pavement with a sidewalk on the park side, and Wells Street should be widened to 70 feet of pavement in the same manner. The traffic circle at the end of the Whitehead Highway should be altered and enlarged. A new service road should be built in the area of the gas station opposite the park. Protective strips of land also should be acquired and landscaped to prevent the construction of additional gas stations and other developments which block traffic.

We considered the possibility of altering Trinity Street through the park but the Memorial Arch was too narrow to permit widening through it and curving the pavement around it would be awkward and unsightly. The pavement through the park is too narrow, but considering all the circumstances we believe it should remain as is. One-way traffic movement through the arch was considered but it is doubtful if this would help in the total circulation of traffic in the area.

The street widening around the north and east sides of the park and the expansion of Pulaski Circle would cost about \$210,000 for construction and require acquisition of land assessed at \$190,000.

#### FUTURE PARKWAY CONNECTION IN RESIDENTIAL AREA

West of the business district an unusual opportunity exists for a feeder between the East-West Expressway and Albany Avenue to serve the large residential neighborhood in this area. It should be built as a parkway, limited to pleasure vehicles, and generous landscaped borders should be provided. It would follow the valley of the North Branch of the Park River through undeveloped land. While its construction could be deferred for some time, the right-of-way should be acquired soon before building development, now encroaching, catches up with it.

#### TENANT RELOCATION

Approximately 650 family units between the

Connecticut River and the West Hartford line will require relocation before construction can proceed. It is essential that a program for relocating these families be formulated and vigorously carried forward, or actual construction will be delayed for a long time. No longer is it possible to acquire land, issue eviction notices and start construction.

The relocation program should be divided into several phases. First, all movable buildings should be relocated from the site. Many of the one and two-family houses between the Hartford business district and West Hartford could be moved on to vacant lots and subdivided parcels without vacating tenants. Distance is a minor consideration once a building, off its foundation, is on the streets. By using sets of wheels and three-point suspension, buildings now can be moved for long distances, limited only by such obstacles as trees, wires and poles. Larger buildings such as the apartment house at Morgan and Charles Streets and the Times Radio Station on Asylum Street could be moved on rails.

It has been found desirable at times to acquire deteriorated buildings and rehabilitate them for families living within structures which cannot be moved and must be demolished. Other methods have been devised, such as giving reduced rents in public-owned buildings for a limited period after the right-of-way has been acquired and before the tenant moves, paying redecorating and moving expenses or making cash payments in lieu of expenses to tenants who themselves find other quarters.

Finally, the relocation of families in blighted areas on and along the expressway right-of-way by means of slum-clearance projects should be considered carefully. It appears that new public housing will be permitted under the Federal Slum Clearance and Housing Act of 1949 (Title I). The location of the expressway in the slum area on the fringe of the business district between Main Street and the Connecticut River would be facilitated by these two slum-clearance projects which we recommend.

Each of these slum-clearance projects recommended would consist of expressway right-of-way, a Federal public housing project and a business area. Six-story buildings on 30 per cent land coverage

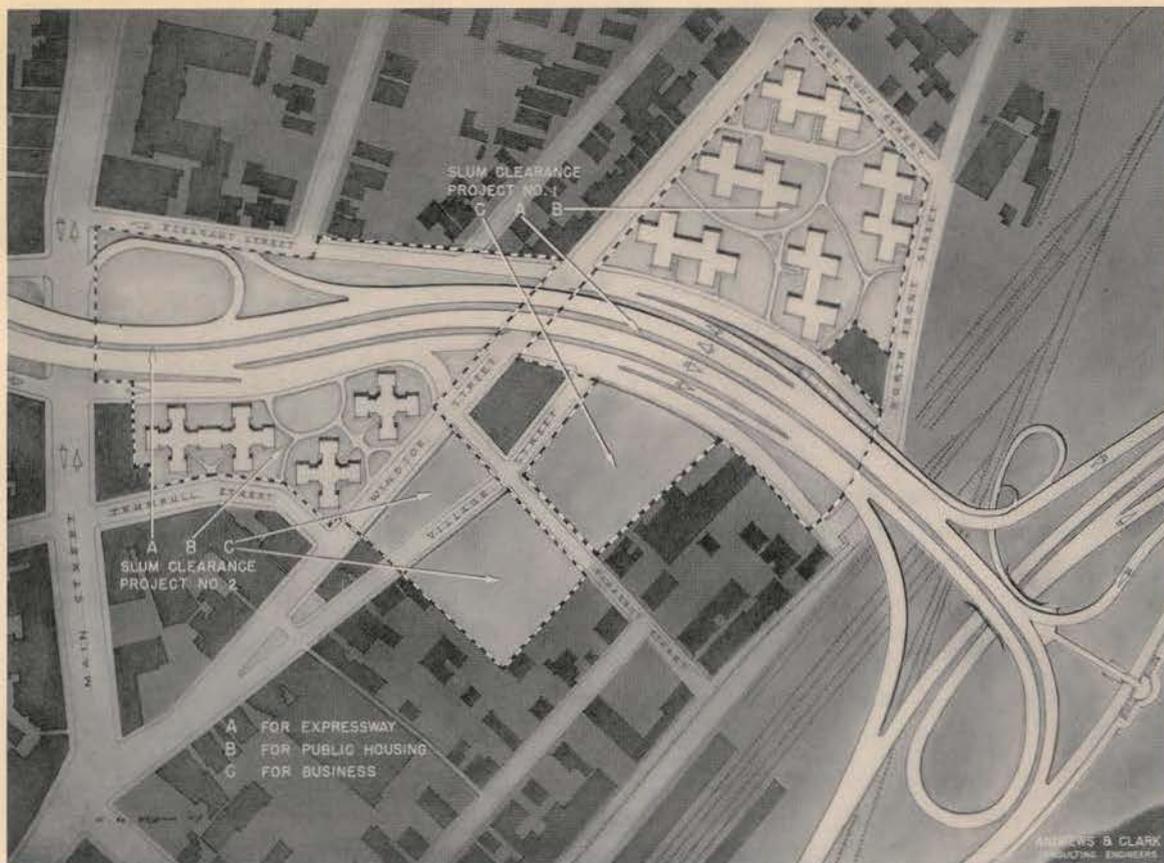
would provide for 610 families in the two projects, and priority would be given to site tenants. Playgrounds would be included in the housing area. The first housing units could be built on vacant areas to facilitate relocation of tenants in the way of the rest of the construction.

The procedure to accomplish these slum-clearance projects under the Federal bill is as follows: The first step would be the preparation of the plan of redevelopment by the City of Hartford as agreed upon by the State, the City and the Hartford Housing Authority. This should include all the necessary approvals by State and local agencies. The next step would be the presentation by the City of the agreed plan to the Federal Administrator for approval, and the execution of an agreement with him under the Federal law. This agreement could include provisions for financing acquisition, demolition and clearance, and construction of incidental site improvements like playgrounds, streets and utilities, by Federal loan provided for in the Federal bill. Interest on the loan would be included as part of the project cost in computing loss.

We propose that the State pay back to the City the entire cost, including buildings, of the expressway right-of-way. The Housing Authority also would pay back an amount equal to the fair value of the property required for housing, as provided by the Federal law. The land allocated for business would be sold for private redevelopment at the best price possible. Generally, the prices paid for the housing and business plots would equal the cost of land minus buildings, the loss being the cost of buildings and their removal.

The Federal bill divides the loss as follows: two-thirds is met by Federal grant and one-third by the City. The City could count towards its one-third the cost of all incidental public improvements, such as utility changes, streets, paving, parks and schools to the extent that such facilities are necessary to the project.

The following table gives the estimated land and building costs of the two projects, the probable losses and their division between the Federal Government and the City:



A FEDERAL SLUM CLEARANCE PROJECT IS INCLUDED IN THE PLAN PROPOSED IN THIS REPORT FOR THE EAST-WEST EXPRESSWAY. IT WOULD RELOCATE A TOTAL OF 610 SLUM TENANTS, INCLUDING MORE THAN HALF OF ALL FAMILIES TO BE MOVED FOR EXPRESSWAY CONSTRUCTION.

	Approximate		Property Costs		
	Area in	Land	At Assessed Values:		Total
	Square Feet:		Buildings		
<b>SLUM-CLEARANCE PROJECT NO. 1</b>					
A. Expressway Right-of-Way	206,000	\$ 85,000	\$200,000		\$285,000
B. Housing Area	193,000	78,000	177,000		255,000
C. Business Area	63,000	20,000	35,000		55,000
Totals	462,000	\$183,000	\$412,000		\$595,000
<b>SLUM CLEARANCE PROJECT NO. 2</b>					
A. Expressway Right-of-Way	190,000	\$240,700	\$224,300		\$465,000
B. Housing Area	97,400	90,000	135,000		225,000
C. Business Area	86,600	69,000	74,000		143,000
Totals	374,000	\$399,700	\$433,300		\$833,000

LOSSES FOR PROJECTS NOS. 1 & 2 COMBINED

	Estimated Loss Represented by	
	Property Costs:	Value of Buildings:
A. Expressway Right-of-Way	\$ 750,000	None
B. Housing Area	480,000	\$312,000
C. Business Area	198,000	109,000
Totals	\$1,428,000	\$421,000
*City — 1/3 Share	\$ 140,000	
Federal — 2/3 Share	\$ 281,000	

\*To be reduced by value of needed incidental City improvements.

Of the 500 families in the two slum-clearance areas, 230 are among the total of 650 to be relocated as part of the entire expressway construction. These 230 would be moved within the slum-clearance proj-

ect between Main and Broad Streets. This leaves 420 tenants to be taken care of along the right-of-way. Of these, 250 live in substandard areas and we estimate that about 50 per cent of them would have sufficiently high priorities to move into the Federal public housing projects. This makes a total of 355 families provided for through slum clearance, which would solve over half of the entire expressway tenant relocation problem. The remainder, or 295, could be taken care of by moving buildings, rehabilitating nearly vacant structures, assisting tenants to move elsewhere and by other devices.

#### STATE PROGRAM AND FEDERAL AID

The 1944 Federal Aid appropriation made available a three-year allotment of funds which, when matched with State moneys, provided a \$16,000,000 urban fund for the State of Connecticut. In 1948 an additional two-year allotment was made available, giving Connecticut a \$25,000,000 urban fund for the five-year period. Hartford, with a 1940 population of 167,000, is entitled theoretically to about 12 per cent of this or only about \$3,000,000 for the five-year period. It is obvious that some other source of funds must be found to finance Connecticut's arterial program.

The State Highway Commissioner has indicated that under present conditions his construction fund is limited to matching Federal Aid allocations. Various proposals have been made for providing additional State Highway funds. These include a one-cent increase in the gasoline tax, estimated by the State Highway Department in 1946 to amount to an additional \$3,800,000 per year. This amount, pledged to service a bond issue for highway construction, should make available at least \$75,000,000 for early construction. The need for the East-West Expressway could be justified easily under such a program.

There are, no doubt, other methods of raising arterial funds.

It would be presumptuous for us to suggest them, since this is a matter for the Governor and Legislature to decide. The point is that postponement of essential improvements and especially right-of-way acquisition means higher costs and more inconvenience and hardship later on.

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In estimating costs and determining basic design characteristics, we have used standards which we believe acceptable for federal interregional expressways. Measurements of existing conditions were assembled from State, City and other official records, together with an air survey made by us. Other facts were gathered from various local sources. We have made a reconnaissance but no over-all precise engineering surveys on the ground. Development of contract plans following complete surveys will show the need for minor variations from our plan and exact limits must be adjusted then, but we believe that our recommendations are precise enough to determine the routes and fix the general character of the improvements.

In addition to our own organization, we were assisted in all of the features of this report by Consulting Engineer William S. Chapin and Frederic A. Collins. Harry Taylor and William S. Lebwohl acted as consultants on some of the slum-clearance features, particularly relating to the new federal law on this subject.

In making our surveys we received the wholehearted coöperation of many City and State agencies. All public officials who were asked to help were generous in furnishing both facts and background information. Members and counsel of your own organizations assisted whenever we asked them. We enjoyed the work and found it stimulating and constructive.

ANDREWS & CLARK

## PRELIMINARY ESTIMATE OF COSTS FOR THE EAST-WEST EXPRESSWAY

### CONSTRUCTION

1.	Site Clearance _____		\$ 275,000
	(a) Demolition and House Moving _____		
2.	Earthwork _____		1,160,000
3.	Pavements, Curbs, Etc. _____		
	(a) Expressway, 72 Feet _____	\$ 525,000	
	(b) Expressway, 48 Feet _____	155,000	
	(c) Service Roads _____	455,000	
	(d) Access Roads _____	155,000	1,290,000
4.	Utilities, Etc. _____		
	(a) Expressway Lighting _____	380,000	
	(b) Service Road Lighting _____	255,000	
	(c) Expressway Drainage _____	265,000	
	(d) Service Road Drainage _____	160,000	
	(e) Water and Sewers _____	295,000	1,355,000
5.	Bridges and Viaducts _____		
	(a) Pedestrian Bridge _____	50,000	
	(b) Park Road over Expressway _____	80,000	
	(c) Access Viaduct No. 1 _____	50,000	
	(d) Access Viaduct No. 2 _____	220,000	
	(e) Expressway over Expressway _____	135,000	
	(f) Railroad _____	505,000	
	(g) Windsor Street _____	165,000	
	(h) Main Street _____	250,000	
	(i) Ann Street _____	170,000	
	(j) High Street _____	240,000	
	(k) Railroad Viaduct _____	1,215,000	
	(l) Asylum Street Access under Expressway _____	110,000	
	(m) Asylum Street over Access _____	75,000	
	(n) Asylum Street _____	215,000	
	(o) Broad Street _____	190,000	
	(p) Sigourney Street over Railroad _____	190,000	
	(q) Sigourney Street over Expressway _____	180,000	
	(r) Laurel Street _____	150,000	
	(s) Forest Street _____	190,000	
	(t) Expressway over West Branch of Park River _____	65,000	
	(u) Service Road over West Branch of Park River _____	45,000	
	(v) Sisson Avenue _____	105,000	
	(w) South Whitney Street _____	105,000	4,700,000
6.	Walls _____		3,330,000
7.	Landscaping _____		190,000
8.	Railings and Fixtures _____		175,000
9.	Incidental Improvements _____		55,000
	TOTAL _____		\$12,530,000

### ASSESSED VALUES OF RIGHT-OF-WAY

		Land	Buildings	Total
1.	North Meadows Highway to Portland Street _____	\$ 85,000	\$ 200,000	\$ 285,000
2.	Portland Street to Main Street _____	240,700	224,300	465,000
3.	Main Street to Ann Street _____	355,000	265,000	620,000
4.	Ann Street to High Street _____	72,300	77,700	150,000
5.	High Street to Railroad _____	219,000	220,000	439,000
6.	Railroad _____	50,000	50,000	100,000
7.	Church Street to Asylum Street, including Garage _____	262,000	354,000	616,000
8.	Asylum Street to Broad Street _____	310,000	334,000	644,000
9.	Broad Street to Sigourney Street _____	161,800	89,200	251,000
10.	Sigourney Street to Laurel Street _____	54,500	78,500	133,000
11.	Laurel Street to Forest Street _____	40,400	41,600	82,000
12.	Forest Street to Sisson Avenue _____	73,300	66,700	140,000
13.	Sisson Avenue to South Whitney Street _____	23,500	57,500	81,000
14.	South Whitney Street to Prospect Avenue _____	48,500	205,500	254,000
	Totals _____	\$1,996,000	\$2,264,000	\$4,260,000

