STATE OF CONNECTICUT

DEPARTMENT OF TRANSPORTATION

PLANNING STUDY

CORRIDOR LOCATION FOR

RELOCATION OF CONNECTICUT ROUTE 66

IMPROVEMENT OF

CONNECTICUT ROUTE 9

JULY 1972

BERGER, LEHMAN ASSOCIATES, INC., Hartsdale, N.Y.

BERGER, LEHMAN ASSOCIATES, INC.
CONSULTING ENGINEERS, TRANSPORTATION PLANNERS
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HARTSDALE, N. Y. 10530

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158 NEWINGTON RD.
ELMWOOD, CONN. 06110

203-233-1145

July 15, 1972

Commissioner A. Earl Wood
Connecticut Department of Transportation
P. O. Drawer A
Wethersfield, Connecticut 06106

Dear Commissioner Wood:

We present our Report on the results of corridor planning studies for the Relocation of Route 66 between the vicinity of the Middlefield-Meriden town line and easterly of the Connecticut River in Portland. Included in this Report are studies for the Improvement of Route 9 between the vicinity of the Sebethe River and the vicinity of the south junction of Route 17 in Middletown. These coordinated studies were made in accordance with our Agreement dated October 1, 1970.

Our conclusions and recommendations are based upon travel demand and traffic data supplied by the Department of Transportation and upon our evaluation of the social, economic and environmental impact of a relocation.

Approximately twenty potential corridors for relocating Route 66 were investigated for feasibility; ten of them in greater detail; four in depth in this Report. We have assessed the economic impact of the alternate corridors on the region and on the individual towns. We believe that the relocation is both desirable and inevitable.

The possibility of widening or otherwise improving existing Route 66 as a substitute for a relocation was also studied. It was concluded that existing Route 66 throughout the study area is a very important local arterial which merits study and improvement on that basis. It should not, however, be considered

as a substitute for a relocated Route 66. Improvements to existing Route 66 made in an attempt to accommodate future traffic demand would be undesirable in terms of economic impact and benefit, right-of-way acquisition, displacement of families and businesses and general traffic service to the area. A proper relocation of Route 66 would best serve the long-range transportation needs of the region and the State.

The Route 9 study was coordinated with the Route 66 corridor studies. Detailed studies based on the design concepts presented herein, should be undertaken as soon as possible to solve the immediate problem of upgrading Route 9 to expressway standards. These design concepts provide the flexibility of a compatible union with a relocation of Route 66 in the southern portion of Middletown.

We acknowledge the cooperation of the Department of Transportation in furnishing necessary data and support during the study, and particularly wish to express our appreciation for the assistance of Messrs. Resnikoff and Stolicny and their staff. The assistance of the local communities, the Route 66 Planning Panel and the Midstate Regional Planning Agency is also acknowledged.

Very truly yours,

Robert J. Trapani

Robert J. Trapani, P.E.
Project Director

RJT/mg

STATE OF CONNECTICUT

DEPARTMENT OF TRANSPORTATION

A. Earl Wood, Commissioner

PLANNING STUDY

CORRIDOR LOCATION FOR
RELOCATION OF CONNECTICUT ROUTE 66

Middlefield - Middletown - Portland

AND

IMPROVEMENT OF CONNECTICUT ROUTE 9

Middletown

July 1972

BERGER, LEHMAN ASSOCIATES, INC. - TRANSPORTATION PLANNERS - Hartsdale, N.Y.

TABLE OF CONTENTS

CHAPTER I

SUMMARY AND RECOMMENDATIONS

This report contains the results of a comprehensive planning study performed in accordance with the current policies and procedures of the Connecticut Department of Transportation. Chapters II through X, inclusive, are devoted to the corridor planning study for the relocation of Route 66 between the vicinity of the Middlefield-Meriden town line and easterly of the Connecticut River in Portland. Chapter XI is devoted to the studies for the improvement of Route 9 between the vicinity of the Sebethe River and the south junction of Route 17 in Middletown. Exhibit 1 shows the general location of the study area.

The general background, enabling legislation and scope of the studies, are described in Chapter II. Local participation in the planning process was encouraged throughout. The successive steps in the planning process are presented diagrammatically in Exhibit 3.

A brief history and general description of the study area is contained in Chapter III. The supporting exhibits show the area's topography, population density, land use, and average property values. Socio-economic patterns, the area's tax base, its general environment and educational facilities are also discussed in Chapter III.

Chapter IV is devoted to a detailed transportation analysis of the study area. The existing highway system, traffic patterns, growth rates and recent accident statistics are presented therein. Traffic desire patterns for the year 1990 are shown, without consideration of a relocation of Route 66, in Exhibits 10 A, B and C. Exhibits 11 A, B and C show traffic desires in 1990, assuming a relocation and the development of a Route 66 Expressway easterly to Willimantic. The future capacity-demand relationship on existing Route 66 is shown on Exhibit 12. The conclusion drawn in Chapter IV is that the future needs of the study area and region as a whole would best be served by a relocation of Route 66.

Exhibit 13, in Chapter V, shows the major controls which would influence potential corridor locations. The most significant control is the current policy of the State Health Department which requires that new highways be located at least one quarter of a mile from water supply reservoirs. This control affects corridor locations south of Mount Higby Reservoir and precludes northerly corridors running west of, or through, this reservoir system. The same policy controls corridor locations north of Laurel Brook Reservoir and through the Asylum Reservoirs.

Chapter VI contains an evaluation of the corridor proposed by the Midstate Regional Planning Agency in 1968. Five preliminary corridors, developed for initial study, are discussed and their relation to the major controls is depicted on Exhibit 14. These preliminary corridors were presented to all local, regional, state and federal agencies, groups and local legislators for their review and comment.

The formation of the Tri-Town Planning Panel is explained in Chapter VII. The comments of this Panel, as well as those received in response to the solicitation letter, formed the basis for revisions to the preliminary corridors and resulted in the development of four alternate corridors for further study.

These final alternates are evaluated in Chapter VIII. The twenty-three social, economic and environmental factors prescribed by Federal Policy and Procedure Memorandum 20-8 formed the basis for this evaluation.

Chapter IX contains construction cost estimates for the alternate corridors and explains the major elements having an effect on these costs. A section of this chapter pertains to the proposed Connecticut River bridge with a discussion of the advantages of orthotropic construction. The cost estimates are depicted graphically on Figure IX-1.

The selection of Corridor B-1 as the recommended path for the relocation of Route 66, is discussed in Chapter X. This corridor, which is shown on Exhibit 2, was selected as it best satisfied the social, economic and environmental factors which were evaluated in Chapter VIII. An improvement to existing Route 66, as a substitute for a relocation, has been found undesirable in terms of economic impact, right-of-way acquisition, displacement of families and businesses, and general traffic service to the area. However, detailed studies should be undertaken for the improvement of this facility based on its importance as a local arterial.

Chapter XI is devoted to the studies for the improvement of Route 9. It includes a discussion of the staged development of Route 9 and the legislation authorizing the planning study.

The location criteria, or planning controls, are identified and consolidated on Exhibit 30. Existing and future traffic patterns are discussed and six design concepts are presented. It is recommended that the existing at-grade intersections on Route 9 be eliminated and service restored through two new full interchanges. Detailed studies should be undertaken to determine interchange geometrics and other design details.

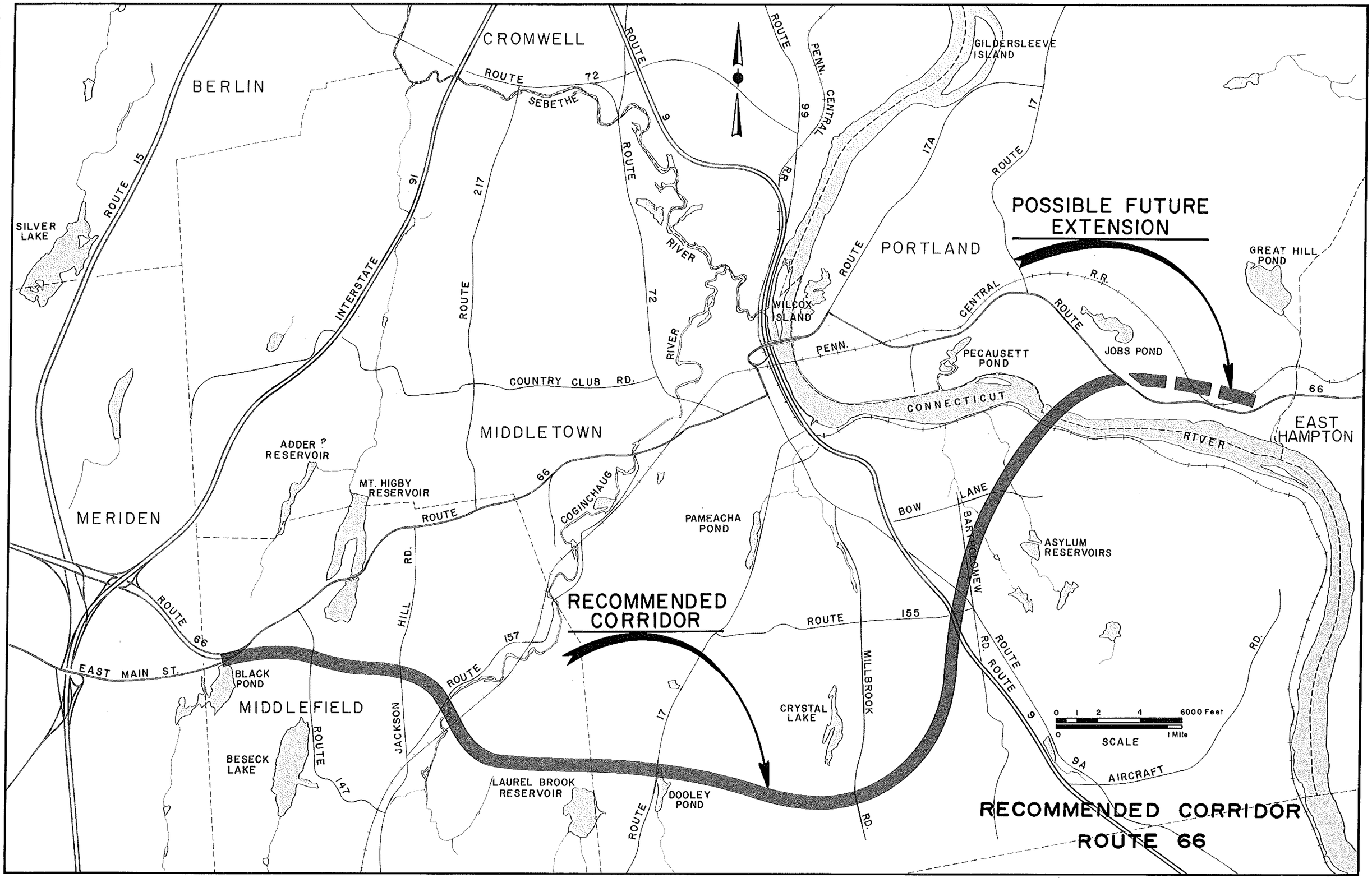
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EXHIBIT 2

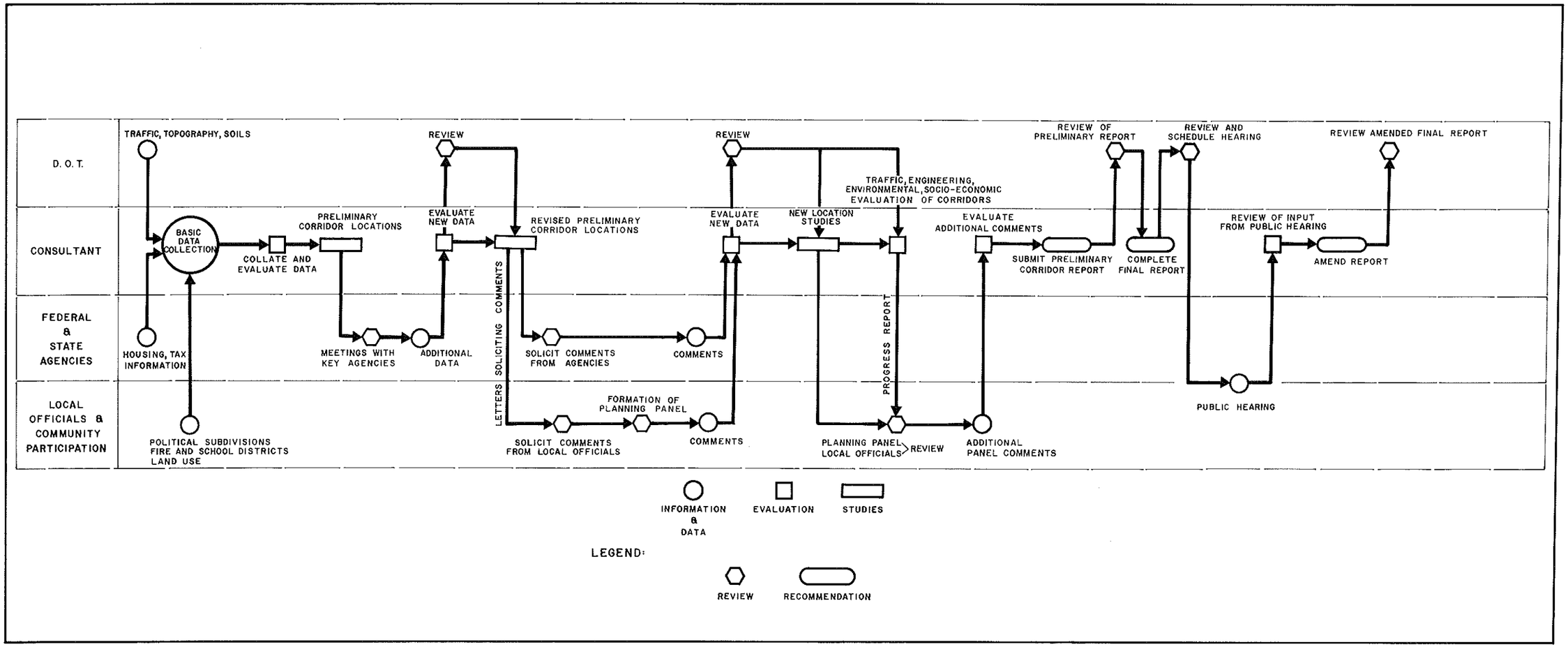

D. O. T.
CONSULTANT
FEDERAL & STATE AGENCIES
LOCAL OFFICIALS & COMMUNITY PARTICIPATION
TRAFFIC, TOPOGRAPHY, SOILS
BASIC DATA COLLECTION
COLLATE AND EVALUATE DATA
PRELIMINARY CORRIDOR LOCATIONS
HOUSING, TAX INFORMATION
POLITICAL SUBDIVISIONS FIRE AND SCHOOL DISTRICTS LAND USE
MEETINGS WITH KEY AGENCIES
ADDITIONAL DATA
REVIEW
EVALUATE NEW DATA
REVISED PRELIMINARY CORRIDOR LOCATIONS
LETTERS SOLICITING COMMENTS
SOLICIT COMMENTS FROM AGENCIES
COMMENTS
FORMATION OF PLANNING PANEL
SOLICIT COMMENTS FROM LOCAL OFFICIALS
COMMENTS
REVIEW
EVALUATE NEW DATA
NEW LOCATION STUDIES
TRAFFIC, ENGINEERING, ENVIRONMENTAL, SOCIO-ECONOMIC EVALUATION OF CORRIDORS
PROGRESS REPORT
PLANNING PANEL LOCAL OFFICIALS
REVIEW
ADDITIONAL PANEL COMMENTS
EVALUATE ADDITIONAL COMMENTS
SUBMIT PRELIMINARY CORRIDOR REPORT
REVIEW OF PRELIMINARY REPORT
COMPLETE FINAL REPORT
REVIEW AND SCHEDULE HEARING
PUBLIC HEARING
REVIEW OF INPUT FROM PUBLIC HEARING
AMEND REPORT
REVIEW AMENDED FINAL REPORT
INFORMATION & DATA
EVALUATION
STUDIES
LEGEND:
REVIEW
RECOMMENDATION

EXHIBIT 3

CHAPTER II

INTRODUCTION

PURPOSE

This study was undertaken in accordance with Public Act 755 of the 1969 session of the General Assembly which allocated engineering funds to the Department of Transportation for the relocation of Route 66 from the vicinity of the Meriden-Middlefield Town Line to easterly of the Connecticut River in Portland.

In October, 1970, the Department retained Berger, Lehman Associates, Inc., to perform the planning study for this project. The Consultant was also retained to study and recommend improvements to Route 9, which is the subject of Chapter XI.

SCOPE

The Agreement between the State Department of Transportation and the Consultant specified that alternate corridors for the relocation of Connecticut Route 66 be developed and analyzed "giving full consideration to the traffic, engineering, social, economic and environmental effects of the various alternates; that is, the direct and indirect benefits or losses to the communities and to highway users." It further listed the twenty-three environmental factors to be evaluated, as outlined in the U.S. Department of Transportation, Federal Highway Administration Policy and Procedure Memorandum 20-8, "Public Hearing and Location Approval", dated January 14, 1969.

The Consultant was directed to establish coordination during the development and analysis of alternate corridor locations of the relocation of Route 66 and alternate improvements of Route 9, and solicit the views of the State's resources, recreation, and planning agencies, and of those Federal agencies and local public officials and agencies, and public advisory groups known or believed to be interested in, or affected by, the alternate corridor locations and improvements.

A flow diagram depicting the successive steps in the planning process is shown in Exhibit 3.

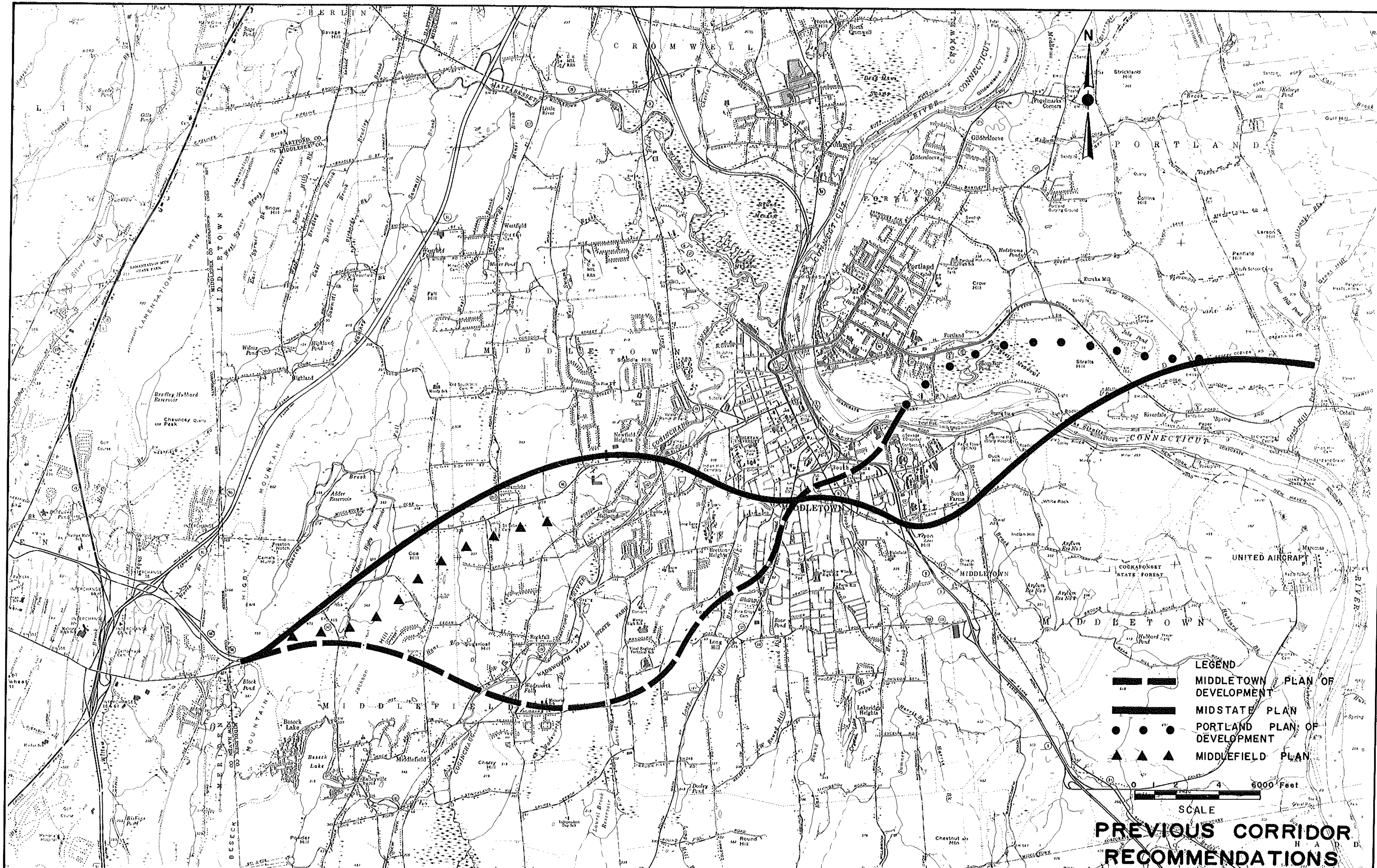
BACKGROUND

The need for a relocation of Route 66 has been recognized by the local communities for some time. Earlier local recommendations are shown on Exhibit 4. The Town of Middlefield in developing its Comprehensive Master Plan, considered a relocation in the northern portion of town. The City of Middletown in its Plan of Development, effective July 1, 1965, concluded that "extension of the expressway eastward through Middletown and across the Connecticut into eastern Connecticut is most important to the economic future of the city". The Portland Plan of Development, dated August, 1965, shows a tentative relocation for Route 66, claiming that Route 6A, (now Route 66) "eventually will need rebuilding in the future as a limited access expressway".

The Middletown Plan further states — "Middletown must be ready with its ideas for the best location to serve the City when the State Highway Department starts planning for actual construction". It further stated "A second bridge in this area will be needed", and recommended a bridge crossing near the end of Eastern Drive, at the northwest corner of state hospital property.

In 1965, the Legislature passed Special Act No. 266 creating the Middlesex Bridge and Port Authority to investigate and report upon the advisability of constructing a new bridge and port facilties at Middletown. Newman Argraves and Associates undertook the study for bridge sites and the immediate approaches, while the Midstate Regional Planning Agency studied potential corridors for relocating Route 66 to the new river crossing sites. In March, 1967, Newman Argraves submitted a report to Commissioner Ives recommending a river crossing at Bodkin Rock.

The Authority concluded that for the Midstate Region to keep pace with the economic development and growth of the remainder of the state, the bridge and approaches to the Bodkin Rock crossing should be opened to traffic by 1975. It recommended in December, 1968, that the State Highway Department begin planning studies for the relocation of Route 66 and that the necessary enabling legislation be adopted. Public Act 775 of the 1969 session of the General Assembly was the enabling legislation for this study.


PREVIOUS CORRIDOR RECOMMENDATIONS
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PORTLAND PLAN OF DEVELOPMENT
MIDDLEFIELD PLAN
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PORTLAND
MIDDLETOWN
UNITED AIRCRAFT
COCKAPONSET STATE FOREST

EXHIBIT 4

CHAPTER III

THE STUDY AREA

LOCATION

The study area which includes the towns of Middlefield and Portland and the City of Middletown is located in the central area of Connecticut, about twenty miles south of Hartford. The relationship of Middletown to other cities is shown on Exhibit 5.

GENERAL HISTORY

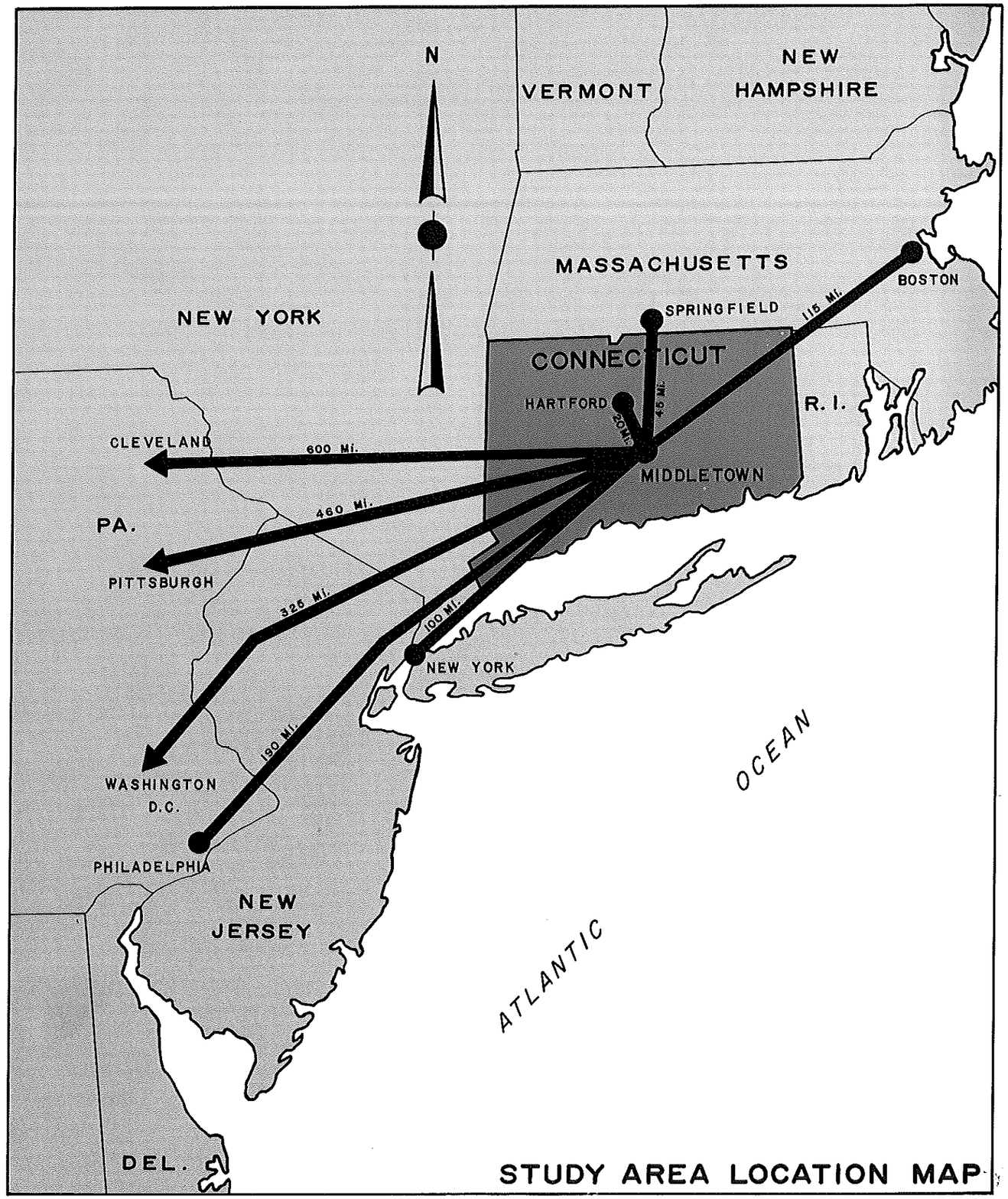
Middletown, originally called Mattabeseck, was founded in 1650 and became a Town in September, 1651. Its name was changed to Middletown in November, 1653, probably because of its location midway along the Connecticut River.

Middlefield was settled in 1700 and became a parish in 1740. Portland, originally called East Middletown, was established as a parish in May, 1714. Middle Haddam was incorporated into a parish in May, 1749. Westfield was settled in 1720, and became a parish in 1776. Middlesex became a county in 1785.

Shipbuilding began on the eastern side of the river near Middletown and Haddam; the first vessel was launched in October, 1741. In 1795, this important industry shifted to the west bank of the river and continued to thrive.

Out of the shipbuilding enterprise grew trade, primarily with the West Indies. Several merchants in Middletown became traders, exporting mules, cattle, corn and meal and importing molasses, sugar and rum. The County was not large enough to consume these valuable imports and roads were needed to enable the merchants to carry the cargoes across the mountains to distant places in New England. The Revolutionary War suspended, but did not destroy, this trade. It was resumed with great vigor after the war and started to decline after the War of 1812.

With the decline of the West Indies trade, the Portland quarries opened and quarrying and shipping of brownstone became an important business until 1890. Small steamboats ran on a regular



STUDY AREA LOCATION MAP

EXHIBIT 5

schedule between Hartford and New York and at the turn of the century, Middletown was a Port of Entry.

With the advent of the railroads in the mid 1800's, the river slowly began to lose its importance as a means of transportation. Petroleum product tankers and pleasure craft now have the river to themselves.

The Federal Aid Road Act of 1916, and the Federal Highway Act of 1956, contributed to expansion of the State and the regional expressway system.

Rail service to the study area has been in a steady decline to the point where the rail company has requested permission to discontinue service across the River into Portland.

PHYSICAL MAKE-UP (Exhibit 6)

Connecticut is geologically divided into three major physiographic regions; the Western Highlands, the Eastern Highlands and lying between them, the Central Lowlands.

The study area is principally within the Central Lowlands; however, western limits of the Eastern Highlands extend into the area and include all of Haddam, East Hampton, most of Portland as well as small parts of Middletown and Durham.

Except for Beseck, Higby and Chestnut Mountains which show 300 feet to 400 feet of relief, the general relief of the area is between 100 feet and 200 feet with gently rounded, low-lying hills trending north to slightly east of north. This topography is the combined result of the north-south orientation of more resistant ridges of basalt flows, various sedimentary rocks and of glacial ice movement. Indeed, the orientation of the bedrock ridges probably controlled, to a large degree, the direction of ice flow within the Connecticut Valley Lowland.

Folding and faulting of the underlying highlands, accompanied by the partial filling of the lowlands with sediments and lava outflows, resulted in five bedrock geological formations. Subsequent tilting of the local surface eastward and the consequential drainage pattern resulted in erosion, with the softer, less resistant rock formations being more deeply cut than the harder rock formations. With north-south trending, ridges consist of more wear resistant rock formations, the intervening valleys are the result of erosion into less resistant rock.

Because the area is a homocline striking north and dipping east, outcrops are generally west facing and north trending and of variable heights. Occasionally, outcrops trend east-west as a result of artificial exposures and where discordant screens have cut into the bedrock.

The north-south ridge formations at the westerly end of the study area are immediately encountered in any relocation of Route 66 eastward. This situation is prevalent through the study area as the relocation is east-west oriented while the topographic features run north-south.

SOCIO-ECONOMIC PATTERNS

The study area, which is located approximately midway between Boston and New York City, has important industrial and commercial activities.

Connecticut ranks third in the United States in its proportion of employees in manufacturing at about 40%; the study area is slightly higher at 43%. As of June, 1969, over 7,900 people were employed in manufacturing in Middletown, 1,170 in Portland and 460 in Middlefield. Manufacturing is widely diversified with emphasis upon fabricated metal products and machinery.

Trade is an important segment of the area's economy. Over 20% of the work force is employed in retail or wholesale trade. Middletown's importance as a commercial center is indicated by its retail sales which represent 69% of sales in the Midstate Region although it has 47% of the Region's population. A significant proportion of these sales is to residents of other towns.

A significant proportion of the labor force is employed in health and educational activities at the large hospitals and many schools located in the area. These activities constitute an employment stabilizing factor since the character of such institutions is not generally influenced by fluctuations in an area's economy.

Agriculture and mining, while once important, have been declining steadily to the point where they represent less than 2% of economic activity. Due in part to the increasing value of farmlands for residential development, active farm acreage in Middlesex County has declined from 30% of the total County area in 1954, to 17% in 1964. The number of farms declined proportionally; and less and less of these are commercial farms.

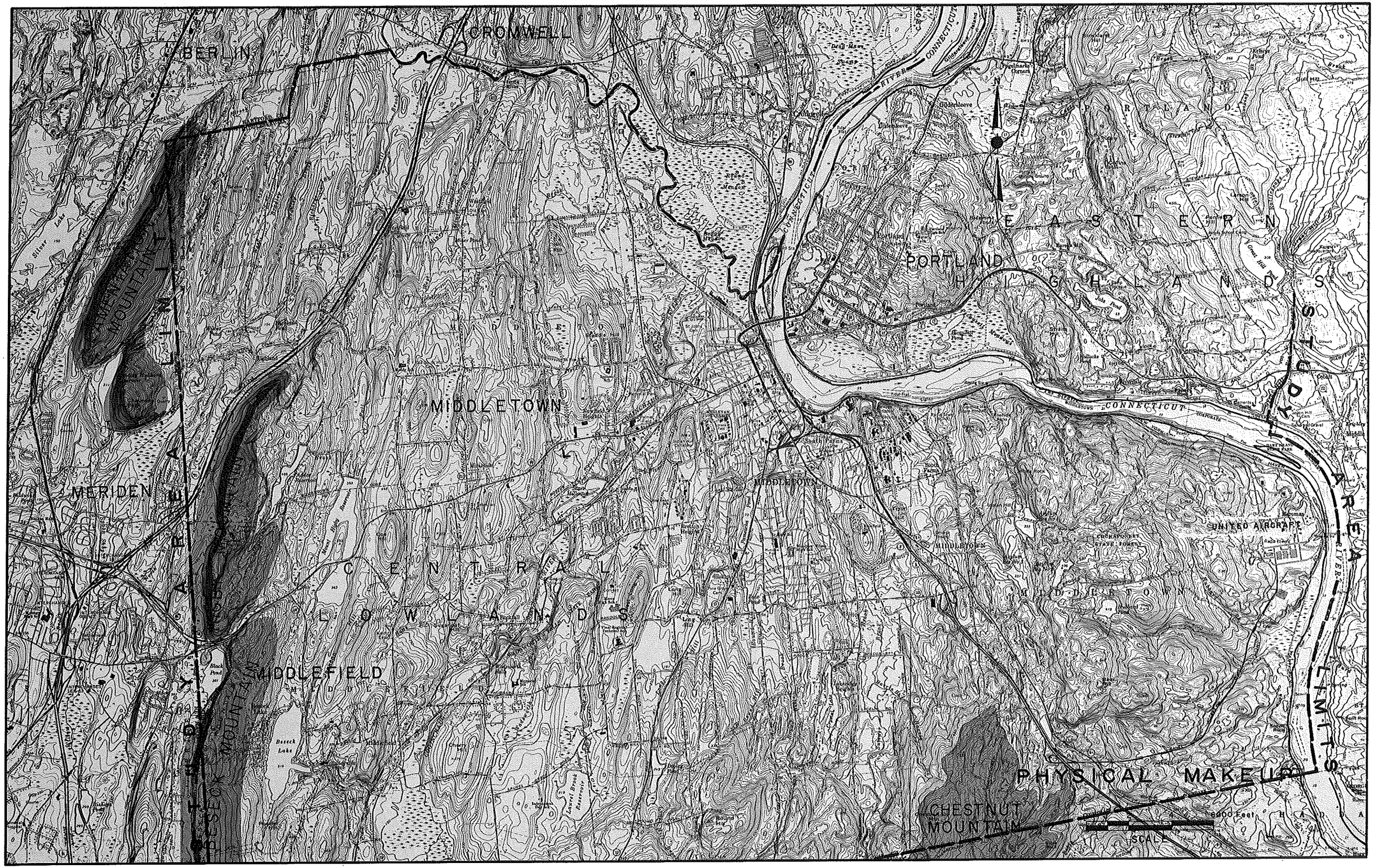
More than one quarter of the residents' income is earned outside the study area, particularly in the Hartford metropolitan area.

The study area has several large sources of employment which have a significant economic impact upon the communities. These include the Connecticut Valley Hospital, Wesleyan University, United Aircraft, E.I.S. Automotive Corporation, Raymond Precision Industries, Wilcox-Crittenden, Fenner American Ltd., and American Education Publications in Middletown; Cooper Thermometer Company and the Leisure Group, Inc. in Middlefield; and Standard Knapp in Portland.

The area, over the long-term, has continued to prosper and expand in total employment, manufacturing, retail sales and personal income. Total employment in the Middletown labor market, which includes the study area as well as outlying areas, has expanded rapidly. By 1970, it had increased 43% over 1960-1962 levels as compared to a 28% increase statewide.

Total non-agricultural employment increased by 87% between 1963 and 1969 compared to a 26% increase for the State. Connecticut manufacturing employment increased 15% during that period in contrast with a 69% increase in the study area.

Area retail sales have also increased steadily. Although they had not kept pace with statewide growth through 1968, the last two years have almost made up this difference. Based on preliminary data, sales have increased over 15% from 1968 to 1970 in the three-town area while State sales increased 10%.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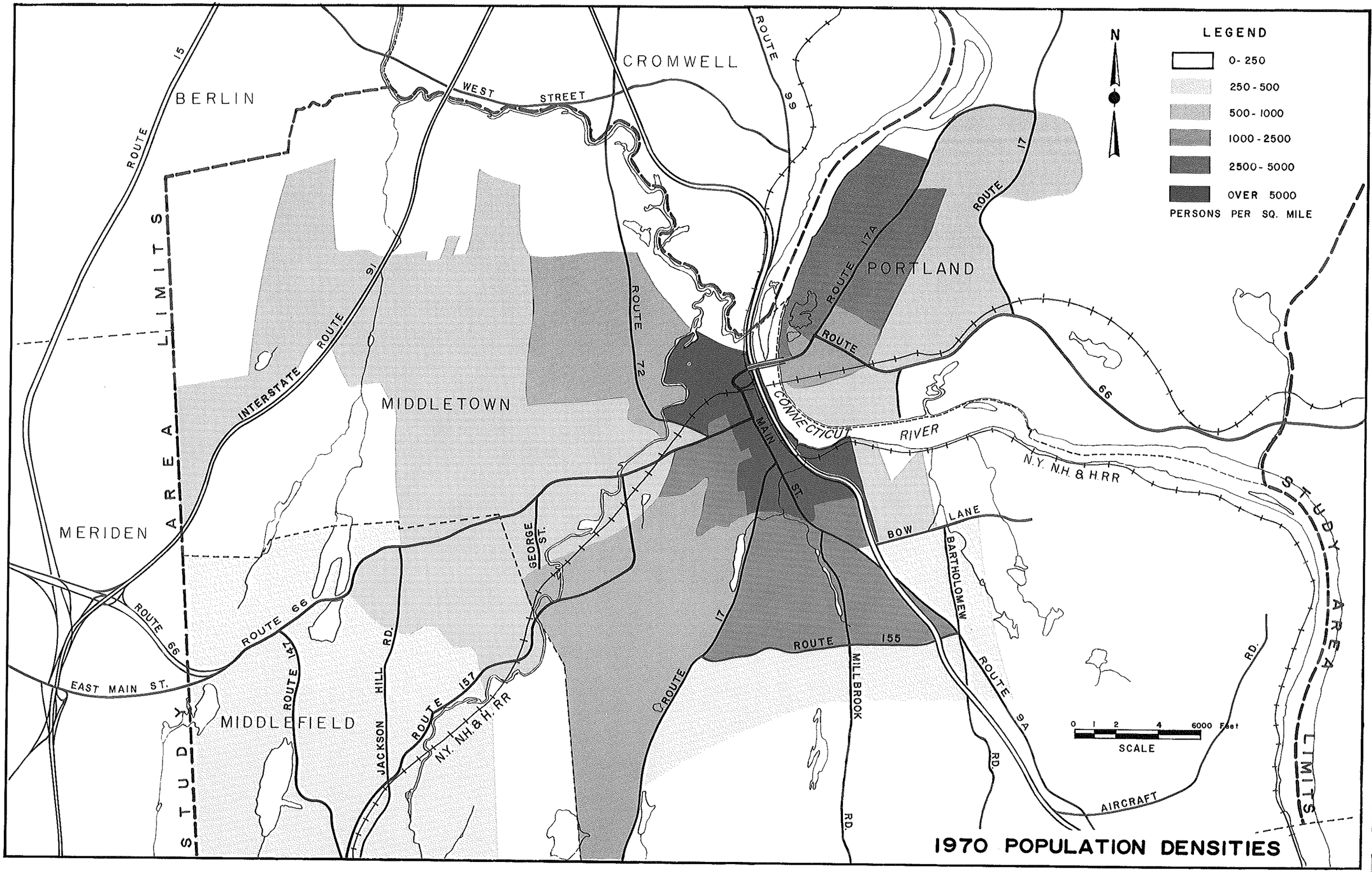
UNITED AIRCRAFT

EXHIBIT 6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ROUTE 9A
WEST STREET
INTERSTATE ROUTE
MAIN ST.
CONNECTICUT RIVER
N.Y. N.H. & H.RR
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MILLBROOK RD.
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1970 POPULATION DENSITIES

EXHIBIT 7

Income per person, after federal taxes, has increased at a rate of 1.14% per year since the early 1940's. This is a satisfactory rate even though it has not kept up with the State growth, which reflects the influence of sharp increases in Fairfield County.

The structure of the area's economy is changing. Even though manufacturing employment has been increasing steadily, the long range trend indicates a decline as a proportion of total employment because of advancing production technology. Employment in government and services is increasing as a proportion of total employment.

In 1970, the population of Middlefield was 4,132; Middletown, 33,277 (excluding institutional population); and Portland, 8,812. It is anticipated that the population of the three towns in 1990 will be 9,500, 51,300 and 15,000, representing a gross increase of 50% over the 1970 level. By the year 2,000, the total population of the three communities is expected to reach about 108,000 or roughly double the 1970 population.

About 60% of the population of Middletown and Portland live in the urban cores of these towns. The remaining population of the three towns live in rural areas which are becoming suburban areas. The 1970 population densities are indicated in Exhibit 7.

The per capita income in Middlesex County in 1968 was $3,250 compared to $3,553 statewide, making it the fourth county in income per capita in a State which is first in the nation. The income per capita in the three town study area roughly corresponds to the Middlesex County figure. The area residents earn approximately 10% above the average national income.

The residents have a high level of education. More than 46% of the residents over 25 years of age are high school graduates compared to less than 30% for the State as a whole. Over 9% are college graduates as compared to 7% for the State.

The people are of diverse ethnic groups. Over 30% are of foreign parentage; many are of Italian or Polish descent. The non-white population, which represents less than 5% of the total Middlesex County population, is increasing.

EXISTING LAND USE

The existing land use is a composite which reflects man's relationship to his physical environment, and changing economic structures, technology and values. This picture of current land use reflects over 300 years of man's activity within the area.

By 1990, population in the study area is expected to reach 75,000 persons. This rapid growth will be reflected primarily in the form of urban development, at the expense of some of the agricultural and forest land.

Existing land use stated in percentages of the total area is as follows:

Agriculture	25%
Recreational	9%
Residential	7%
Institutional	5%
Industrial	4%
Utilities and Transportation	3%
Commercial	1%

The present land use is depicted on Exhibit 8.

THE AREA'S TAX BASE

Chapter VIII, Section B covers in detail the area's tax base, grand list and government expenditures.

The towns of Middlefield and Portland are quite similar in grand list composition, with the residential sector comprising about 65% of the grand list. The residential component of Middletown's grand list is about 35%.

Middletown's tax base therefore is the most diversified, with approximately 45% of its land either industrial or commercial, compared to 15% for the other two towns.

Average property values are indicated on Exhibit 9.

THE AREA'S ENVIRONMENT

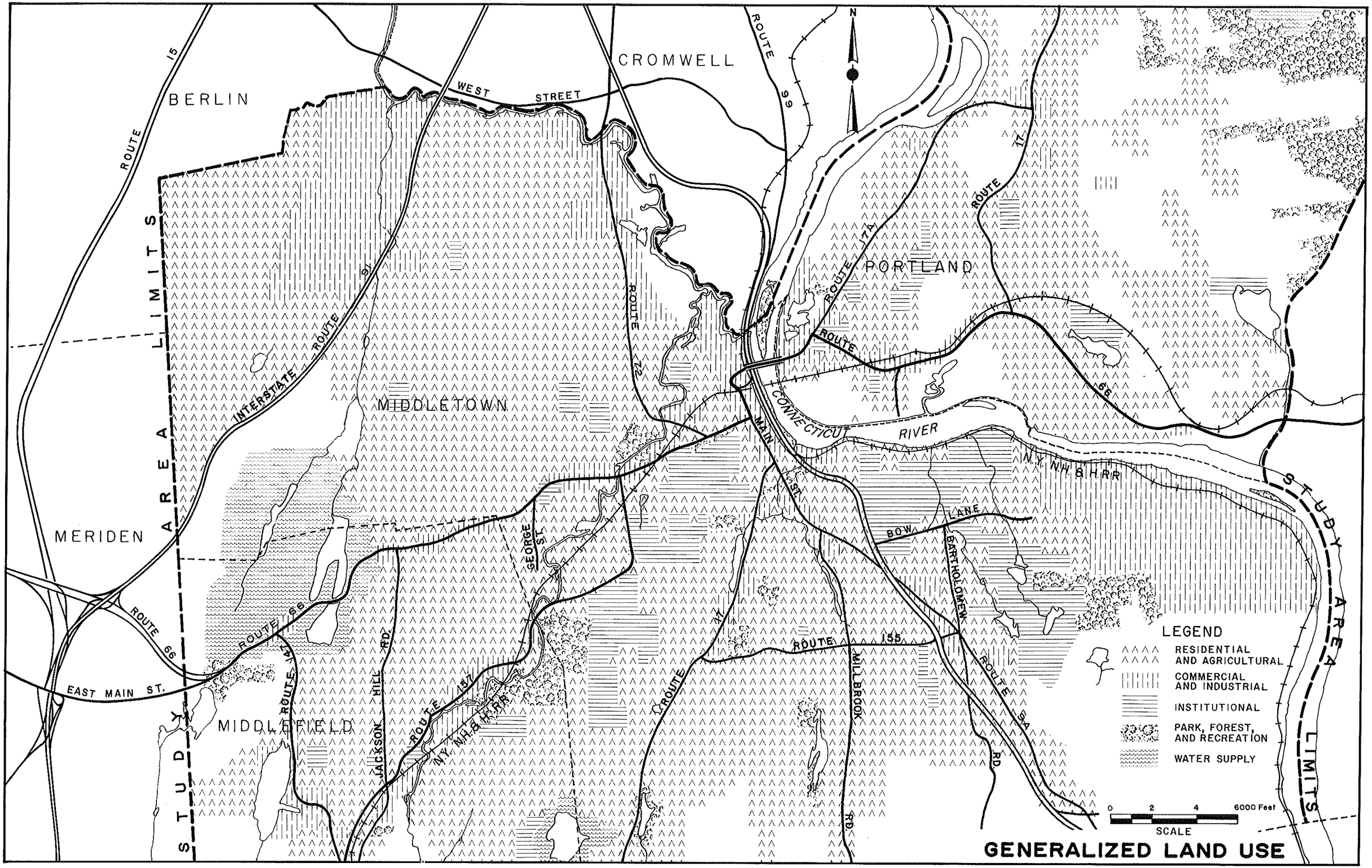
Life in the area is pleasant and not at as fast a pace as in larger metropolitan areas. Even in the core of the towns, escape to the country is not difficult and can be accomplished in less than ten minutes. The area is rapidly becoming suburbanized and most new homes are built with breathing space around them. Middletown is called "The Forest City" and the abundance of trees bears this out. The area is surrounded by wooded hills which provide a green backdrop to the central City. The resident has at his finger-tips facilities for walking, swimming, boating, picnicking and hunting.

The countryside is pleasant and non-monotonous, from the pastoral views framed by the mountains in the west to the more rugged views in eastern Portland. The Connecticut River adds more variety, from its flood plains to the more spectacular Bodkin Rock vista.

EDUCATIONAL FACILITIES

The educational facilities within the area are good. There are three public schools and one private school in Middlefield. In Middletown, the public school system consists of twelve elementary schools, one junior high school, two high schools and two vocational schools, one specializing in the trades and the other in agriculture. Middlesex County Community College is planning improvement of its facilities in Middletown. Private schools consist of three elementary schools, two high schools and one university. Portland has three elementary schools, one junior high school, one high school and one private elementary school.

The presence of Wesleyan University in the study area significantly affects the cultural life of the community. Lectures, plays, concerts and seminars, some of which are open to the public, are continually being held. The University has expressed its "social conscience" by its participation in the Wesleyan Hills Housing Development and the Goodyear housing project.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ROUTE 22
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CONNECTICUT RIVER
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STUDY AREA LIMITS
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ROUTE 68
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GEORGE ST.
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MIDDLEFIELD
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BOW LANE
BARTHOLOMEW
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RESIDENTIAL AND AGRICULTURAL
COMMERCIAL AND INDUSTRIAL
INSTITUTIONAL
PARK, FOREST, AND RECREATION
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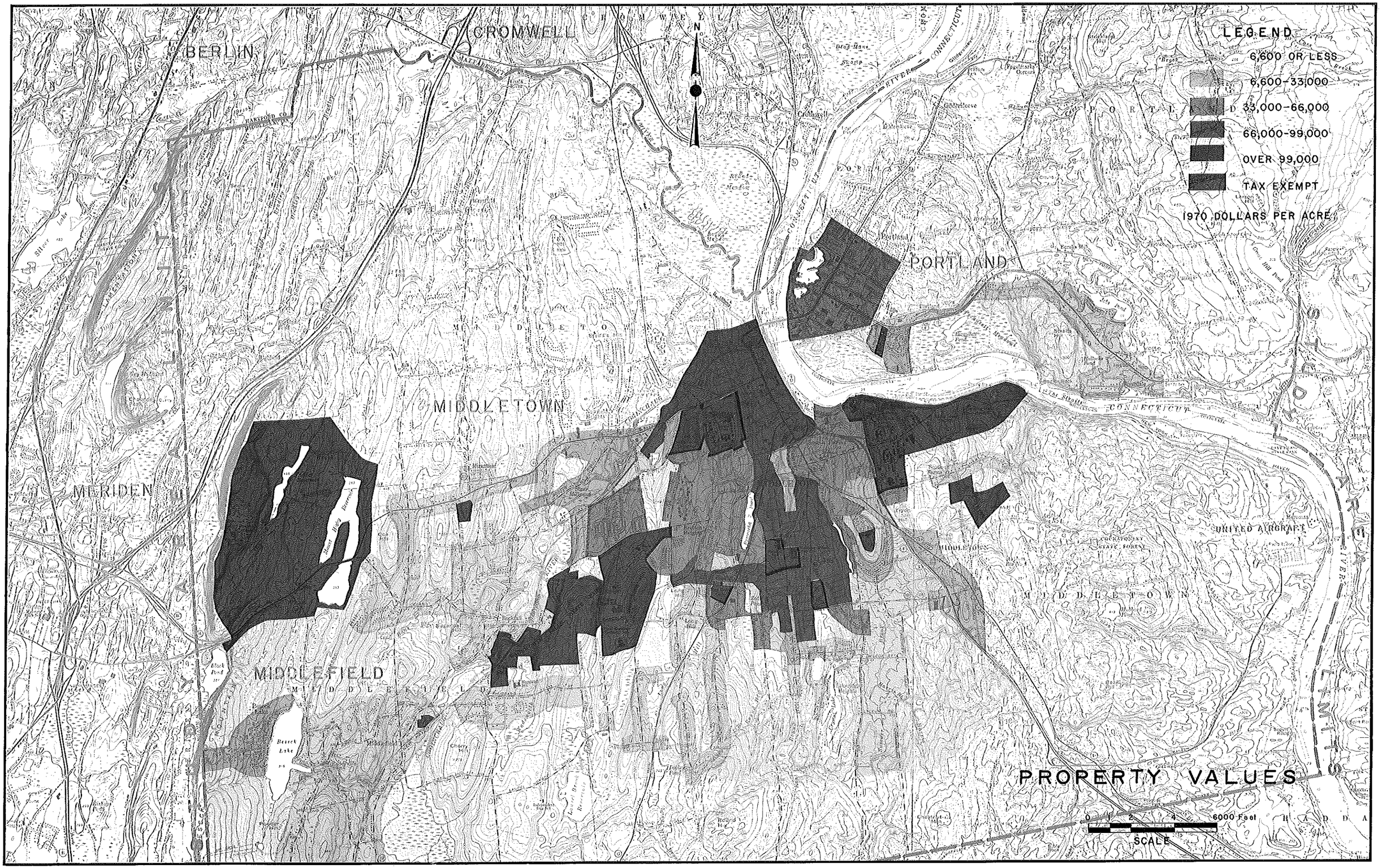
SCALE
GENERALIZED LAND USE

EXHIBIT 8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OVER 99,000
TAX EXEMPT
1970 DOLLARS PER ACRE
N
CROMWELL
BERLIN
PORTLAND
MIDDLETOWN
MERIDEN
MIDDLEFIELD
UNITED AIRCRAFT
CONNECTICUT RIVER
PROPERTY VALUES
0 1 2 4 6000 Feet
SCALE

EXHIBIT 9

CHAPTER IV

TRANSPORTATION ANALYSIS

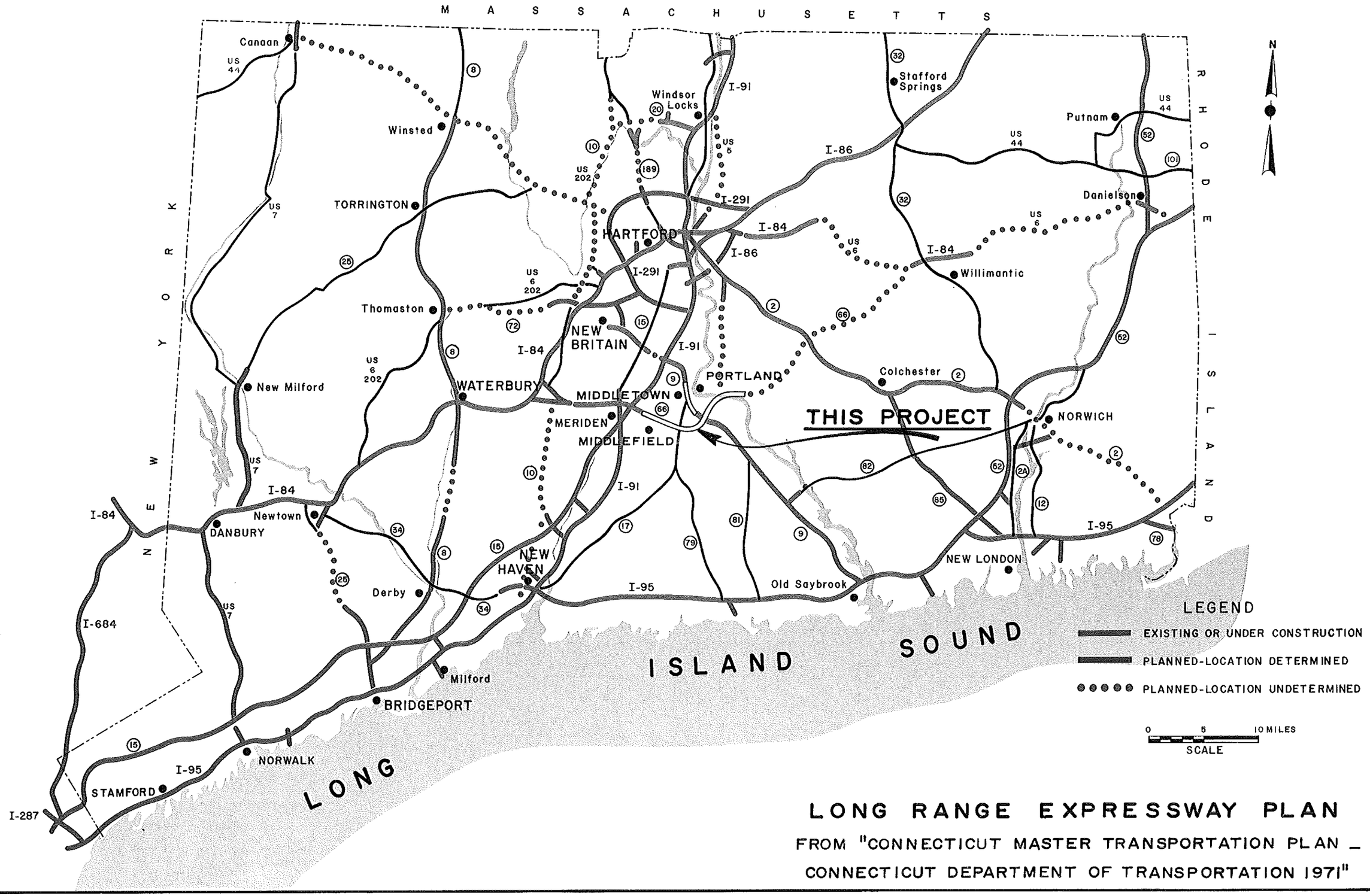
EXISTING HIGHWAY NETWORK

The area is served by two controlled access highways, several other land service highways (arterials), and the local road system. As shown on Figure IV-1, I-91, a north-south Interstate Highway which begins at New Haven, passes just west of the area, through the northwestern corner of Middletown, to Hartford, Springfield, Mass. and into Vermont. Connecticut Route 9, a controlled access highway, serves the south-central part of the State, following the west side of the Connecticut River from I-95 (Connecticut Turnpike) at Old Saybrook through Middletown to I-91 in Cromwell.

The only major east-west route within the study area is Route 66. This route is located in the central portion of the State, beginning at Interstate Route 84 east of Waterbury and terminating at U.S. 6 and I-84 west of Willimantic. A portion of this route, just west of the study area in Meriden, was relocated as an expressway and is open for traffic.

Route 17 is a north-south highway passing through the region from I-91 just north of New Haven to Route 2 in Glastonbury; crossing the Connecticut River via the Arrigoni Bridge. This route has a common alignment with portions of both Route 9 and Route 66 within the study area.

There are several other state highways in the area, all of which are essentially local roads rather than arterials. Due to the terrain in the area, particularly south of existing Route 66, most of the roads are oriented in a north-south direction. Travel in an east-west direction is generally circuitous. Other than Route 66, Route 155 (known locally as Randolph Road) is the only significant east-west roadway. This route connects Routes 17 and 9, about two miles south of the Middletown central business district (CBD).



LONG RANGE EXPRESSWAY PLAN

FROM "CONNECTICUT MASTER TRANSPORTATION PLAN – CONNECTICUT DEPARTMENT OF TRANSPORTATION 1971"

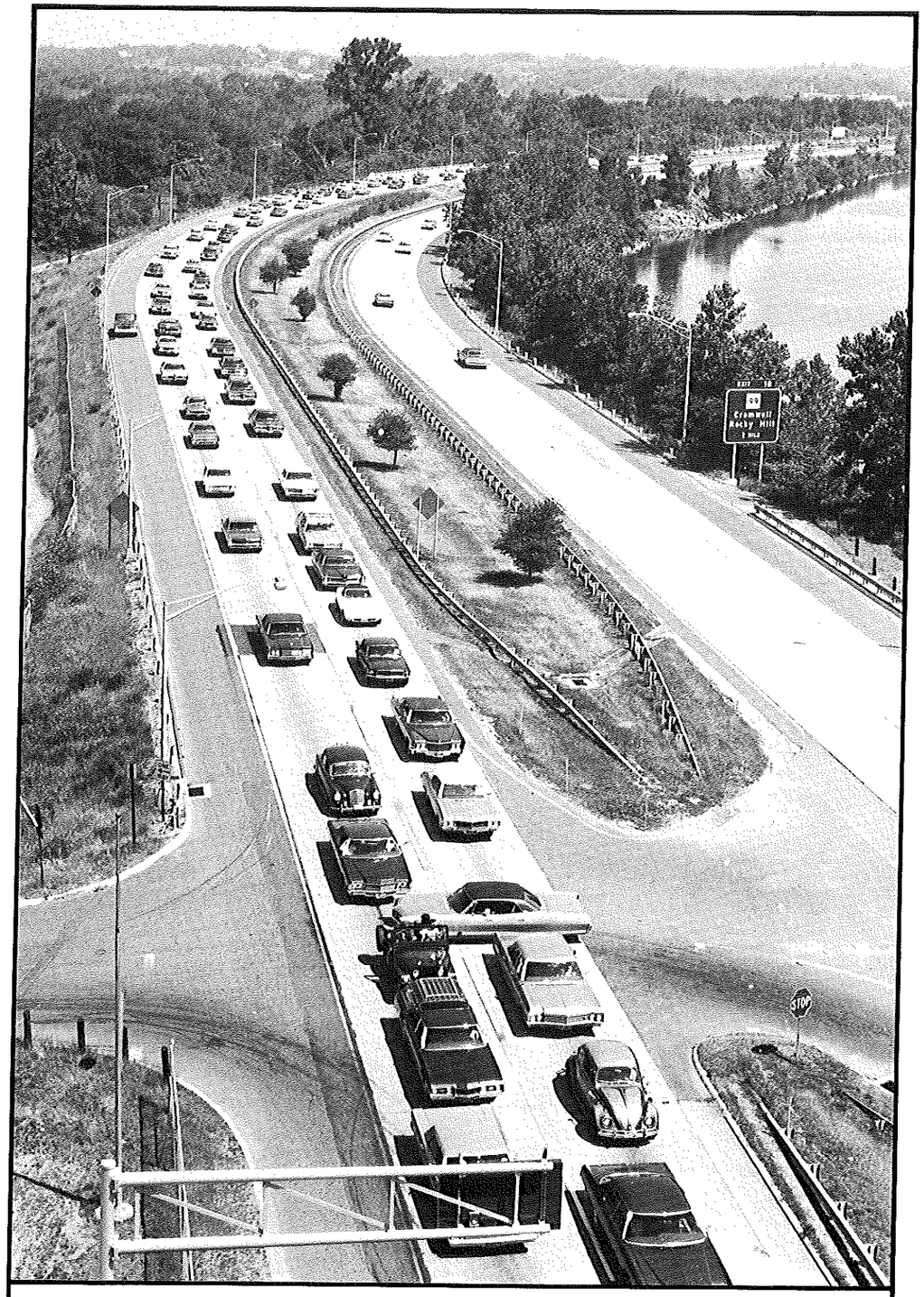
FIGURE IV-1

Route 9 serves traffic between the central portions of the State and the Connecticut Shore points on the Long Island Sound between New Haven and Rhode Island. Figure IV-2 shows mid-day July 4, 1971 traffic southbound on Route 9 just north of the Arrigoni Bridge.

Route 17 south of the study area is an arterial serving primarily local and semi-local traffic; traffic from New Haven to Middletown, Hartford or Glastonbury uses I-91. On the east side of the Connecticut River, Route 17 is the prime connector between the study area and towns north of Portland.

Existing Route 66 is a four lane controlled access highway in Meriden, west of the study area. The route through Middlefield is essentially a two lane road with an asphalt surface. It has several intersections at grade, but there is only limited land service as most of the abutting land is part of the Mt. Higby Reservoir watershed. East of Coe Hill, Route 66 is basically a two-lane highway traversing rural land with some abutting land access.

Route 66 follows two streets in Middletown: Washington Street, which runs east-west, and Main Street, a north-south arterial street. Washington Street is two lanes wide from Middlefield to just west of Main Street where a third lane exists for left turning movements. East of Camp Street, the abutting land is heavily commercial, with frequent driveways and intersecting streets, as shown on Figure IV-3. Between Camp Street and Main Street, a distance of 1.9 miles, eight of the intersections are controlled by traffic signals. Horizontal and vertical clearances are restricted at the railroad underpass about one-quarter mile east of West Street (Connecticut Route 157).



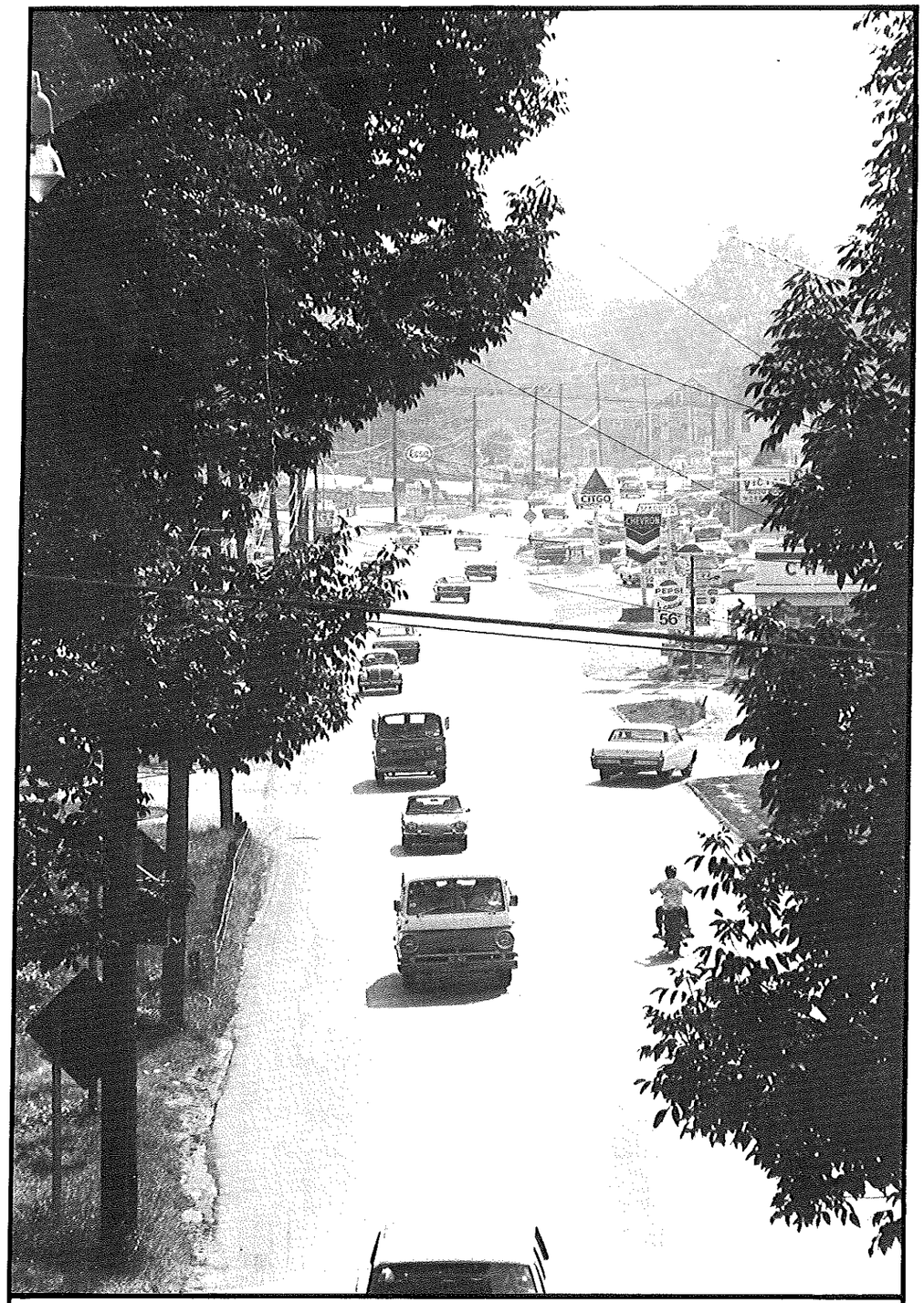
ROUTE 9

FIGURE IV-2

Main Street is eighty-five feet wide curb-to-curb with central business district development on each side. Diagonal parking on both sides of the street reduces the travelled way to about four lanes.

Route 66 crosses the Connecticut River on a four lane undivided structure, the Arrigoni Bridge. The approach to the structure in Middletown consists of a four lane divided roadway which begins at the traffic circle at the north end of Main Street. The traffic circle is heavily congested, due partially to traffic to and from Connecticut Routes 9 and 17, which connect to Route 66 at this location.

Route 66 in Portland runs on two streets; Main Street and Marlborough Street. Main Street is a four lane undivided road with parallel parking; Marlborough Street is a four lane divided road with eight foot shoulders. Both are land service roads, with frequent intersections and driveways. Beyond Route 17 east of Crow Hill, Route 66 is a two lane undivided highway.



WASHINGTON STREET, MIDDLETOWN

FIGURE IV-3

EXISTING TRAFFIC PATTERNS AND GROWTH RATES

Middletown, with its sources of employment and retail centers, is a focal point for traffic within the region and areas south and east of the study area, such as Easthampton, Haddam, Colchester and East Haddam. Many of the vehicles entering the study area have Middletown as one of their trip ends. The Middletown central business district, the Connecticut Valley Hospital, the Middlesex Memorial Hospital and several large employers, such as Wesleyan University, United Aircraft, and American Educational Publications, generate considerable local and semi-local traffic to the areas immediately south of the CBD.

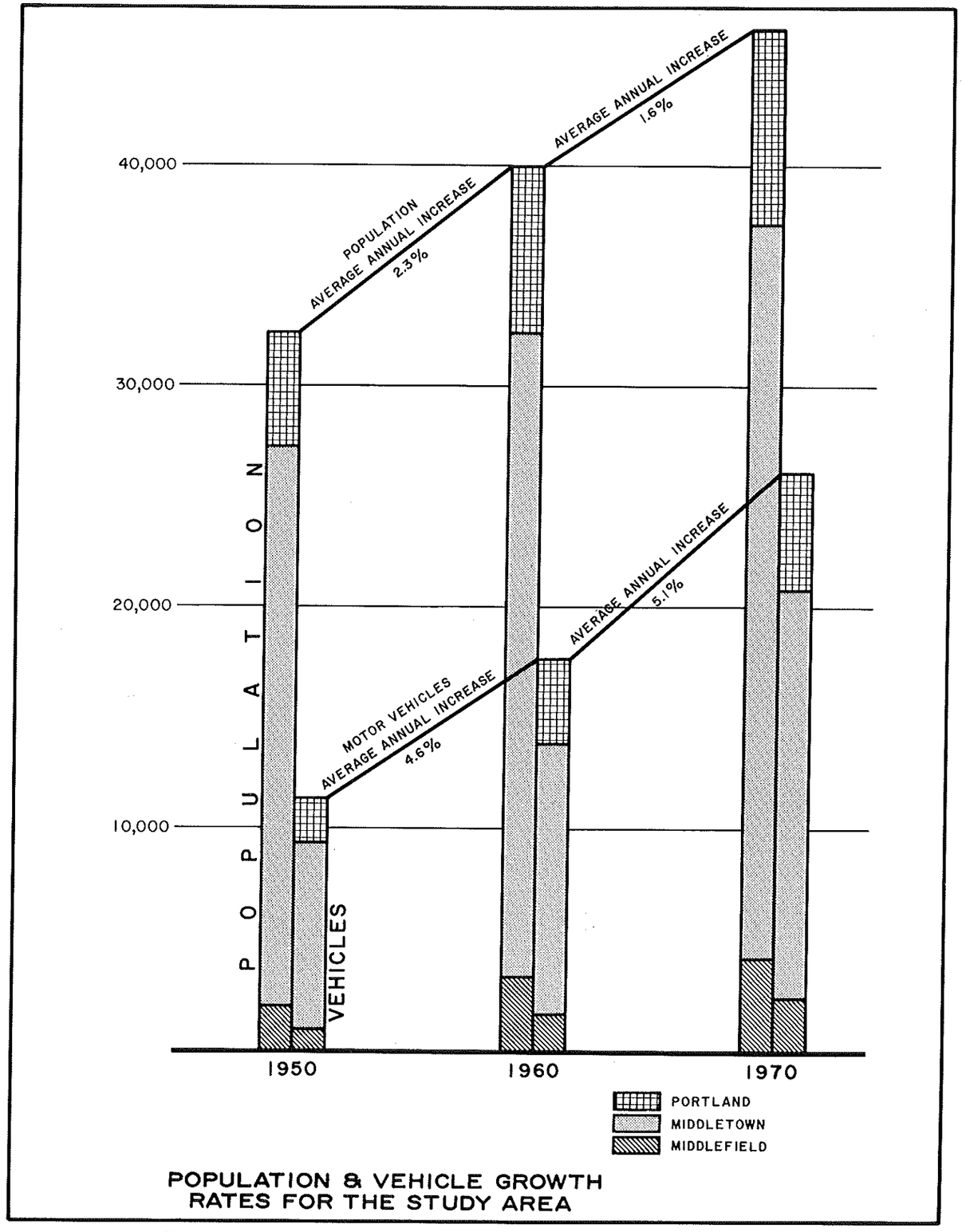
Industrial development in Portland generates heavy truck traffic. Petroleum products delivered to the tank farms by water transport are distributed by truck. The Atlantic Cement Company, Inc., received approximately 90,000 tons of raw materials by rail in 1970, all of which was forwarded by truck. Of the 24,000 tons of rolled steel and starch delivered by rail to the Continental Can Corporation in 1970, 21,000 tons were forwarded by truck.

The Arrigoni Bridge is the only major vehicular structure across the Connecticut River between Old Saybrook, 23 miles to the south, and Glastonbury, 10 miles to the north. There is a restricted capacity two lane swing bridge at East Haddam, about 15 miles downstream on Connecticut Route 82, which carried 4,900 vehicles daily in 1970.

Route 66 through the study area is part of the only continuous route linking Waterbury and Meriden west of Middletown with towns easterly of the Connecticut River. The study area, and particularly Middletown, is therefore a hub for through and semi-local traffic, in addition to having its own local traffic demands.

There is heavy truck traffic from Route 9 south of the area across the Arrigoni Bridge to Portland and points north on Route 17 (this traffic uses Route 17A—Main Street in Portland rather than Route 17 because of restricted vertical clearance under the Penn Central Railroad).

Traffic from Meriden and points to the west destined for eastern Long Island Sound areas now proceeds along Route 66 in Middlefield and Middletown to Route 9. Route 66 is congested in Middletown due to abutting development and traffic signals; as a result, many drivers now use local streets through the two towns to enter Route 9 at Randolph Road.



POPULATION & VEHICLE GROWTH RATES FOR THE STUDY AREA

FIGURE IV-4

Much of the congestion on Route 9 occurs at the Washington Street intersection and is caused by left turning traffic destined for the Middletown central business district and points west. The nearest northbound off ramp is located at Bow Lane, about one and one-half miles to the south.

Traffic between the Arrigoni Bridge and Route 9 in Middletown must pass through St. John's Square, a traffic circle at the north end of Main Street. This circle is also used by traffic from Route 9 north of Middletown to the central business district. Local traffic between Main Street and North Main Street also passes through this area.

Figure IV-4 depicts average annual growth rates of both population and motor vehicle registration for the three towns from 1950 to 1970. In general, motor vehicle registration has been increasing at a rate of two to three times that of population.

The following tabulation, which was compiled by the Connecticut Department of Transportation, lists average daily traffic at various points along Route 66 between the Meriden-Middlefield town line and the Portland-East Hampton town line. These data indicate an increasing trend at each counting station.

LOCATION	1955	1960	1964	1966	1969
East of Route 147	8,200	7,800	10,000	10,500	12,900
West of Route 147	9,500	9,000	12,500	12,500	13,900
West of Jackson Hill Road	8,400	6,300	8,100	—	—
East of Jackson Hill Road	8,800	6,700	8,600	—	—
West of present Route 217	—	—	—	10,800	12,400
Middlefield/Middletown Line	—	—	10,100	10,700	11,900
West of Route 157	10,400	10,400	16,700	17,700	19,000
East of Route 157	11,200	11,000	—	—	—
West of Route 72	11,100	9,300	12,700	—	14,200
East of Route 72	15,000	13,000	—	—	17,400
West of Main Street	—	—	—	13,100	13,500
North of Washington Street	—	—	—	14,200 (1967)	14,600
Middletown-Portland Bridge	20,800	19,000	—	23,400	24,300
East of Route 17A	10,200	12,500	—	13,300	—
West of Route 17	8,400	9,600	—	10,900	—
East of Route 17	8,100	8,800	—	11,200	—
Portland/East Hampton Line	7,300	8,000	—	9,400	—

The Connecticut Department of Transportation maintains accident data records on Route 66 recording accidents involving fatalities, injuries or accidents in which vehicles had to be towed away from the scene. The 1970 records are tabulated below.

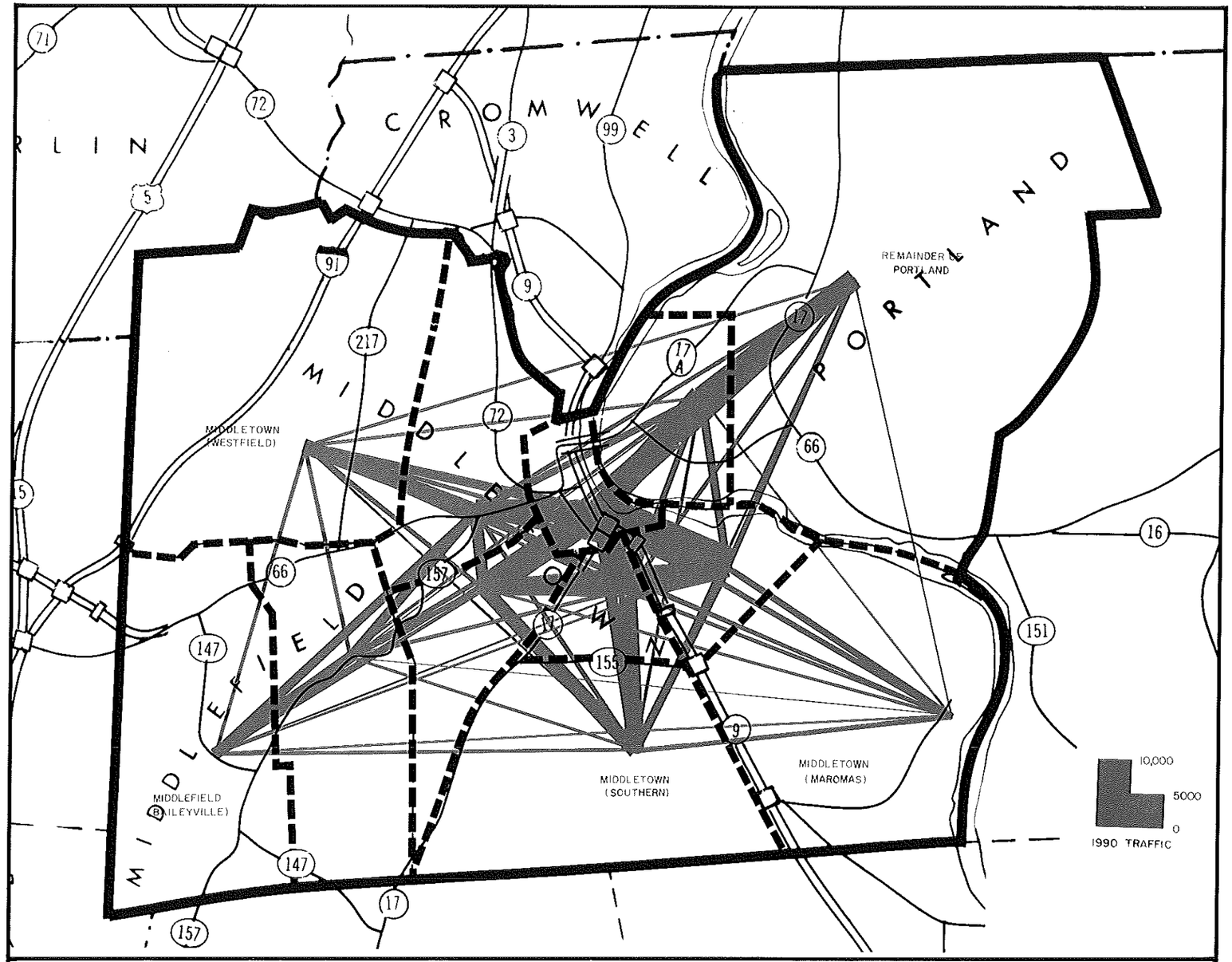
TOWN	NO. OF ACCIDENTS	NO. OF INJURIES	NO. OF FATALITIES
Middlefield	24	29	0
Middletown			
Washington Street	54	86	0
Main Street	4	5	0
Arrigoni Bridge	3	8	0
Portland	11	12	1

FUTURE TRAFFIC PATTERNS

Definitions of traffic terms used in this section are:

a. Normal traffic growth — The increase in traffic volume due to general increases in population and numbers and usage of motor vehicles

b. Generated traffic — Motor vehicle trips that would not have been made if the new facility had not been provided, i.e., trips that previously were made to a different destination, but for which the change is attributed to the attractiveness of the new or improved highway and not to change in land use.



DESIRE LINE DIAGRAM

LOCAL TRAFFIC

1990 AVERAGE DAILY TRAFFIC

(WITHOUT ROUTE 66 EXPRESSWAY)

EXHIBIT 10A

c. Development traffic — Trips due to improvement on adjacent land over and above the development which would have taken place had the new or improved highway not been constructed.

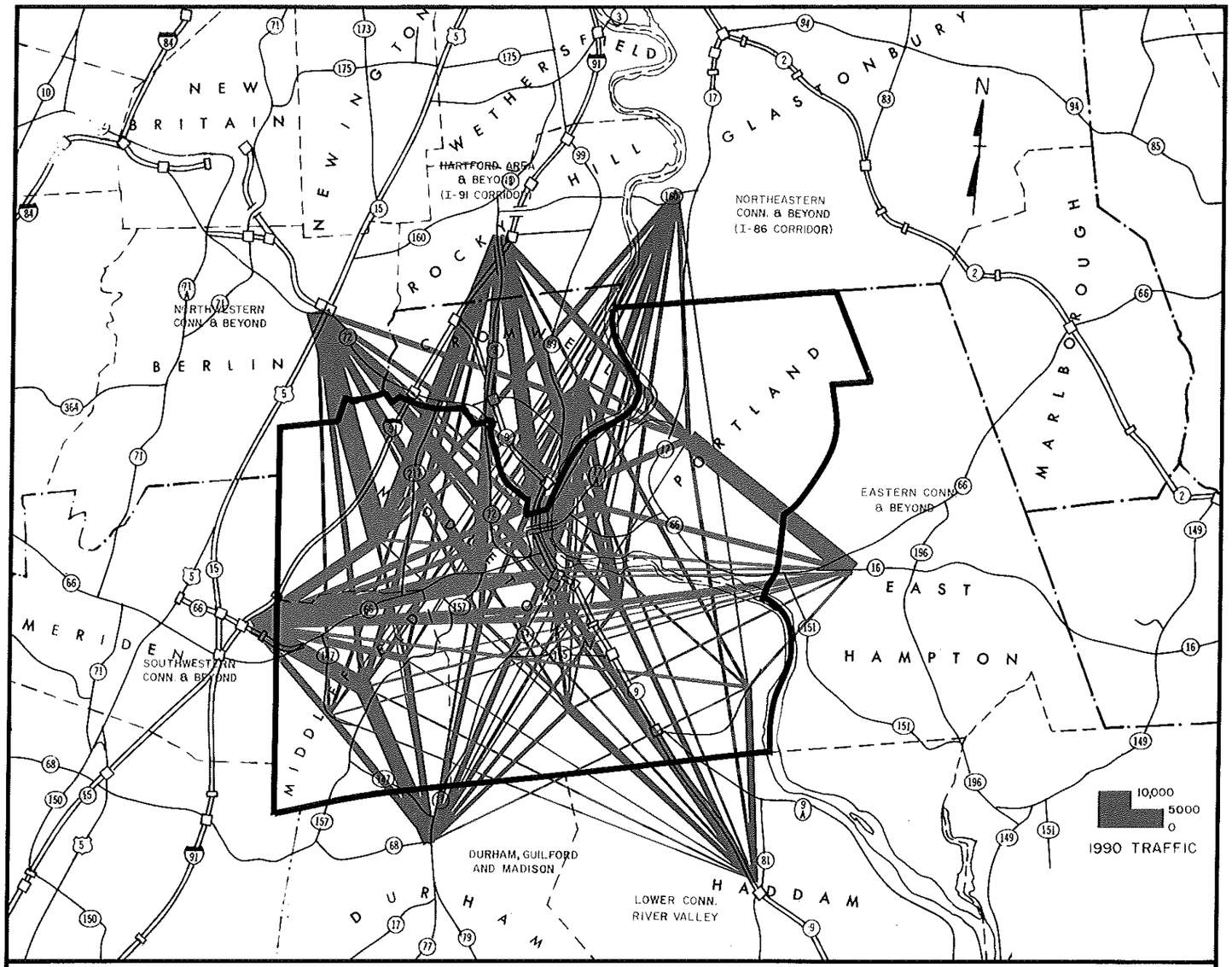
d. Local traffic — Traffic whose origin and destination lie within the study area.

e. Semi-local traffic — Traffic whose origin or destination lie within the study area.

f. Through traffic — Traffic whose origin and destination lie outside the study area.

Exhibits 10A, B and C show estimated traffic desire patterns within and through the study area in 1990 without a relocation of Route 66. Based on these desires, the Connecticut Department of Transportation has assigned 1990 traffic to the present Route 66 system, without consideration of existing capacity constraints; i.e., assuming that improvements could be made to eliminate these contraints. Exhibit 10D depicts the anticipated 1990 average daily traffic on existing Route 66.

Exhibits 11A, B and C show the design year traffic desire patterns through the study area, assuming a relocation of Route 66 and the development of a Route 66 Expressway easterly to Willimantic.



DESIRE LINE DIAGRAM

SEMI-LOCAL TRAFFIC

1990 AVERAGE DAILY TRAFFIC

(WITHOUT ROUTE 66 EXPRESSWAY)

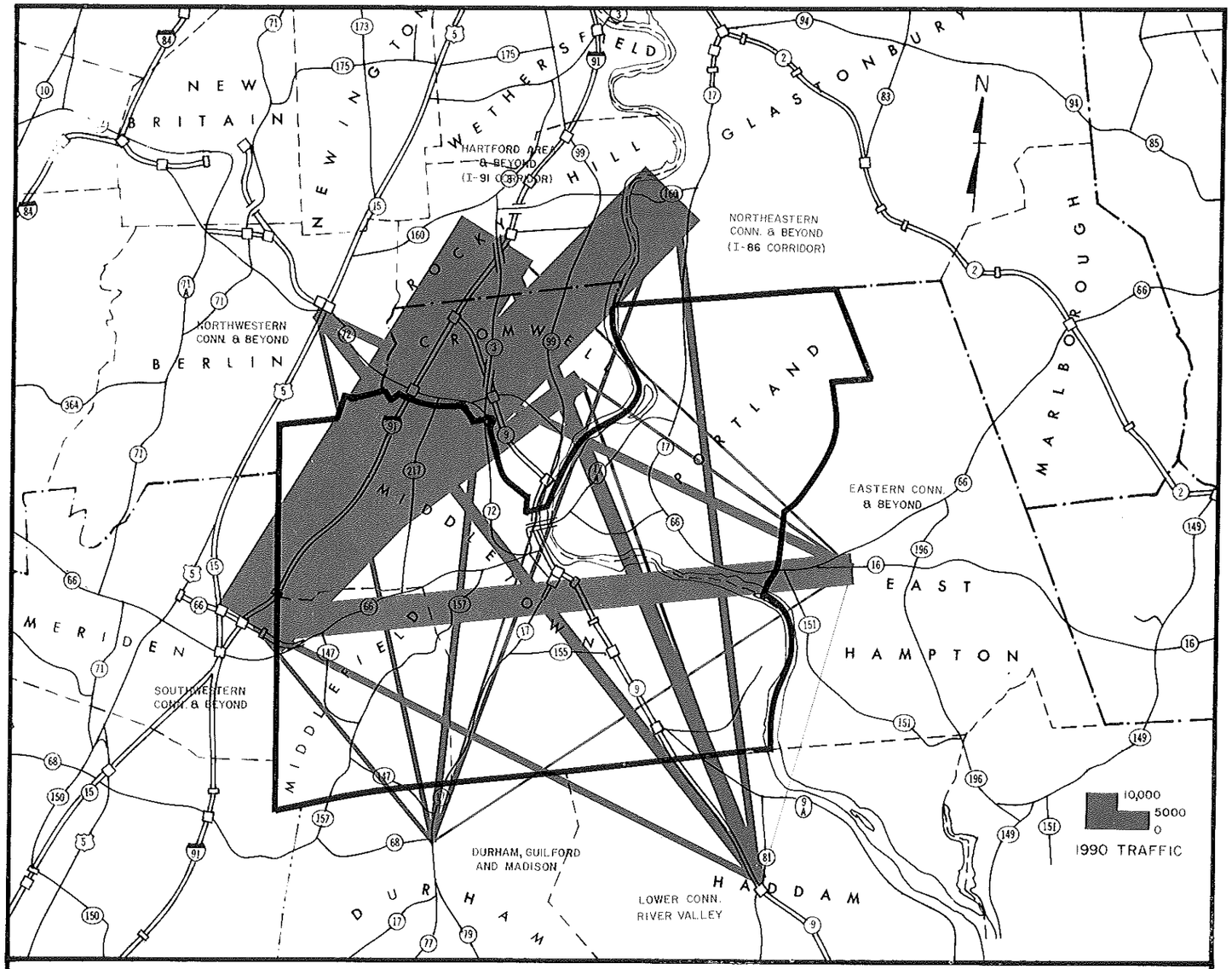
EXHIBIT 10B

There are three basic reasons for increase traffic volumes in desire patterns with a relocation of Route 66. They are:

1. With a relocation of Route 66, generated and development traffic components would be expected to increase, especially if land adjacent to the new location is available for development. The generated and development traffic growth components depend upon anticipated land use, the type of facility planned and its relationship to a regional or state-wide network.

2. With the extension of Route 66 Expressway easterly of the study area, generated and development traffic would create additional travel demands over and above the projections based on normal growth. The future demand to be accommodated on a Middlefield to Portland section of an expressway system would therefore be greater than the projected demand on the present route without a relocation.

3. With the completion of the planned Route 66 Expressway, some traffic would be diverted from existing facilities, such as routes I-95 and I-86.



DESIRE LINE DIAGRAM

THRU AREA TRAFFIC

1990 AVERAGE DAILY TRAFFIC

(WITHOUT ROUTE 66 EXPRESSWAY)

EXHIBIT IOC

In order to determine anticipated traffic volumes on alternate routes under study, the desires shown in Exhibits 11A, B and C must be related to the specific locations of these alternates. These volumes, or assignments, are depicted on Exhibits 22, 23, 24 and 25. The relative use of the various segments of the system will therefore depend on the particular corridor location being studied.

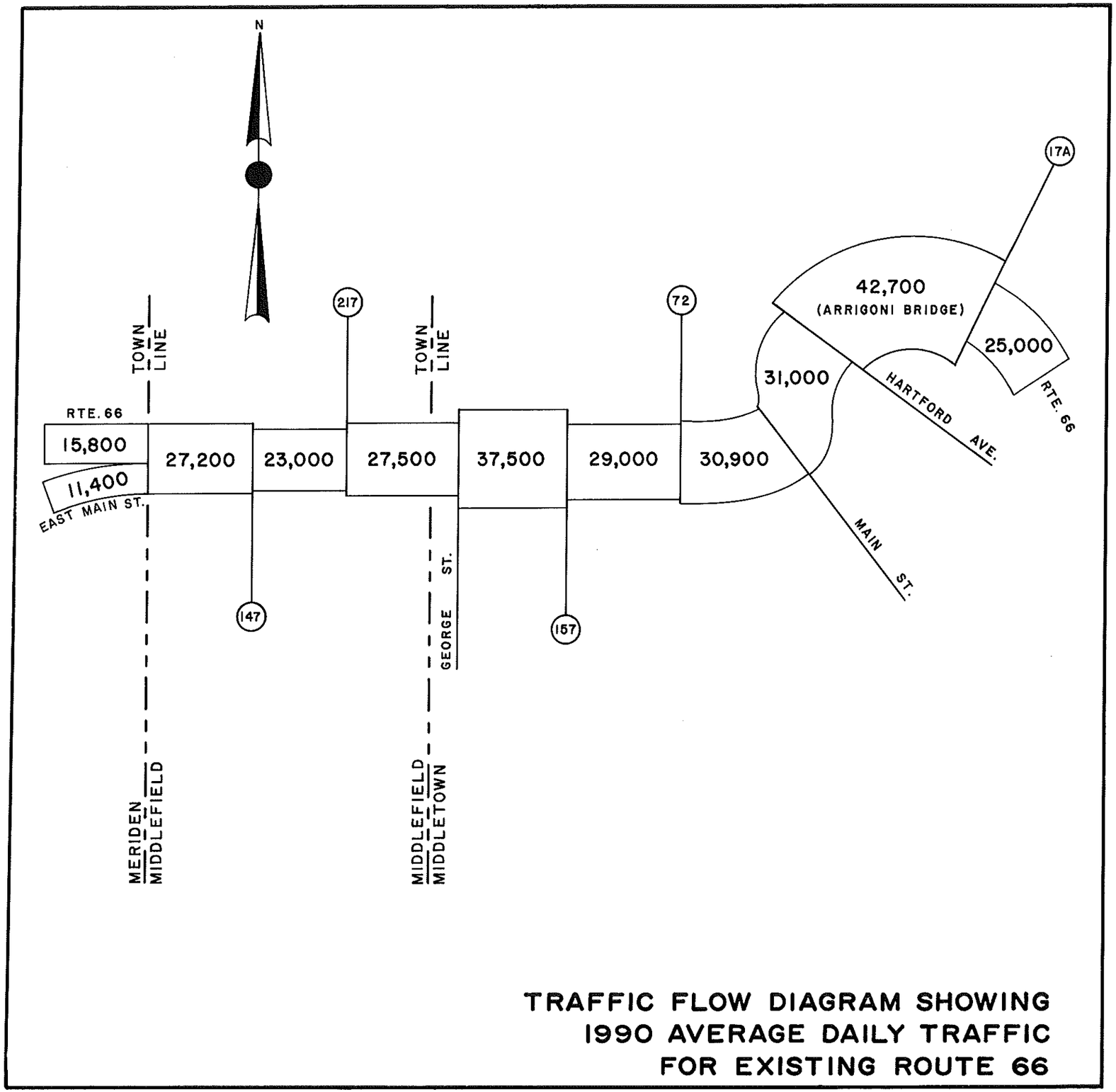
It is anticipated that the affect of various alternate corridors in this study on the major components of traffic would be generally as follows:

a. Through traffic will not be influenced by location, unless a relocation were to be so circuitous that an existing alternate, such as existing Route 66, provided faster travel time.

b. Local traffic will use a relocation to the extent that it efficiently supplements the existing local network. Interchange spacing and location, in addition to the location of the corridor, will therefore be significant in affecting local use of a relocation, as will the general pattern of local trips.

c. Semi-local traffic will be greatly influenced by location. It is this component which transfers from the facility to the local network. The relative use of the various sections of roadway will depend on the relationship of the corridors to these semi-local trip ends.

The desire lines shown in Exhibits 11A, B and C, indicate generally that 18% of the total traffic desires are through, 58% are semi-local and 24% local. The components of traffic assignments made to a specific corridor location on the basis of these desire lines would vary from the above in accordance with the directionality of the route.



TRAFFIC FLOW DIAGRAM SHOWING
1990 AVERAGE DAILY TRAFFIC
FOR EXISTING ROUTE 66

EXHIBIT 10D

NEED FOR RELOCATION OF ROUTE 66

Exhibit 12 depicts capacity and demand relationships on existing Route 66 through the study area. Both 1970 travel demand and projected 1990 demand, without a relocation of Route 66, are shown in relation to the capacity of the existing route. 1970 demand volumes vary from an ADT of about 12,000 in Middlefield, just west of the Middletown town line, to about 25,000 on the Arrigoni Bridge. A substantial increase in traffic occurs just east of George Street in Middletown, where commercial land development begins. This relatively heavy traffic increases in an easterly direction through the Middletown and Portland central business districts, and then decreases after Route 17 diverges from Route 66. Abutting land development east of Route 17 is sparse.

The 1990 travel demand on the existing route was based on normal growth within the study area and adjacent areas. The generated and development traffic are restrained since the existing route would be unlikely to attract many new users. Furthermore, it is doubtful that any change in land use could occur adjacent to an in-place improvement.

Two elements determine the capacity of the existing routes; intersection capacity and capacity of sections of roadway between intersections.

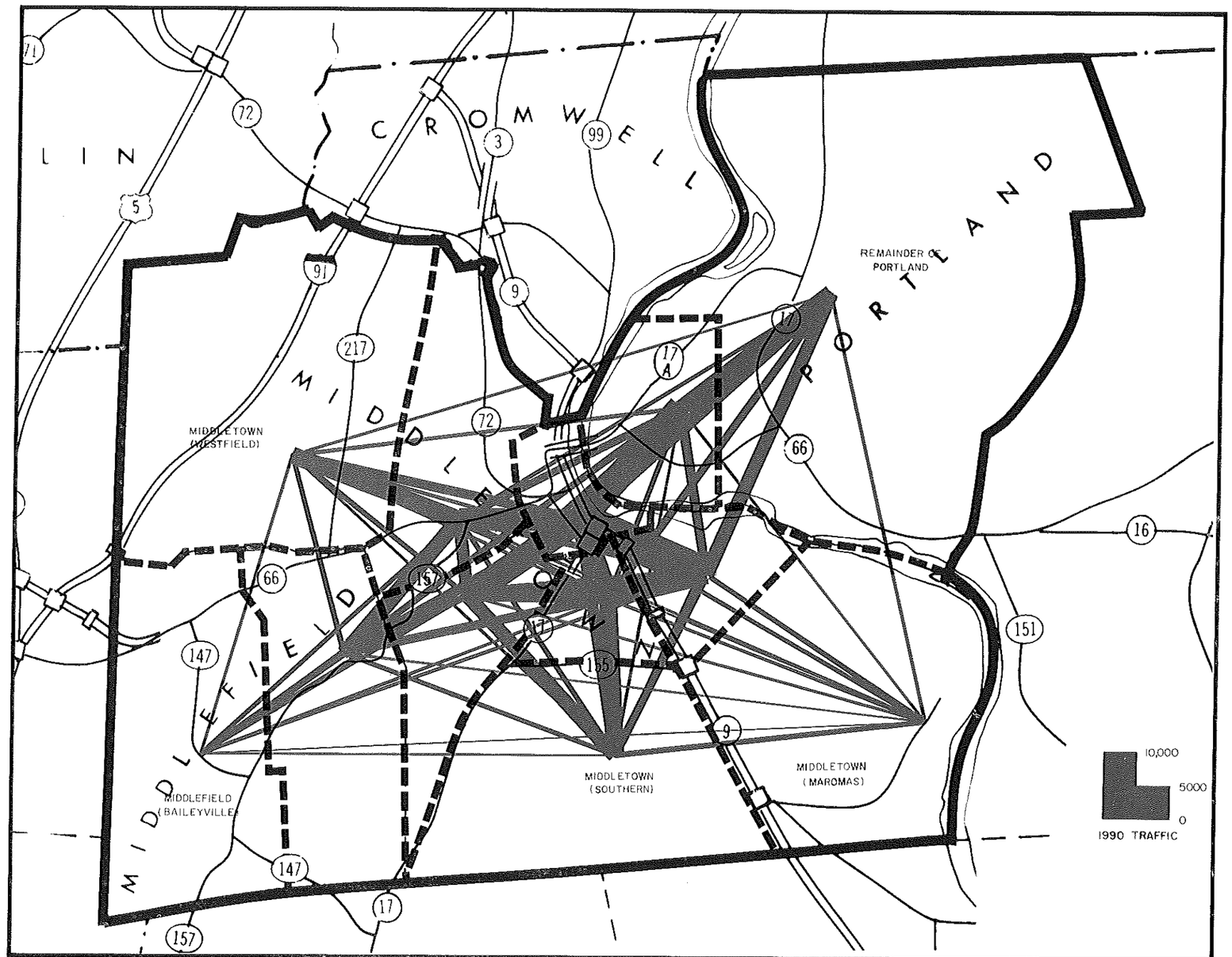


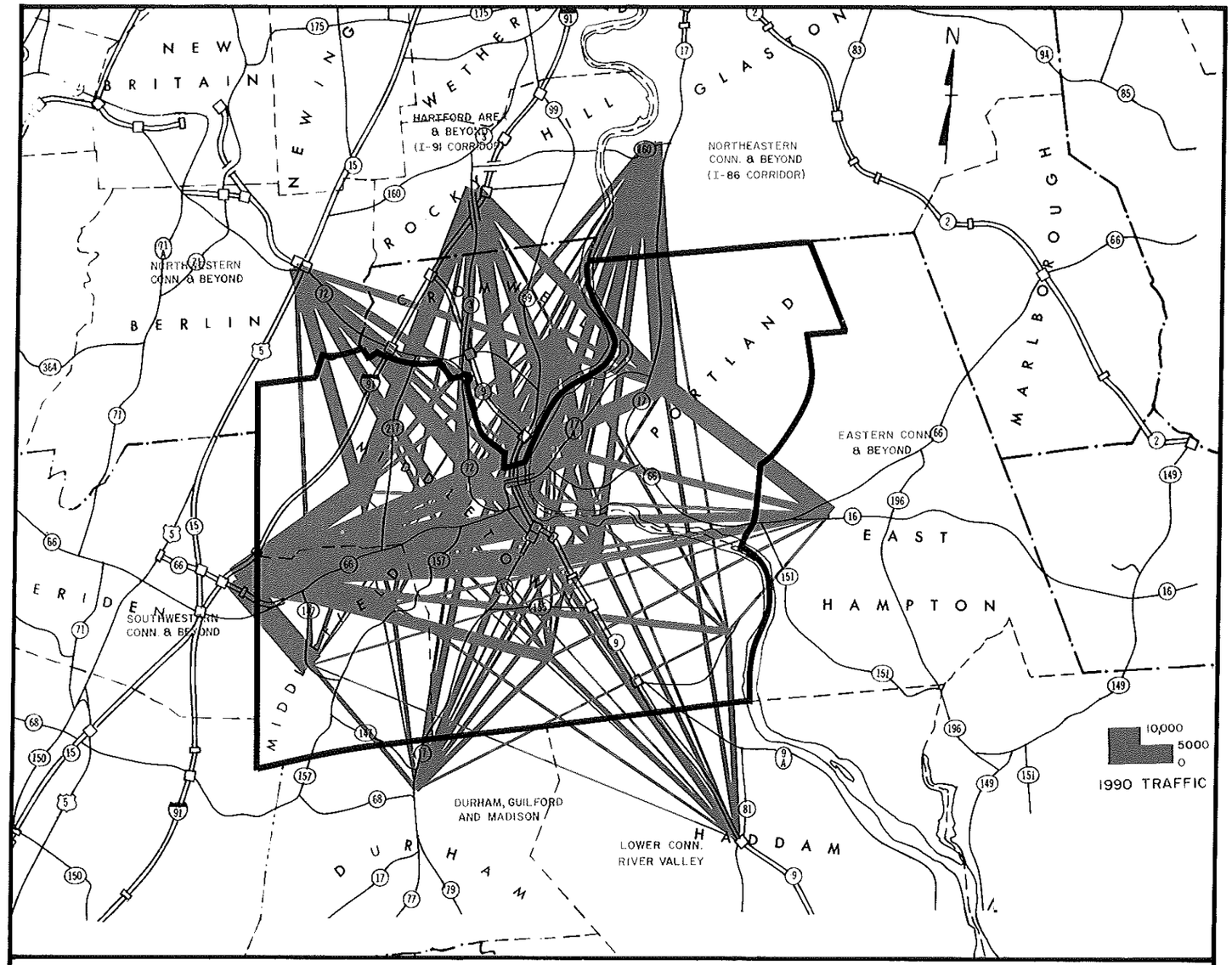
EXHIBIT IIA

The capacity constraints which control traffic flow along a conventional land service highway generally occur at the intersections, rather than along the roadway sections connecting those intersections. With closely spaced intersections, the intersection capacity determines the capacity of the whole roadway system.

The intersections along the existing route in Middlefield are generally spaced so that the capacity of sections of roadway controls flow between intersections. In Middletown, the intersections generally interact so that the capacities of the roadway sections are never reached during peak periods. In Portland, the intersection of Marlborough and Main Streets acts as a constraint.

Most of the twelve signalized intersections along existing Route 66 are near capacity. The intersection of Washington Street and Main Street in Middletown is now operating at capacity. Based on projected traffic growth without a relocation of Route 66, all of the signalized intersections on Route 66 in Middletown and Portland will reach capacity within the next ten years.

Relief by other modes of transportation was ruled out as a practical solution for this capacity deficiency. Bus ridership has steadily declined in the study area to the point where the local carrier has petitioned the State Public Utilities Commission for permission to reduce service.



DESIRE LINE DIAGRAM

SEMI-LOCAL TRAFFIC

1990 AVERAGE DAILY TRAFFIC

(WITH ROUTE 66 EXPRESSWAY)

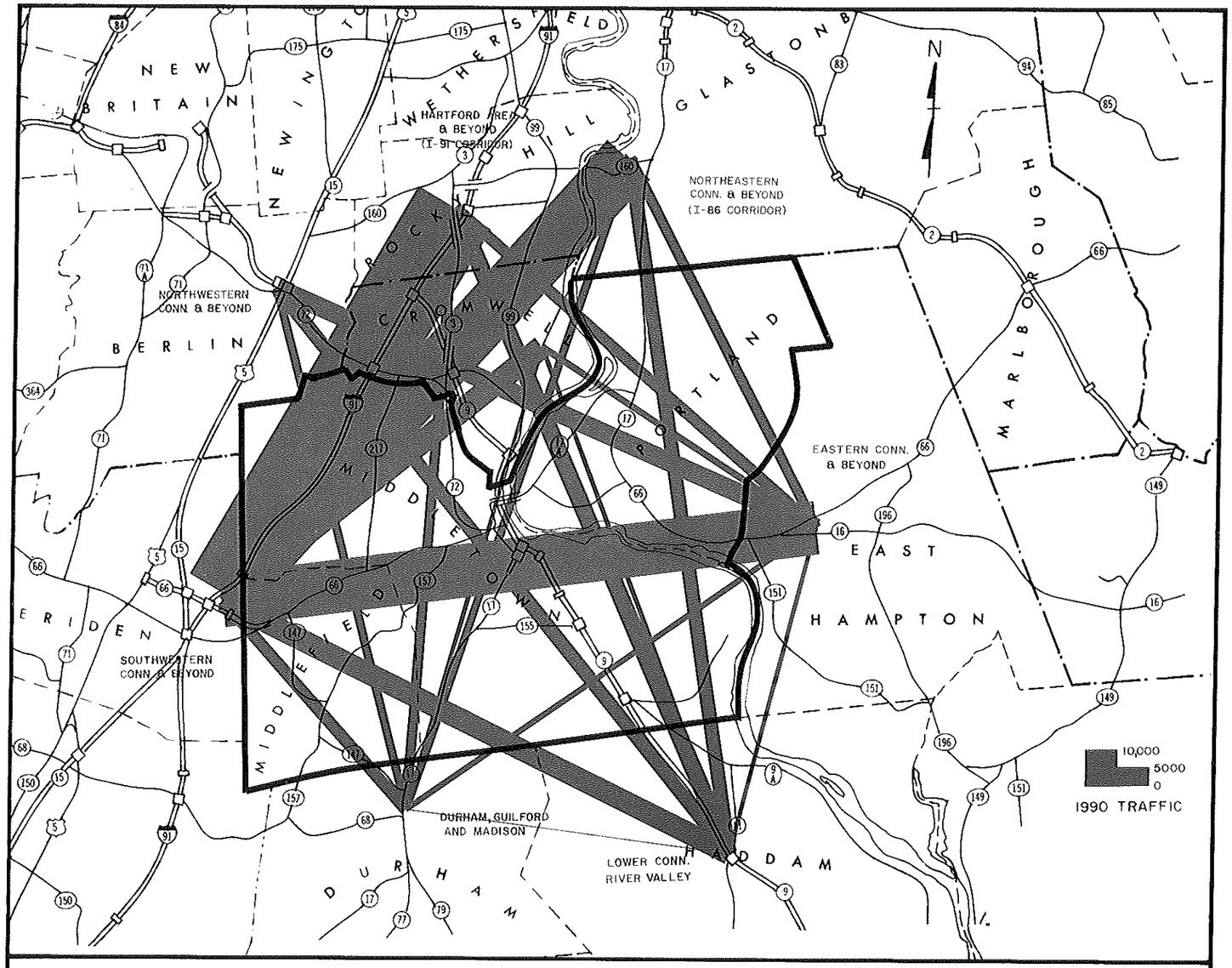
EXHIBIT IIB

The study area does not possess the trip characteristics necessary for the successful development of presently viable urban mass transit systems. Such factors as urban area population, central city population density, central business district floor space, and daily central business district destinations do not meet requirements needed to sustain such mass transit facilities.

Relief of the present and projected inadequacy of existing Route 66 is the key to a solution of the area's long range transportation needs. It was determined that widening Route 66 by an additional lane in each direction would provide some relief for today's traffic only. Widening Route 66 sufficiently to satisfy the 1990 demand shown on Exhibit 10D would result in an unrealistic number of through and turning lanes, disastrous in terms of economic impact, right-of-way acquisition, displacement of families and businesses, and general traffic service to the area.

A widening of that magnitude would further exacerbate present hazards caused by motorists turning in and out of the various driveways along Route 66. Complete control of such access would eliminate all homes and businesses not taken by the widening in the first place. In the end, therefore, widening would not achieve the intended results.

This analysis led to the conclusion that a widening of Route 66 as a substitute for a relocation will not solve the long range problem and that a relocation of Route 66 would best serve the future transportation needs of the study area and the region as a whole.



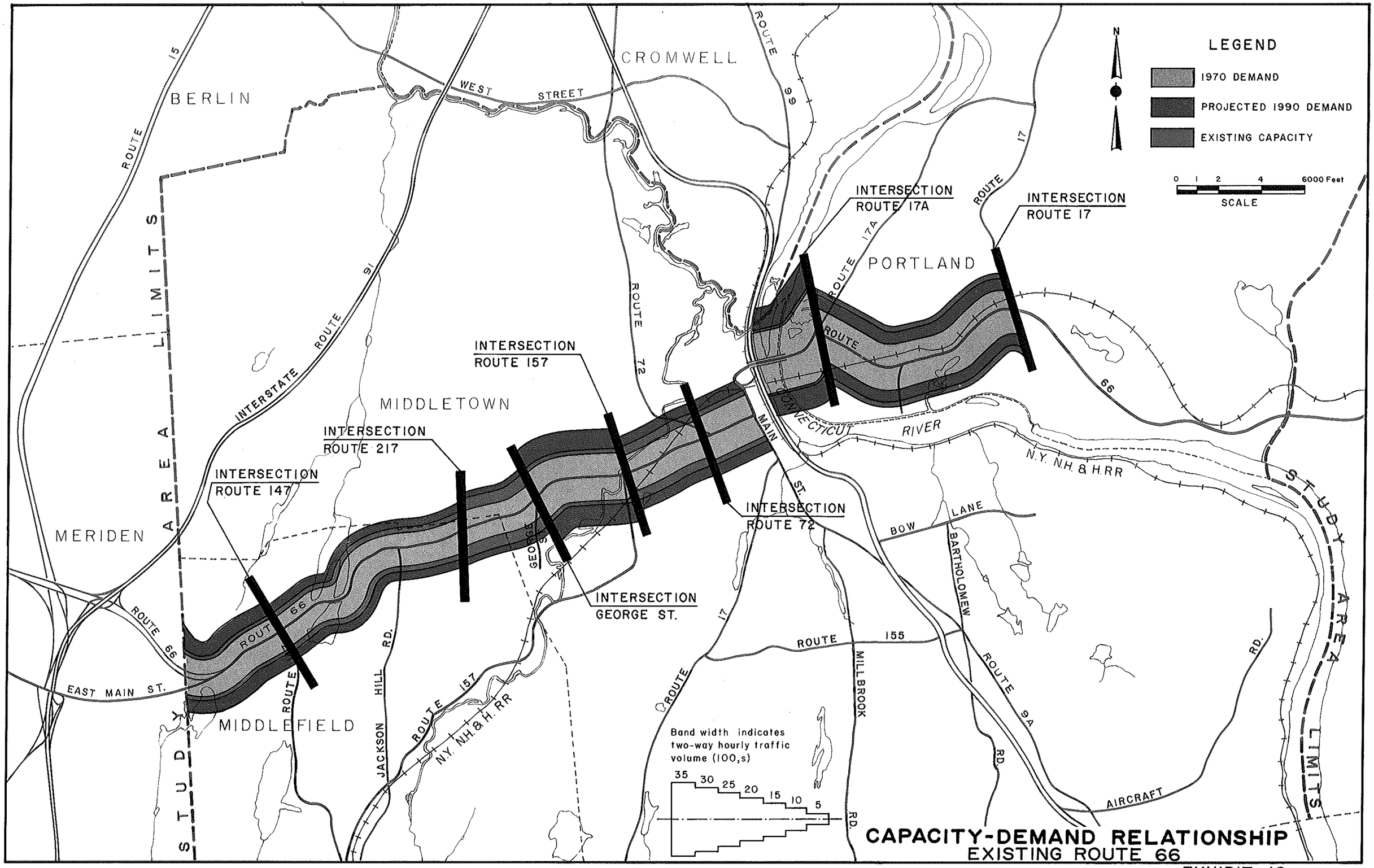
DESIRE LINE DIAGRAM

THRU AREA TRAFFIC

1990 AVERAGE DAILY TRAFFIC

(WITH ROUTE 66 EXPRESSWAY)

EXHIBIT IIC



CAPACITY-DEMAND RELATIONSHIP
EXISTING ROUTE 66

EXHIBIT 12

CHAPTER V

LOCATION CRITERIA FOR ROUTE 66

MAJOR CONTROLS

Location controls were established by field reconnaissance and by meetings with local groups and those governmental and public agencies having specific interests within the study area. Initial meetings were held with the Midstate Regional Planning Agency, State Board of Fisheries and Game, State Park and Forests Commission, U.S. Fish and Wildlife Service, Middletown City Planning Commission, Connecticut Valley Hospital, Wesleyan University, the Hill Development Corporation, local officials, State Department of Health, Middletown Water Department, the Penn Central Railroad, Department of Children and Youth Services, and the local Boards of Education. As a result of these meetings, those controls which would be significant in determining corridor locations were plotted on base maps which were updated during the course of the study as new controls became apparent.

A major control was established at a meeting on December 15, 1970, with a representative of the State Health Department. The Commissioner of Health has ruled that "everything possible" should be done to locate new highways at least ¼ mile from the nearest reservoir. This control affects possible corridor locations in the vicinity of the Mt. Higby, Laurel Brook and Connecticut Valley Hospital Reservoirs. Also mentioned were precautions to be taken within reservoir watersheds to prevent roadway drainage from contaminating the watershed.

The Connecticut Valley Hospital officials were contacted to explain their future plans so a determination could be made regarding a corridor location through this major complex. This procedure was followed with the State Deparment of Children and Youth Services, regarding the Long Lane School, the State Parks and Forest Commission regarding Wadsworth Falls State Park and the state forests, the State Board of Fisheries and Game regarding conservation areas, and Wesleyan University.

Discussions with local officials, supplemented by field reconnaissance, led to the identification of governmental, educational, recreational, religious and health institutions in the study area.

The major controls are shown on Exhibit 13.

Other factors which could influence a corridor location were investigated, such as areas planned for future residential, commercial, industrial and recreational development. Topographic maps were studied to identify natural features which might influence alternate corridor locations.

This data was used as a basis for evaluation of past proposals and for the development of preliminary corridor locations.

EXHIBIT 13

LEGEND

1 CONNECTICUT VALLEY STATE HOSPITAL
2 LONG LANE SCHOOL
3 SAINT SEBASTIAN CEMETERY
4 PINE GROVE CEMETERY
5 FARM HILL CEMETERY
6 SAINT MARYS CEMETERY
7 NORTH CEMETERY
8 CALVARY CEMETERY
9 WILBERT SNOW SCHOOL
10 ECKERSLEY HALL SCHOOL
11 WOODROW WILSON JUNIOR HIGH SCHOOL
12 FREDERICK BIELEFIELD SCHOOL
13 XAVIER HIGH SCHOOL
14 MOUNT HIGBY RESERVOIR
15 LAUREL BROOK RESERVOIR
16 ASYLUM (CONNECTICUT VALLEY HOSPITAL) RESERVOIRS
17 WADSWORTH FALLS STATE PARK
18 DOOLEY POND
19 VETERANS MEMORIAL PARK, PALMER FIELD
20 BUTTERNUT HOLLOW
21 ZOAR POND
22 RAVINE PARK
23 CRYSTAL LAKE
24 COCKAPONSET STATE FOREST
25 JOBS POND
26 MESHOMASIC STATE FOREST
27 BLACK POND
28 ROUND MEADOW
29 BOGGY MEADOW
30 PECAUSETT MEADOWS
31 WESLEYAN UNIVERSITY
32 MIDDLESEX COMMUNITY COLLEGE
33 CONVENT OF THE CENACLE

LEGEND

- RESERVOIR & WATERSHED AREAS
- RECREATION & CONSERVATION AREAS
- SCHOOLS (GRADE, JUNIOR, & SENIOR HIGH)
- UNIVERSITIES, COLLEGES
- RELIGIOUS INSTITUTIONS
- HOSPITALS, CONVALESCENT HOMES, INSTITUTIONS
- CEMETERIES
- WET LANDS

MIDDLETOWN C.B.D.

PORTLAND C.B.D.

MIDDLEFIELD TOWN CENTER

MAJOR CONTROLS

SCALE 0 1 2 3 4 6000 Feet

EXHIBIT 13

CHAPTER VI

DEVELOPMENT OF PRELIMINARY CORRIDORS FOR ROUTE 66

MIDSTATE CORRIDOR

As mentioned in Chapter II, the Midstate Regional Planning Agency had previously developed and proposed a corridor for the relocation of Route 66. Informational public hearings on this proposal were held by the Middlesex Bridge and Port Authority on April 29 and June 3, 1968. The "Midstate Line" is shown on Exhibit 4.

After study and evaluation it was concluded that the "Midstate Line" was no longer a viable corridor for relocation of Route 66 in light of currently established controls. Some of the determinants leading to this conclusion are listed below:

1. It would pass through the Mt. Higby Reservoir on a location unacceptable to the State Health Department.

2. It would pass through Butternut Hollow and Ravine Park, contrary to the policy of the Department of Transportation to preserve open space and recreational areas.

3. It would pass through the Pin Oak recreational area of the Connecticut Valley Hospital.

4. It would pass through the northeast corner of Long Lane School, contrary to the future development plans of the Department of Children and Youth Services.

5. It would disrupt Wesleyan University's planned expansion program.

6. It would not have a beneficial effect on the economy of the area as it passes, for the most part, through already developed land.

7. Its path through Ravine Park would effect the character of the surrounding residential neighborhoods.

8. It would displace approximately 300 families by slicing diagonally through the center of Middletown.

PRELIMINARY CORRIDORS

A major consideration in the development of preliminary corridor locations was the determination of feasible points at which to cross the Connecticut River. Many factors bear on such a determination, including bridge construction economy, river flow, navigational clearances, and land use along and beyond the river banks. Land usage affecting crossing sites includes the Middletown CBD, the Connecticut Valley Hospital (and its reservoirs), Cockaponset State Forest and the Pecausett Meadows.

Two potential crossing sites were identified, one in the vicinity of the Narrows (near Eastern Drive, Middletown) and the other at the Straits, below Bodkin Rock. These locations are similar to those studied by Newman Argraves and Associates in 1967.

Five preliminary corridors were developed in conformance with the major controls described in Chapter V.

Exhibit 14 shows the preliminary corridors in relation to these controls.

The Mt. Higby Reservoir control forces a common alignment for preliminary corridors A, D and F for a distance of approximately two miles in Middlefield, and precludes a more northerly corridor through or west of the Reservoir. Corridors B and C swing further to the south.

Corridor A begins at the present expressway terminus north of Black Pond and proceeds in an easterly direction south of Mt. Higby Reservoir across Jackson Hill, then curves in a northeasterly direction and passes between a residential tract development on the north and North Cemetery on the south. It continues in a northeasterly direction through sparsely developed land to the Middlefield-Middletown Town Line. The corridor turns in an easterly direction and passes immediately north of the northeast portion of Wadsworth Falls State Park.

It cuts across lands of the Convent of the Cenacle, passing north of the Convent itself. The line then passes south of Wilbert Snow School before changing direction to a northeasterly course, passing north of the new American Educational Publications building in the vicinity of West Long Hill. The corridor continues northeasterly, passing north of Long Hill Brook and across the southern end of Pameacha Pond. The corridor then crosses Route 17 and proceeds northeasterly across densely developed residential land, passing between the Eckersly Hall Public School and the Woodrow Wilson Junior High School, to a point west of Saybrook Road.

It then turns in a northerly direction, crossing Route 9 north of Silver Street and passes immediately west of the Connecticut Valley Hospital before continuing across the Connecticut River into Portland at "The Narrows". In Portland the corridor passes south of St. Mary's Cemetery, and turns northeasterly across the residential land between Pecausett Meadows on the east and a similar low-lying flood plain on the west. The line crosses existing Route 66 at Grove Street and continues in an easterly direction on the southern side of Crow Hill. The corridor terminates at the existing intersection of Route 66 (Cobalt Road) and Route 17 (Gospel Road).

Corridor B begins at the same location as Corridor A, but proceeds in a southeasterly direction south of Mt. Higby Reservoir and across Jackson Hill to a location south of North Cemetery. The line continues in this direction and passes northeast of the Middlefield town center. It then curves in an easterly direction and passes north of Cherry Hill through agricultural land zoned for an industrial park. It passes north of Laurel Brook Reservoir and continues into Middletown, where it crosses through the southern end of Wesleyan Hills, a planned residential community presently under construction.

After crossing Route 17 north of Dooley Pond, the corridor then turns in a northeasterly direction passing north of Crystal Lake and south of the Frederick Bleifield School through residential development. The line crosses Route 9 between Saybrook Road and the Randolph Road interchange and then turns northerly, passing north of White Rock and the Connecticut Valley Hospital Reservoirs. The corridor continues in this direction and crosses the Connecticut River at "The Straits". The corridor passes through Straights Hill In Portland and turns easterly to its terminus with existing Route 66 south of Jobs Pond.

Corridor D diverges from the A corridor at a point east of Jackson Hill Road in Middlefield. It continues northeasterly through sparsely developed residential land and passes south of St. Sebastian Cemetery. The corridor passes immediately south of the Sutton Towers apartment house in Middletown and then turns southeasterly between the Washington Plaza shopping center and Starr Millpond. It proceeds in this direction through generally undeveloped land and crosses the southern tip of the Long Lane School property, northeast of the Wilbert Snow School. It then continues through residential areas south of Bretton Heights and north of Pine Grove Cemetery. The line crosses Route 17 and continues southeasterly, passing north of Zoar Pond. It then turns east north of Randolph Road and proceeds through developed residential land between Randolph Road and south of Farm Hill Cemetery on Ridge Road. This corridor joins Corridor B west of Sumner Brook.

Corridor C diverges from Corridor B east of Route 17 at Dooley Pond and swings northward through sparsely developed residential terrain. It crosses Randolph Road, proceeds immediately west of Zoar Pond, and then turns northeasterly south of Pameacha Pond through residential and commercial development. It joins Corridor A north of Woodrow Wilson High School.

Corridor F diverges from Corridor A west of Saybrook Road in Middletown and turns easterly through industrial and residential development towards Tryon Hill. It passes south of the Calvary Cemetery on Bow Lane and then turns northeasterly joining Corridor B in the vicinity of Indian Hill.

All of the above corridors cross Route 17 in Middletown, south of the CBD. The B, D and F corridors terminate at existing Route 66 in Portland near Route 17 (Gospel Road), while the A and C corridors cross Route 17 as well as Route 66 (Marlborough Street). All the preliminary corridors therefore provide for the rerouting of Route 17, across the river. Connections to and from Route 17 in Middletown are possible as part of any interchange that would be provided with this artery. Connections to Route 17 in Portland are possible via existing Route 66 (Cobalt Road) or through direct interchanges.

SOLICITATION OF COMMENTS

To foster community participation in the planning process for this study, a letter dated February 25, 1971 and a map showing the above preliminary corridor locations, was distributed to the first elected officials of Middlefield, Middletown and Portland, to State and Federal legislators from the study area and to all local, regional, State and Federal agencies and groups that would be interested in or affected by this study. The letter and map are shown on Exhibit 15. A complete list of the recipients is provided at the end of this chapter.

The comments and actions resulting from this solicitation letter are discussed in Chapter VII.

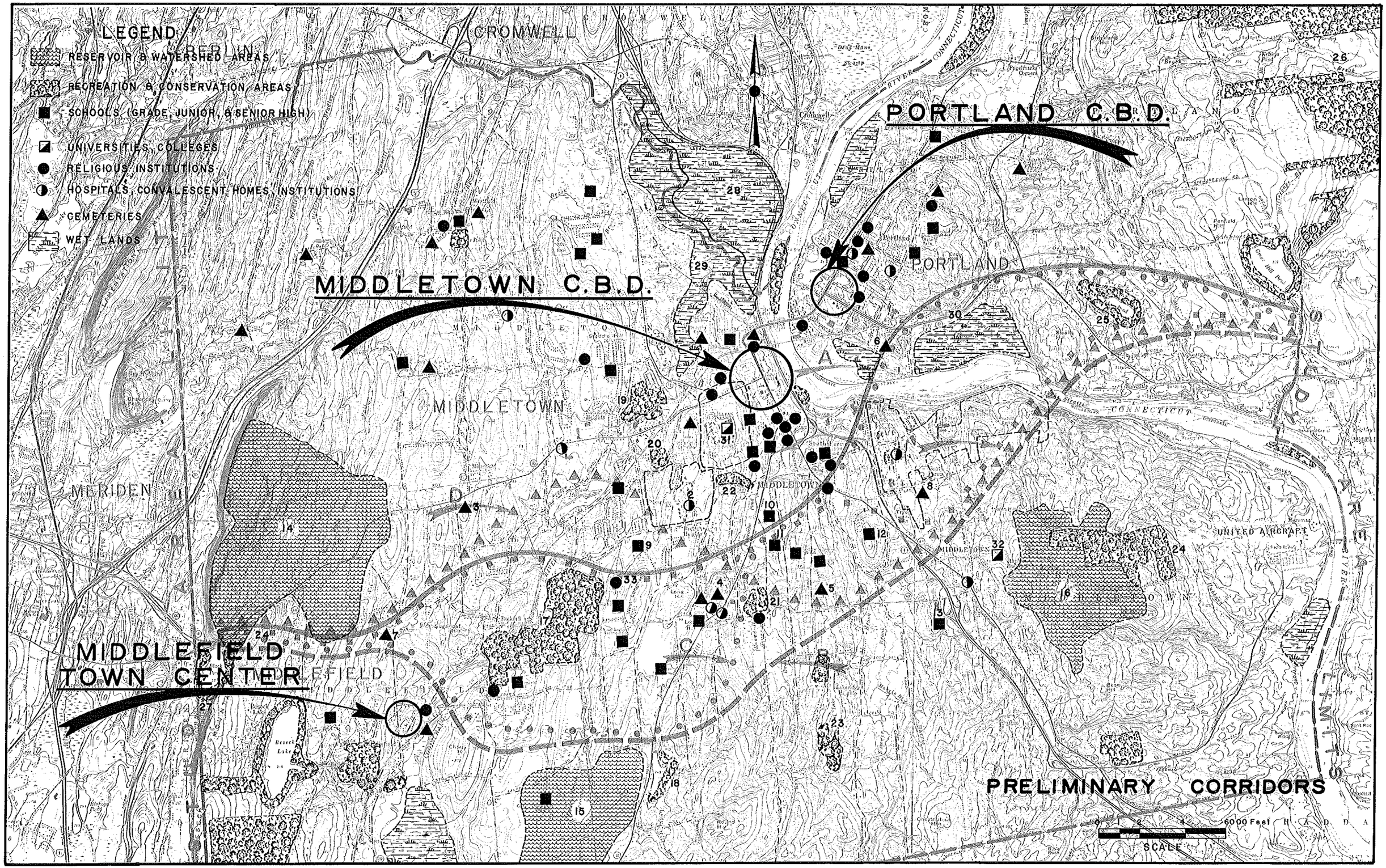

LEGEND
RESERVOIR & WATERSHED AREAS
RECREATION & CONSERVATION AREAS
SCHOOLS (GRADE, JUNIOR, & SENIOR HIGH)
UNIVERSITIES, COLLEGES
RELIGIOUS INSTITUTIONS
HOSPITALS, CONVALESCENT HOMES, INSTITUTIONS
CEMETERIES
WET LANDS
MIDDLETOWN C.B.D.
PORTLAND C.B.D.
MIDDLEFIELD TOWN CENTER
CROMWELL
MIDDLETOWN
PORTLAND
MERIDEN
MIDDLEFIELD
UNITED AIRCRAFT
CONNECTICUT RIVER
PRELIMINARY CORRIDORS
SCALE
0 1 2 4 6000 Feet
HARTFORD

EXHIBIT 14

BERGER, LEHMAN ASSOCIATES, INC.
CONSULTING ENGINEERS, TRANSPORTATION PLANNERS
141 CENTRAL PARK AVE. SOUTH
HARTSDALE, N. Y. 10530

914-428-5980
212-324-5776

159 NEWINGTON RD.
ELMWOOD, CONN. 06110

203-233-1145

February 25, 1971

Subject: Route 66 Planning Study
Middlefield to easterly of
the Connecticut River/
Route 9 Improvement Study -
Middletown

We have been retained by the Connecticut Department of Transportation, Bureau of Planning and Research, to study the advisability and feasibility of relocating a section of Connecticut Route 66 from the vicinity of the Meriden-Middlefield Town Line to easterly of the Connecticut River. Additionally, we are to study improvements of Route 9 from the vicinity of the Sebethe River to the vicinity of Route 17 in Middletown.

The Connecticut Department of Transportation has directed that studies of such highway improvements reflect considerations of any social, economic, and environmental factors including other forms of transportation which may influence decisions regarding such improvements. Accordingly, we are soliciting comments and information pertaining to this study from all Federal, State and regional agencies, local public officials and agencies, and public advisory groups that may be interested in or affected by this Study.

We have, as a basis for your comments, attached a map (scale 1" = 2000') on which are shown very preliminary alternate corridor locations for Route 66. The corridor locations for Route 66 shown on the attached map, by solid gray bands, have been developed expressly for the purpose of obtaining comments to aid in the further study of these projects. A corridor is briefly described as an area of varying width that possesses potential for the consideration of a location for a highway.

We have no preconceptions regarding where the road will eventually go or what type of facility it will be or whether it will even be built in whole or in part. These decisions will be based on our study of transportation needs of the area and information provided to us by the many private citizens and government officials contacted during the course of the study.

Your comments for Route 66 need not be restricted to the preliminary corridors shown on the attached map. Comments may be made relative to any other locations within the general study area.

Also shown on the map, in solid gray circles, is the section of existing Route 9 along which possible improvements will be studied. This study will consider replacement of the present at-grade intersections with safer and more efficient service for area traffic. Various alternate methods of accomplishing such improvements will be considered during the study. We would appreciate receiving any suggestions or concerns you may have regarding the improvement of Route 9. It should be noted that the extent and method of improving Route 9 will be directly interrelated with preliminary corridor locations for Route 66.

As an additional guide for your comments, the following specific factors will be evaluated for each Route 66 corridor as well as for any improvements of Route 9. This list is not meant to be exclusive; information bearing on any additional relevant considerations may also be included.

1. Fast, safe and efficient transportation
2. National defense
3. Economic activity
4. Employment
5. Recreation and parks
6. Fire protection
7. Aesthetics
8. Public utilities
9. Public health and safety

10. Residential and neighborhood character and location
11. Religious institutions and practices
12. Conduct and financing of Government (including effect on local tax base and social service costs)
13. Conservation (including erosion, sedimentation, wildlife, and general ecology of the area)
14. Natural and historic landmarks
15. Noise, and air and water pollution
16. Property values
17. Multiple use of space
18. Replacement housing
19. Education (including disruption of school district operations)
20. Displacement of families and businesses
21. Engineering, right-of-way and construction costs of the project and related facilities
22. Maintenance and operating costs of the project and related facilities
23. Operation and use of existing highway facilities during construction and after completion

EXHIBIT 15

All views and comments received as a result of this coordination will be fully considered and become part of the project analysis. In addition to your views, we are requesting, by copies of this letter, that other local officials and agencies in your community, as shown on the attached list, also comment on this project. It would be appreciated if your office could correlate the comments of the local officials and agencies and forward them to the undersigned at our regional office at 158 Newington Road, Elmwood, Connecticut 06110. It is requested that this procedure of having all correspondence channeled through your office be followed so that you may be kept fully informed of all coordination for this project being carried on within the City.

It would be appreciated if all comments on the above were submitted within one month since we hope to make recommendations consistent with the comments received from all sources and present a preliminary report to the Department of Transportation, Bureau of Planning and Research, in approximately seven months.

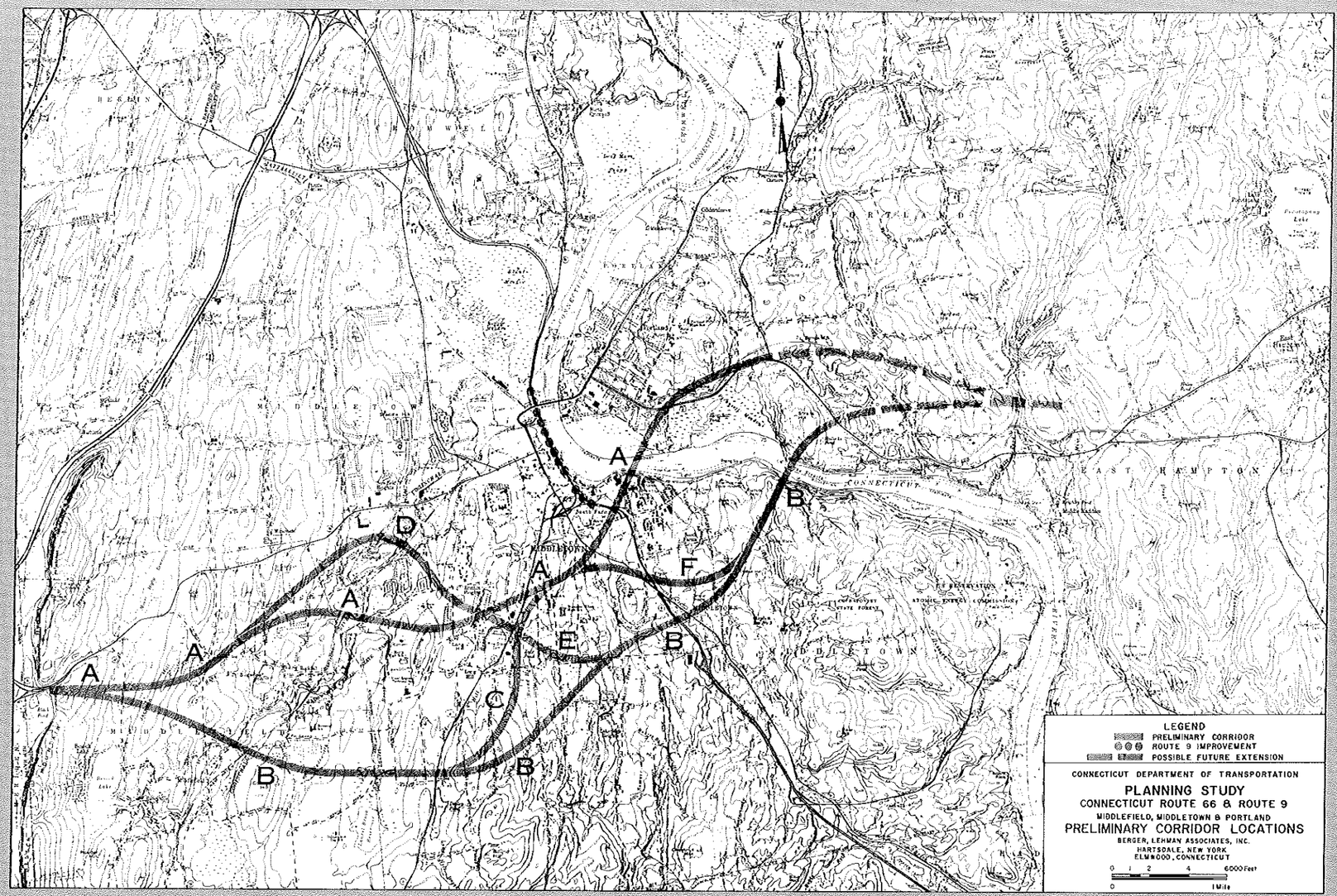
If you have any questions or should you want us to send a duplicate of this package to any officials or agencies we may have inadvertently omitted, or should you desire a meeting to discuss the above, please direct your inquiries to our regional office. The telephone number is (203) 233-1145.

We would like to thank you in advance for your interest and participation at this early stage of this project. Only through such a free and open exchange of views can all interested persons be provided an opportunity to become fully acquainted with the studies and to express their views when flexibility to respond still exists.

Very truly yours,

Robert J. Trapani
Project Director

RJT/kf
Attachments
cc: U.S. Senator Abraham A. Ribicoff
U.S. Senator Lowell P. Weicker, Jr.
U.S. Representative Robert H. Steele
State Senator Thomas P. Mondani, 33rd District
State Representative Raymond J. Dzialo, 74th Assembly District
State Representative Peter W. Gillies, 75th Assembly District



The letter of solicitation and the preliminary corridor map, were mailed to the following:

CITY OF MIDDLETOWN

The Mayor
The City Council
Supt. of Schools
Board of Education
City Engineer & Dir. of Public Works
Commission on City Plan & Zoning
Department of Health
Human Relations Comm.
Transit Authority
Harbor Improvement Agency
Director of Police
Director of Fire District
Civil Defense Director
Park & Recreation Commission
Director of Parks
Director of Recreation
Board of Health
Sanitary Disposal District Comm.
Office of Economic Opportunity
Senior Affairs Commission
Water Commission
Building Inspector
Director of Water & Sewer

TOWN OF MIDDLEFIELD

First Selectman
Chairman, Assessors
Regional Board of Education
Planning & Zoning Comm.
Industrial Development Comm.
Parks & Recreation Comm.
Health Commission
Civil Defense Director
Chief of Police
Selectmen
Superintendent of Schools
Building Inspector
Zoning Board of Appeals
Conservation Committee
Director of Health
Chief of Fire Department
Tree Warden

TOWN OF PORTLAND

First Selectman
Tree Warden
Planning & Zoning Comm.
Conservation Commission
Superintendent of Schools
Zoning Board of Appeals
Director of Civil Defense
Building Inspector
Community Development Action Program
Chief of Fire Department
Selectmen
Housing Authority
Industrial Commission
Board of Education
Director of Health
Redevelopment Agency
Chief of Police
Director of Public Works & Superintendent of Highways
Town Engineer

FEDERAL AGENCIES

Soil Conservation Service, U.S. Dept. of Agriculture
Air Pollution Control Office Environmental Protection Agency
Division of Wildlife Services
Dept. of Housing & Urban Development
Bureau of Outdoor Recreation, U.S. Dept. of the Interior
Federal Aviation Agency, Department of Transportation
Office of High Speed Ground Transportation, Department of Transportation
New England River Basin Commission
Federal Railroad Administration U.S. Dept. of Transportation
Federal Water Quality Administration, Environmental Protection Agency
Bureau of Sport Fisheries & Wildlife, U.S. Department of Interior
New England Division, Corp. of Engrs.
Housing Division, Federal Housing Administration
National Park Service, New England Region, U.S. Dept. of the Interior
U.S. Geological Survey Water Resources Division
Third Coast Guard District
U.S. Forest Service

STATE AGENCIES

Parks & Forests Dept. of Agriculture & Natural Resources
Open Space Program Dept. of Agriculture & Natural Resources
Soil Conservation Division Dept. of Agriculture & Natural Resources
Administrative Services Department of Community Affairs
Connecticut Historical Comm.
Director of Civil Defense
Planning Unit, Department of Education
Office of State Planning Dept. of Finance & Control
Public Works Department
Commission on Human Rights & Opportunities
Connecticut River Valley Flood Control Commission
Department of Mental Health
Department of Child and Youth Services
Director of Fisheries & Game Dept. of Agriculture & Natural Resources
Wetland & Marshland Program Dept. of Agriculture & Natural Resources
Water Resources Dept. of Agriculture & Natural Resources
Welfare Department
Connecticut Safety Commission
Board of Trustees of Regional Community Colleges
Business & Industrial Development Div., Development Commission
Department of Health
Public Utilities Commission
Connecticut Research Commission
Department of Correction
The Adjutant General of Connecticut

OTHERS

The Hon. Lowell P. Weicker Jr., U.S. Senate
The Hon. Abraham A. Ribicoff, U.S. Senate
The Hon. Robert H. Steele, U.S. Congress, Second Congressional District
The Hon. Thomas P. Mondani, State Senate, 33rd Senatorial District
The Hon. David Lavine, State Assembly, 73rd Assembly District
The Hon. Raymond J. Dzialo, State Assembly, 74th Assembly District
The Hon. Peter W. Gilles, State Assembly, 75th Assembly District
The Hon. Joseph S. Coatsworth, State Assembly, 76th Assembly District
Connecticut Council of Churches
Congregation Adath Israel
Connecticut Interfaith Housing Corp.
Wesleyan University
Midstate Regional Planning Agency
Ravine Park Neighborhood Assoc.
Wesleyan Hills Association
Roman Catholic Diocese of Norwich
Greater Middletown Chamber of Commerce
Middlesex Memorial Hospital
Greater Middletown Community Corp.
Community Action for Greater Middletown, Inc.
Pike's Ravine Park Committee
Department of Anthropology University of Connecticut

CHAPTER VII

ANALYSIS OF PRELIMINARY CORRIDORS AND DEVELOPMENT OF ALTERNATES FOR ROUTE 66

RESPONSES TO SOLICITATION LETTERS

Written responses to the February 25th letter were received from thirteen state, nine federal and ten local agencies. In addition, 80 private citizens prepared written comments in response to local newspaper coverage of the solicitation letter. A summary of the official agency responses is contained at the end of this chapter. The individual citizen responses were almost unanimous; i.e., no relocation is necessary on the assumption that a widening of the existing route would suffice. Detailed investigations have shown that this assumption is not valid. Widening of existing Route 66 as a substitute for a relocation would not serve the future needs of the study area and region as a whole.

INFORMATIONAL MEETINGS

In response to the solicitation letter, the first Selectman of Middlefield requested a meeting. On March 16, 1971, representatives of the Department of Transportation and Berger, Lehman Associates, Inc., met with Middlefield officials and outlined the proposed approach to the planning study. The Consultant explained how the preliminary corridors relate to the known controls and requested that the Town formulate its opinion on these corridors.

The Middletown Planning Commission requested a meeting on March 24th to have the Consultant and State brief them on the studies. At this meeting, which was also attended by planning officials of Portland and Middlefield, a Tri-Town Panel was established as a representative group to participate in the planning for the relocation of Route 66.

The Panel was organized as follows:

From each town: Chief elected official, three representatives appointed by the chief elected offical, one member of the town's planning commission.

Three representatives for the Greater Middletown Chamber of Commerce.

Co-Chairmen of the Middlesex Bridge and Port Authority.

One Member of the Midstate Regional Planning Agency.

Two staff members.

The Mayor of Middletown requested the Department of Transportation and Consultant to attend a "Public Forum" to explain the approach to, and progress of, the study. At the Forum, held on March 31, 1971, the Consultant displayed exhibits of the planning controls, explained the development of the preliminary corridors, and emphasized that they were meant to establish direction and thus were subject to change. The Forum was opened to comments from the floor and twenty-one persons spoke, generally opposing the preliminary corridors. Major criticisms included disruption of neighborhoods, loss of tax ratables, the splitting of Middletown and the suggestion that the widening of Washington Street would suffice.

The Consultant replied that all of the comments would be considered in the planning process and that continued coordination would be achieved through the Tri-Town Panel.

PRELIMINARY CORRIDOR REVIEW

The first Panel meeting was held on April 13, 1971, at which time co-moderators were chosen and a basic meeting schedule was established. The Consultant answered questions regarding the need for the relocation, the nature of the projected traffic and the planning controls encountered in the study area. The Panel was given a map showing significant planning controls. The Panel expressed interest in the development of a corridor further south than "B", generally following the existing HELCO power transmission line right-of-way. Use of the existing Penn Central Railroad right-of-way through Middletown was suggested as an alternate corridor.

The Panel met privately on April 27, 1971, to formulate its views on the preliminary corridors. Their conclusions were presented at a staff meeting on April 28th.

The significant decisions were:

a. Portland preferred the Bodkin Rock river crossing.

b. Middlefield preferred the most northerly routing past Mt. Higby Reservoir.

c. Middletown suggested comparison of a viable "inner route" against a southern route.

As a result of the comments received at the March 31st Public Forum and the meetings with the Planning Panel, the following actions were taken:

a. A corridor was developed to generally follow the existing Penn Central Railroad right-of-way.

b. In an attempt to stay as far north as possible in Middlefield, a common alignment was developed for all corridors, passing 1/4 mile south of Mt. Higby Reservoir. A corridor running west of, or through, the Reservoir was again discarded because of the Health Department ruling.

At a Panel meeting held on May 11, 1971, the Consultant presented a preliminary alignment for a "railroad corridor". Estimates were presented showing the difference in traffic relief to existing Route 66 resulting from an "inner route" versus a southern bypass of Middletown. The Middletown delegation stated that any corridor through the center of Middletown, such as Corridors A, C, D and F would be unacceptable. The Middlefield representatives objected to Corridors B and C because of their effect on the planned Laurel Brook Industrial Park and because they would divide their planned community.

The following actions were taken as a result of the May 11th Panel Meeting:

a. Corridors A, C, D and F were dropped from further consideration because of their impact on the residential sections of Middletown and the unanimous position voiced by the Panel delegation.

b. The B corridor in Middlefield was refined to parallel, to the extent possible, the existing HELCO transmission line right-of-way, in order to maximize use of this existing "corridor".

c. Two alternates were developed to the B corridor, one running further to the south, and one utilizing a portion of the existing Route 9 right-of-way to a river crossing at the Narrows.

At a Panel meeting held on June 8th, a map was distributed showing the four alternate corridors developed as a result of comments received at earlier meetings. These corridors, identified as B, B-1, B-2 and R, are shown on Exhibit 16. The Panel was advised that the bulk of the quantitative data developed for the four alternates would be available in a few months. The Consultant presented factors on economic impact at the meeting of July 13th; at the July 27th meeting the Consultant presented preliminary data on the effect of the alternate corridors on local government finance.

FINAL ALTERNATE CORRIDORS

A summary of the reasons leading to the development of the final alternate corridors follows:

Corridor B (Exhibit 17)

The B corridor is one of the preliminary corridors which was retained for analysis almost intact. The preliminary location was refined through Middlefield to closely follow the HELCO power line right-of-way and in general to lessen the overall impact on the community. The alignment was shifted further from the Middlefield Town Center. The extension of this route in Portland was adjusted to minimize the impact in the area of Breezy Corner Road.

Corridor B-1 (Exhibit 18)

This corridor was developed at the suggestion of the Panel to minimize the impact of the B corridor between Route 17 and Route 9 in Middletown, although it was recognized that it is more circuitous and therefore more costly. It departs from the B corridor at the Middlefield-Middletown town line and proceeds in a south-easterly direction across Route 17 and the north end of Dooley Pond. It passes south of Livingston Road and Crystal Lake through largely undeveloped land. After crossing the Sumner Brook Plain, the corridor turns northerly and intersects Route 9 in the vicinity of Randolph Road, easterly of Xavier High School. The corridor then proceeds northerly along Route 9 to the B corridor, where it turns easterly to join the B corridor approach to the Bodkin Rock Crossing.

Corridor B-2 (Exhibit 19)

This corridor was developed to provide better service to both the Middletown and Portland CBD's. It is an extension of the B-1 corridor along the Route 9 corridor to a Connecticut River crossing previously part of the A corridor. The corridor follows Route 9 to Silver Street where it turns northeasterly and crosses the river at the northwest corner of the Connecticut Valley Hospital. It runs parallel to existing Route 66 and 17 in Portland, skirting the northern edge of Pecausett Meadows, and curves around the north side of Straits Hill before meeting the B corridor south of Jobs Pond.

Corridor R (Exhibit 20)

This corridor was developed at the suggestion of the Panel as an "inner route" which would be evaluated against the southern routes. The corridor follows a segment of the Penn Central Railroad right-of-way in Middletown in an effort to minimize the impact of going through, rather than around, the developed portions of the study area. This corridor generally follows the original D corridor as far as the railroad just east of Starr Millpond in Middletown. The preliminary alignment was changed to a location south of North Cemetery to minimize the impact on residential development in Middlefield. From Starr Millpond, the corridor follows the railroad right-of-way to the vicinity of High Street, where it continues in a northeasterly direction through residential and commercial development and crosses the Connecticut River just north of the existing Arrigoni Bridge. In Portland the corridor turns easterly through commercial and industrial land before joining the B-2 corridor near Grove Street.

PROGRESS REPORT

In September, 1971, a Progress Report on the status of the study was submitted to the first elected officials of Middlefield, Middletown and Portland, in accordance with the Department of Transportation procedures. This Progress Report contained sections on the background of, and approach to, the study. The alternate corridors were described, and a preliminary analysis of their social, economic and environmental impact was presented. The need for the improvement was explained in detail.
At the request of the City of Middletown, a second "Public Forum" was held in the Snow School, on October 21st, at which time the Progress Report was presented. Approximately twenty of the attendees asked specific questions relating to the presentation. The majority of the questions concerned the need for a relocation. During the last portion of the program, statements were made by elected officials, group representatives, and interested citizens. With one exception, the statements were negative, with concern expressed about the need, and the social, economic and environmental impact of the alternates.

The Consultant replied that a detailed evaluation of the social, economic and environmental impact of each alternate would appear in the final report. This evaluation is the subject of Chapter VIII.

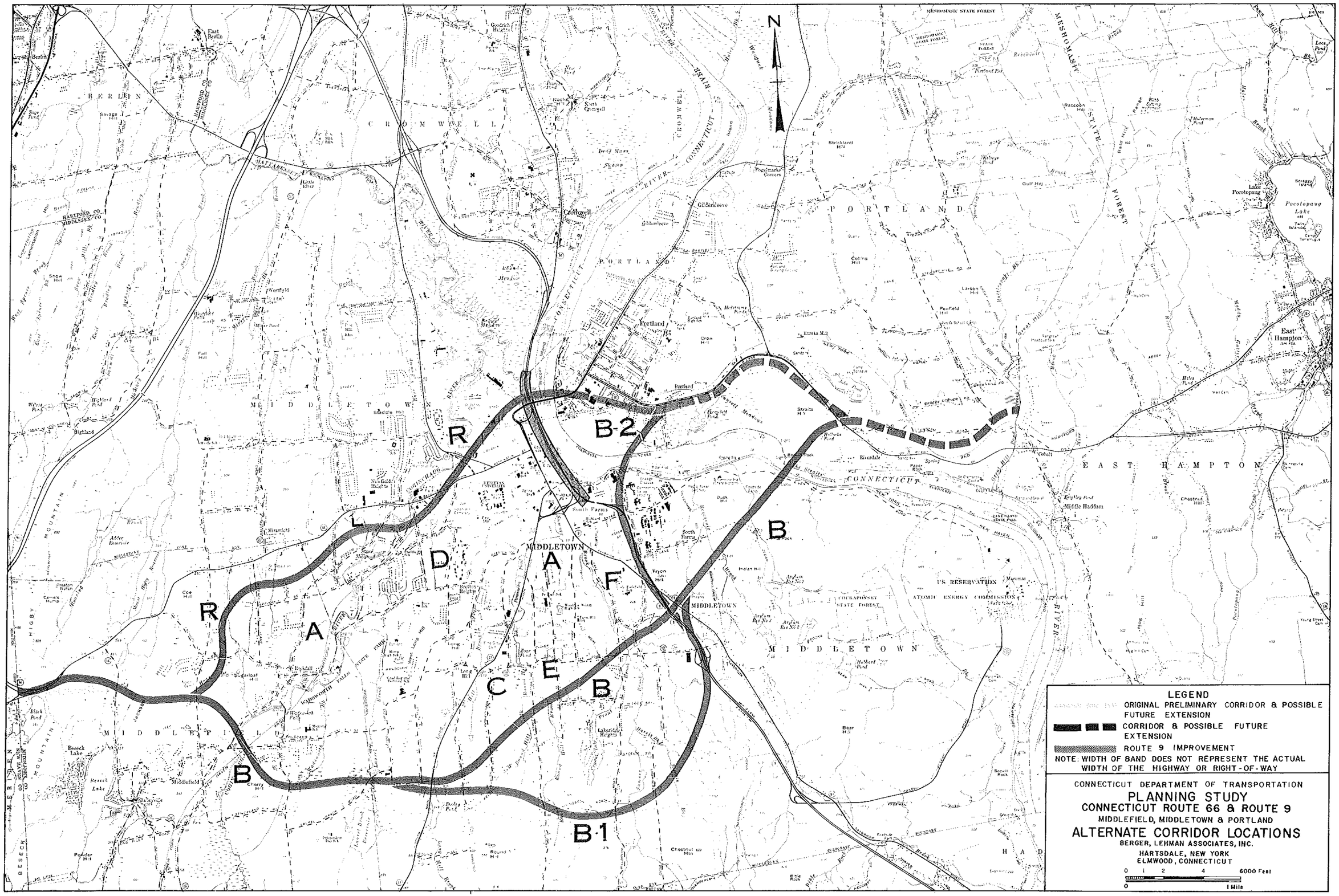

N
B-2
B
B-1
RADIAL A
RADIAL B
RADIAL C-E
RADIAL D
RADIAL F
BERLIN
CROMWELL
PORTLAND
MIDDLETOWN
EAST HAMPTON
MIDDLEFIELD
MERIDEN
MESHOMASIC STATE FOREST
CONNECTICUT RIVER
US RESERVATION
ATOMIC ENERGY COMMISSION
COCKAPONSET STATE FOREST
LEGEND
ORIGINAL PRELIMINARY CORRIDOR & POSSIBLE FUTURE EXTENSION
CORRIDOR & POSSIBLE FUTURE EXTENSION
ROUTE 9 IMPROVEMENT
NOTE: WIDTH OF BAND DOES NOT REPRESENT THE ACTUAL WIDTH OF THE HIGHWAY OR RIGHT-OF-WAY
CONNECTICUT DEPARTMENT OF TRANSPORTATION
PLANNING STUDY
CONNECTICUT ROUTE 66 & ROUTE 9
MIDDLEFIELD, MIDDLETOWN & PORTLAND
ALTERNATE CORRIDOR LOCATIONS
BERGER, LEHMAN ASSOCIATES, INC.
HARTSDALE, NEW YORK
ELMWOOD, CONNECTICUT
0 1 2 4 6000 Feet
0 1 Mile

EXHIBIT 16

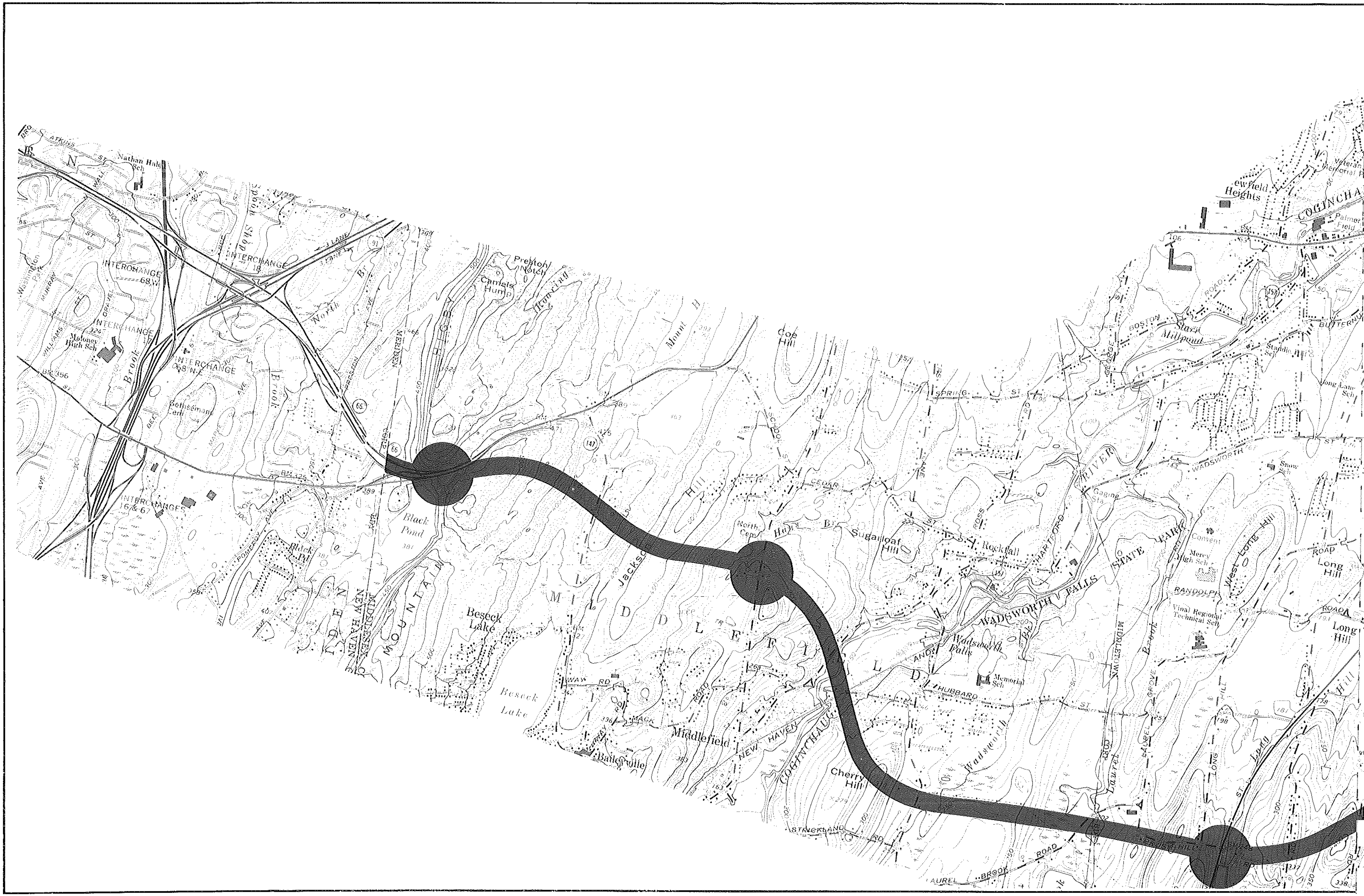

INTERCHANGE 68W
INTERCHANGE 18
INTERCHANGE 68 N-E
INTERCHANGES 16 & 67
Maloney High Sch
Nathan Hale Sch
Gethsemane Cem
Black Pond
Beseck Lake
Preston Notch
Camels Hump
Cob Hill
Jackson Hill
MIDDLEFIELD
Middlefield
Baileyville
Cherry Hill
Sugarloaf Hill
Rockfall
WADSWORTH FALLS STATE PARK
Wadsworth Falls
Memorial Sch
Mercy High Sch
Vinal Regional Technical Sch
West Long Hill
Long Hill
Long Lane Sch
Starr Millpond
Newfield Heights
COGINCHAUG
NEW HAVEN
MIDDLESEX
MIDDLETOWN
MERIDEN

EXHIBIT 17

LEGEND

CORRIDOR

POSSIBLE FUTURE EXTENSION

POSSIBLE INTERCHANGE LOCATION

0 1 2 4 6000 Feet

0 1 Mile

CORRIDOR B

EXHIBIT 17

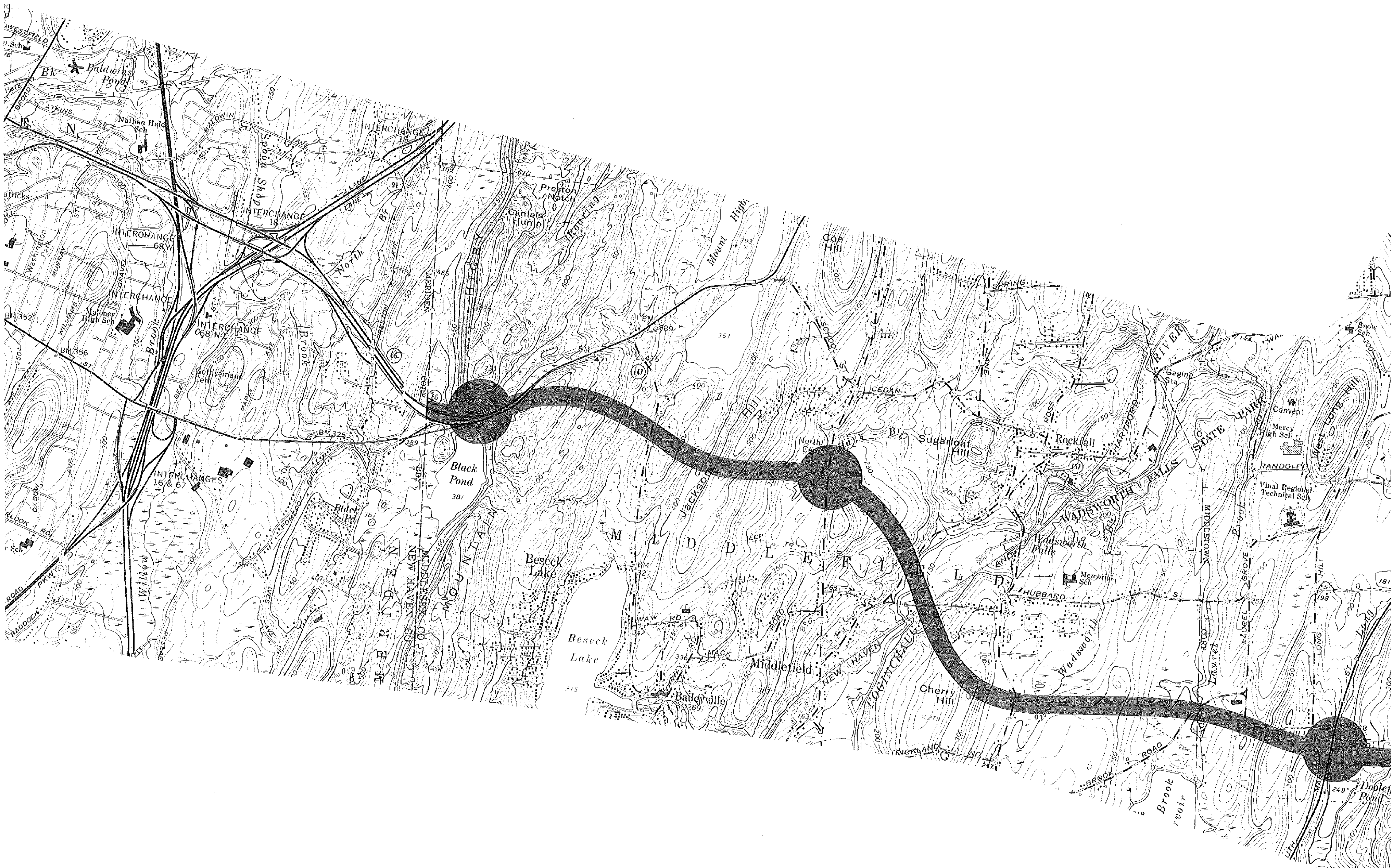

Baldwins Pond
Nathan Hale Sch
INTERCHANGE 18
INTERCHANGE 68 W
INTERCHANGE 68 N-E
INTERCHANGES 16 & 67
Maloney High Sch
Gethsemane Cem
Preston Notch
Camels Hump
Black Pond
MERIDEN
NEW HAVEN CO
MIDDLESEX CO
HIGBY
MOUNTAIN
Beseck Lake
Coe Hill
Jackson Hill
Sugarloaf Hill
Rockfall
MIDDLEFIELD
Middlefield
Baileyville
Cherry Hill
Wadsworth Falls
WADSWORTH FALLS STATE PARK
Memorial Sch
Convent
Mercy High Sch
Vinal Regional Technical Sch
West Long Hill
Dooley Pond
Snow Sch
RANDOLPH
HUBBARD
Coginchaug

EXHIBIT 18

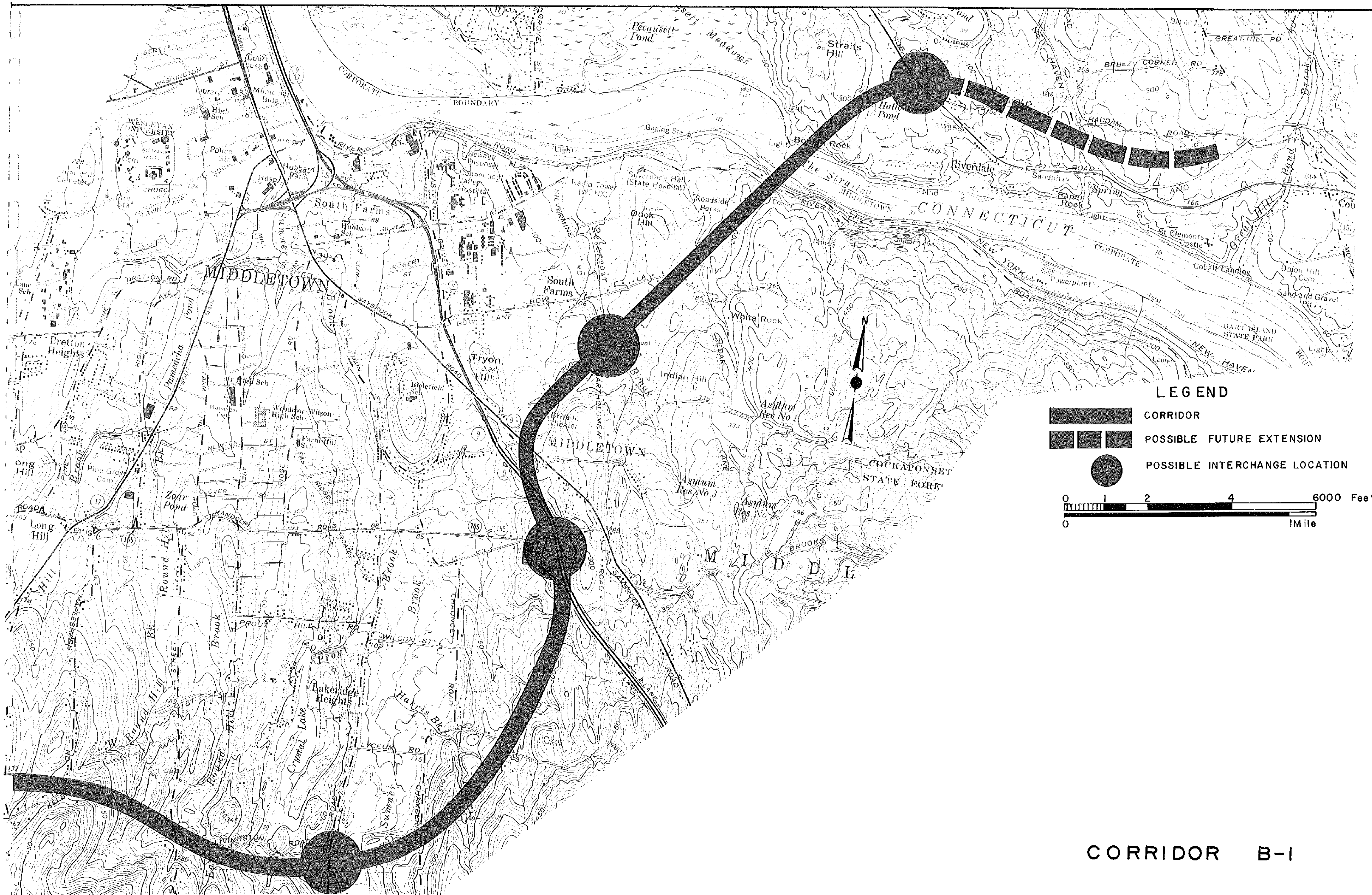

LEGEND
CORRIDOR
POSSIBLE FUTURE EXTENSION
POSSIBLE INTERCHANGE LOCATION
0 2 4 6000 Feet
0 1 Mile
CORRIDOR B-1
MIDDLETOWN
CONNECTICUT
South Farms
Wesleyan University
Straits Hill
Riverdale
Tryon Hill
Bretton Heights
Long Hill
Lakeridge Heights
Crystal Lake
Cockaponset State Forest

EXHIBIT 18

EXHIBIT 19

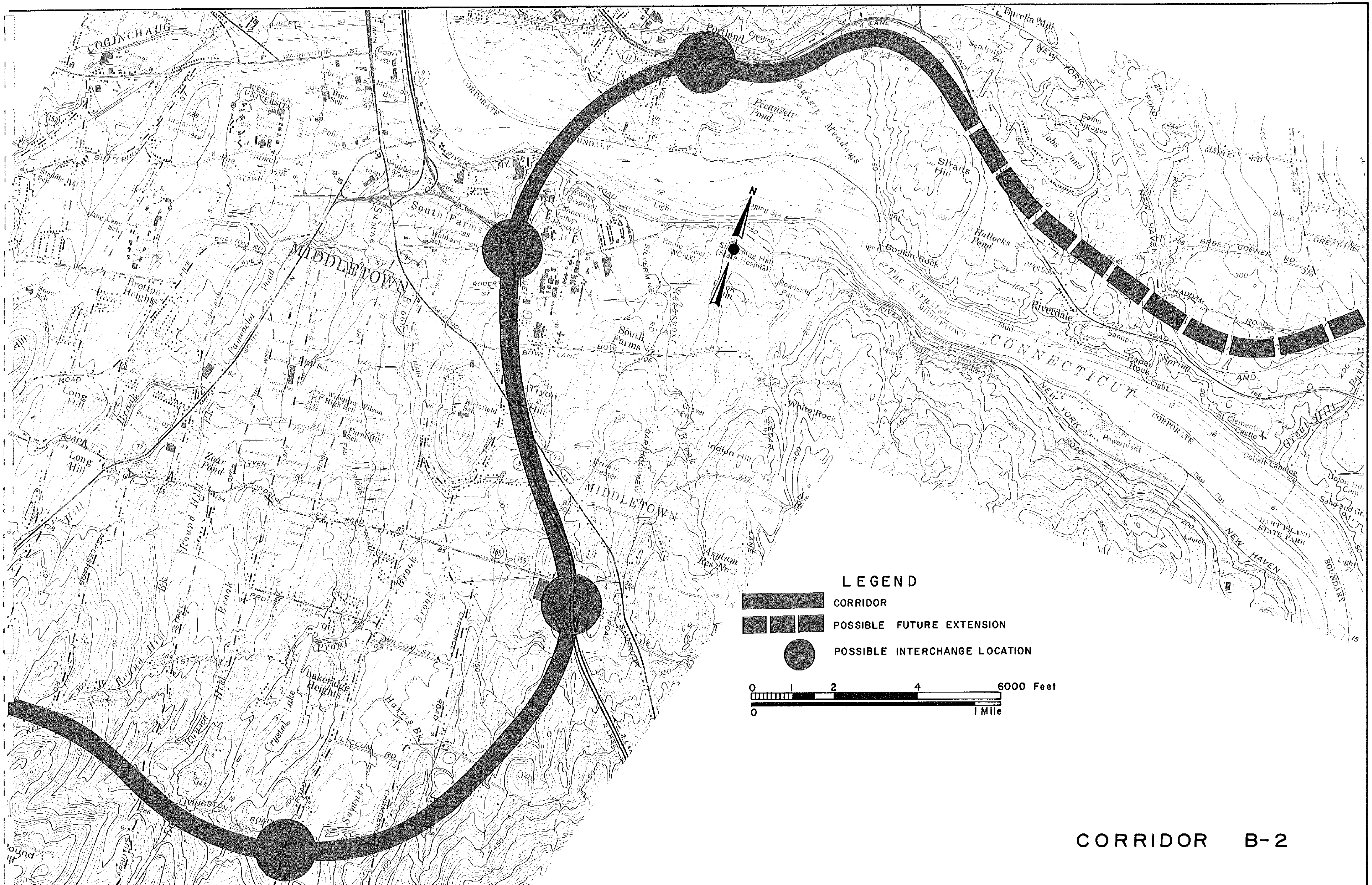
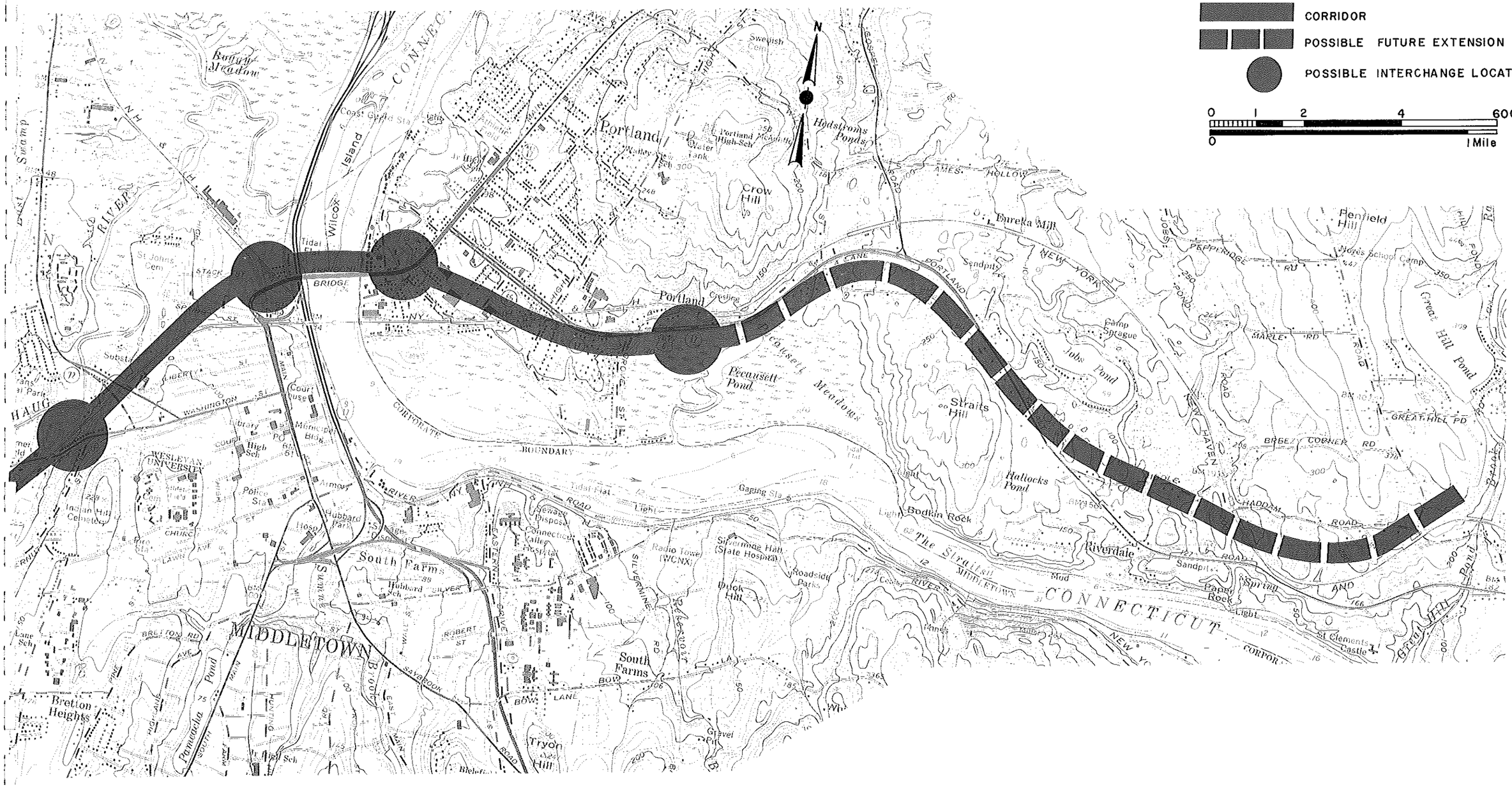

LEGEND
CORRIDOR
POSSIBLE FUTURE EXTENSION
POSSIBLE INTERCHANGE LOCATION
0 1 2 4 6000 Feet
0 1 Mile
CORRIDOR B-2
MIDDLETOWN
CONNECTICUT
South Farms
Portland

EXHIBIT 19

MIDDLETON
Staddle Hill
Spencer Sch
Newfield Heights
Miramichi
Old South Hill Cem
WESTFIELD
CONGDON
STREET
SISK
MIDDLETOWN
CORP
BDY
Mount Higby Reservoir
Coe Hill
St Sebastian Cem
Starr Millpond
SPRING
WADSWORTH
Snow Sch
Sugarloaf Hill
Jackson Hill
Preston Notch
Camels Hump
Black Pond
Beseck Lake
Gethsemane Cem
Maloney High Sch
INTERCHANGE 68 W
INTERCHANGE 18
INTERCHANGES 16 & 67
Brook

EXHIBIT 20



CORRIDOR R

EXHIBIT 20

SUMMARY OF WRITTEN RESPONSES TO THE SOLICITATION LETTER

STATE AGENCY	COMMENT
Research Commission	Corridor B is far superior to others. Corridors A, C, D and F are undesirable because they cut across several communities. Corridor A is too close to the Connecticut Valley Hospital.
Department of Mental Health	Corridor A is too close to the Connecticut Valley Hospital.
Park and Forest Commission	Corridor B has least impact on the Commission's holdings. Corridor A disrupts Wadsworth Falls State Park. Forestry Division lands unavoidably required at Black Pond should be replaced in kind.
Department of Correction	Increased accessibility to Middletown Courts by virtue of improvements to Route 9 and the relocation of Route 66 would adequately serve their needs.
Public Utilities Commission	No comments to offer, subject to any objections utility companies under their jurisdiction may have in the future.
Board of Fisheries and Game	Any crossing of the Coginchaug River should minimize disturbance to the natural channel. Dooley Pond and Crystal Lake should be avoided. The Board has a boat launching ramp on the river east of Route 9. Corridor A seems least likely to disturb the environment from the wildlife standpoint.
Safety Commission	No specific comment; their concern is in the area of traffic and highway safety education.
Department of Community Affairs	Corridor D intersects a moderate income housing project and could have an affect on two others. Corridor A intersects Housing Site Development Project (II-107-H.S.D.).
Board of Trustees of Regional Community Colleges	Identified site for initial phase of the campus for Middlesex Community College. A relocated and improved Route 66 will greatly benefit students, and will encourage enrollment of potential students on the east side of the river.
Development Commission	Corridor B appears the more favorable from the viewpoint of industrial development exposure.
Department of Children and Youth Services	There is a definite need for an improved and relocated route. Long Lane School acreage has been planned for Department expansion. Corridor D renders total acreage useless, in addition to its impact on residential and business areas.
Water Resources Commission	Corridors A, B and D are involved with a planned interceptor sewer. Channel encroachment permits are necessary to place structures on a navigable waterway.
Department of Health	Prefer Corridor B as it misses Mt. Higby Reservoir watershed and the potential ground water supply in Portland. Corridor C is located too close to convalescent homes.

FEDERAL AGENCY	COMMENT
Department of Housing and Urban Development	Corridor A possesses the best potential for consideration of the relocation of Route 66.
Department of Agriculture	Provided generalized soil survey information.
Federal Railroad Administration	Discouraged grade level crossings of railroads.
National Park Service	Identified three properties listed in the National Register of Historic Places. No specific comments on the corridors.
Corps of Engineers	Referred the solicitation letter to the Coast Guard. Corps has indirect interest only in the required river crossing.
Fish and Wildlife Service	Prefer Corridor F as it avoids the fisheries in Pecausett Pond and wetlands of the adjacent Meadows. Minimize siltation and stream bank destruction during construction.
Water Quality Administration	Recommended close coordination with regional water supply, sanitary sewerage and storm drainage master plans.
Coast Guard	Corridor B is better adopted to satisfy navigation requirements and the bridge site should have a lesser impact on the environment.
Federal Aviation Administration	There is no existing or proposed airport which would be affected by the corridors.

LOCAL AGENCY	COMMENT
Greater Middletown Chamber of Commerce	Requested additional information and review time. Supported area wide basis for consideration.
The Cenacle	Protest Corridor A as it cuts through the center of their property.
The Nature Conservancy	The corridors do not pass any Conservancy property.
Wesleyan Hills Association	Oppose any corridor through Middletown, particularly Corridor "B".
Middlesex Memorial Hospital	All corridors would help the flow of traffic to the hospital.
Portland Conservation Commission	Objects to Corridor A for reasons of ecology and displacement of businesses and residences. Careful placement of the Corridor B bridge would be required to protect Bodkin Rock. Suggested that the route follow present Route 66 to Cobalt.
Midstate Regional Planning Agency	Requested additional information and review time.
Ravine Park Neighborhood Association	Cannot endorse any corridor. Improve Washington Street. Why no corridor north of Middletown?
Wesleyan University	No corridors conflict with campus planning objectives. Requested more information.
Middletown Conservation Commission	Suggested a new southerly corridor following the HELCO R.O.W. Supported improvements in CBD. (Parking, Washington Street, Route 9).

CHAPTER VIII

EVALUATION OF FINAL ALTERNATES FOR ROUTE 66

Chapter II contains the methodology utilized in this study, and refers to Federal Policy and Procedure Memorandum 20-8. This chapter is devoted to a comparative corridor, or corridor system, evaluation relative to each of the twenty-three factors contained in the Memorandum.

Recognizing that there may be overlapping considerations, the evaluation of the twenty-three factors has been grouped into social, economic and environmental effects as follows:

A — Social

1. National defense
2. Fire protection
3. Public Health and safety
4. Residential neighborhood character and location.
5. Religious institutions and practices
6. Education
7. Displacement of families
8. Replacement housing

B — Economic

1. Fast, safe & efficient transportation
2. Economic activity
3. Employment
4. Public utilities
5. Property values
6. Conduct and financing of government
7. Multiple use of space
8. Construction costs, etc.
9. Maintenance and operating costs
10. Operation of existing facilities

C — Environmental

1. Recreation and parks
2. Aesthetics
3. Conservation
4. Landmarks
5. Air, water and noise pollution

A.1. NATIONAL DEFENSE

The impact of transportation improvement upon national defense is evaluated in terms of (1) access to and acquisition of property belonging to military installations, (2) access to industries engaged in services related to the military, and (3) the change in access to and from the general area for military operations and civilian personnel.

There are two U.S. Military Reserve Training Centers located in the study area. One is located off Mile Lane in Middletown, the other is located north of Route 72 adjacent to Coles Road, Cromwell. Both of these centers are presently being used for training reserve troops. Land acquisition for highway right of way would not affect either of these two installations.

The main defense industry in the area is Pratt & Whitney Aircraft, Division of United Aircraft Corporation, located on Aircraft Road in Middletown. This plant is currently producing jet engines for military and commercial aircraft. No property would be acquired from this company.

All corridors studied would improve the east-west movement of raw materials and finished products to and from the Pratt & Whitney plant. All would serve adequately for evacuation of area residents in times of emergency, and would provide a facility over which the armed forces could transport material expeditiously.

A.2. FIRE PROTECTION

A community's fire protection system can be adversely affected by a corridor if it disrupts existing or planned local street systems or water distribution systems or if it affects access to a fire house. A new facility can provide faster routes for moving fire fighting equipment and personnel, and reduce traffic on existing facilities.

The City of Middletown is divided into three fire districts with four fire houses. The Westfield Fire District, situated in the western portion of the city with its eastern boundary approximately along Ridgewood Road, contains one fire house on Miner Street. The South Fire District, in the southern portion of the city, southeasterly of South Main Street and Acheson Drive, has one fire house on Randolph Road near Route 9. The remainder of the city is protected by the City Fire District whose two firehouses are located on Main Street north of Washington Street and Cross Street near Long Lane.

The Town of Portland has one fire district with three fire houses; one located on Main Street, in the center of town; one on Main Street near Summer Street; and one on Great Hill Road.

The Town of Middlefield has one fire company which is located on Jackson Hill Road in the center of town.

It is not anticipated that local cross roads will be affected by any corridor. Any necessary minor adjustments would be made during the design phase, but overall local traffic circulation will be preserved. The recommended interchange locations should provide greater mobility for fire fighting equipment and improved access to adjacent fire districts.

Any of the alternates would have a positive effect on fire protection.

A.3. PUBLIC HEALTH AND SAFETY

The elements normally considered to affect public health are air quality, noise, drinking water sources, sewage treatment plants, garbage collection and disposal, hospitals, and water and sewerage systems. Public safety includes vehicle user and pedestrian safety, fire and police protection, and, to a lesser degree, national defense. This subject, therefore, is discussed in other sections in this chapter, including: Fast, Safe and Efficient Transportation; National Defense; Fire Protection; Public Utilities; Noise, and Air and Water Pollution.

Existing and proposed drinking water sources and sewage treatment facilities are shown on Exhibits 21 and 27. The major reservoirs in the area are the Mt. Higby Reservoir, Asylum Reservoirs, and Laurel Brook Reservoir. Because of the possible effect of automobile emission pollutants on drinking water quality, the State Health Department directed that a buffer strip approximately one quarter mile wide be preserved adjacent to the reservoirs. Sewage treatment plants at Route 9 and 17 in Middletown and the Portland plant were also noted. Middletown's well water supply adjacent to River Road was noted as were the City's planned sewer system and treatment plant.

Two State institutions in the area, the Connecticut Valley Hospital and Long Lane School, would not be adversely affected. The alignment of Corridors B and B-1 have been discussed with hospital officials.

Every effort was made to avoid locations in close proximity to the private nursing and convalescent homes scattered throughout the study area. Corridors B-1 and B-2 would pass adjacent to a convalescent home on Randolph Road in Middletown; Corridor R would be close to the home on Marlborough Street in Portland.

Corridors R and B-2 would skirt the periphery of Pecausett Meadows, minimizing intrusion into this important area acquifier.

Since many of the elements which relate to public health and safety are discussed in other sections in this chapter, this summary deals with the proximity of the corridors to existing health institutions. Corridor B would avoid the several health institutions and its path through the Connecticut Valley Hospital lands would not interfere with any existing or planned facilities. Corridors B-1 and B-2 would pass close to the Middlesex Nursing and Convalescent Home, which was constructed adjacent to the Route 9 expressway.

Corridor B-2 would pass adjacent to the Connecticut Valley Hospital. Corridor R would be close to the Meadowbrook Convalescent Home in Middletown and the Elmcrest Manor Convalescent Home in Portland.

A.4. RESIDENTIAL NEIGHBORHOOD CHARACTER

The most obvious effect of a corridor on neighborhoods would be a divisive one. Well established, lower income neighborhoods with compact lots are more susceptible to this divisive effect than are newer neighborhoods and the more suburban or rural areas with larger lots and vacant areas where the residents are less dependent upon the social atmosphere of the neighborhood.

A corridor may also have a restrictive influence on a neighborhood by creating a permanent boundary beyond which that neighborhood will not expand and by forming a "barrier" beyond which ethnic groups will not relocate.

Other effects, such as air pollution, noise, religious activities, public safety, education and property values, all of which bear on residential character, are discussed elsewhere in this chapter.

In Middlefield, Corridors B, B-1 and B-2 would traverse, for the most part, open, undeveloped land principally used for agricultural purposes. Sparse residential development fronts on the major north-south roads. The development is more dense in the Main Street-Cider Mill Road-Garden Hill Road vicinity, although there are no apparent neighborhood lines. These corridors would follow portions of the HELCO utility corridor which seems to act as a buffer zone between neighborhoods. The impact of these corridors on neighborhood character in Middlefield should not be significant.

In Middletown, Corridor B would pass south of the modern Wesleyan Hills complex without interfering with the planned development. It would then cross Route 17 and traverse some of the better residential neighborhoods in Middletown. Corridors B-1 and B-2 would avoid this area. In general, the southerly part of Middletown east of Route 17 is residential in nature, with little, if any, industrial development. This southerly area has been built up slowly through the years, mostly by private owners building custom homes. The path of Corridor B through this area would remove prime housing from the Middletown market. The placing of a major highway diagonally through these neighborhoods would affect their rural character. Although a highway could physically be fitted to the terrain, it would divide the neighborhoods. The anticipated effect of the highway on adjacent landowners is discussed in the property value section of this chapter.

Corridor B passing easterly through the Randolph Road and Saybrook Road area, would have a less severe impact on residential development. Since this area is more residential-commercial, a corridor through this area would not affect the neighborhood character greatly, since the residential sections are not clearly defined.

The Corridor B interchange in Portland would be at existing Route 66. No serious residential damage would be caused there as house taking would be limited to a short section on the southerly side of existing Route 66.

Corridor B-1 would differ from Corridor B only in the section between Routes 17 and 9 in Middletown. Corridor B-1 would pass further to the south through an area which has not been heavily developed, due mainly to rugged terrain and, to some extent, to lack

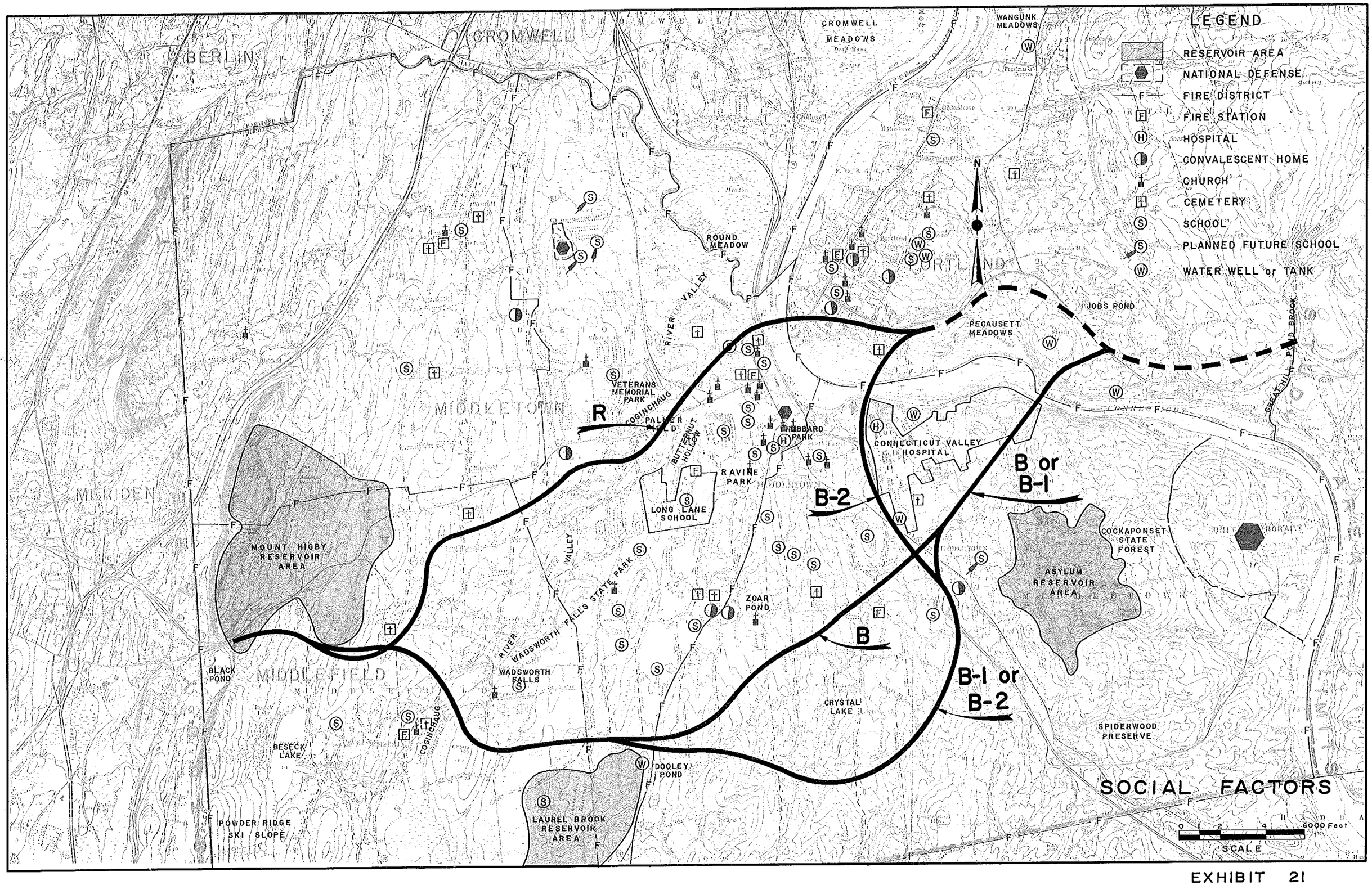

LEGEND
RESERVOIR AREA
NATIONAL DEFENSE
FIRE DISTRICT
FIRE STATION
HOSPITAL
CONVALESCENT HOME
CHURCH
CEMETERY
SCHOOL
PLANNED FUTURE SCHOOL
WATER WELL or TANK
CROMWELL
BERLIN
MIDDLETOWN
MERIDEN
MIDDLEFIELD
PORTLAND
CROMWELL MEADOWS
WANGUNK MEADOWS
ROUND MEADOW
RIVER VALLEY
VETERANS MEMORIAL PARK
COGINCHAUG
PALMER FIELD
BUTTERNUT HOLLOW
HUBBARD PARK
RAVINE PARK
LONG LANE SCHOOL
CONNECTICUT VALLEY HOSPITAL
JOBS POND
PECAUSETT MEADOWS
GREAT HILL POND BROOK
COCKAPONSET STATE FOREST
ASYLUM RESERVOIR AREA
MOUNT HIGBY RESERVOIR AREA
WADSWORTH FALLS STATE PARK
RIVER VALLEY
WADSWORTH FALLS
ZOAR POND
CRYSTAL LAKE
SPIDERWOOD PRESERVE
BLACK POND
BESECK LAKE
COGINCHAUG
DOOLEY POND
LAUREL BROOK RESERVOIR AREA
POWDER RIDGE SKI SLOPE
R
B-2
B or B-1
B
B-1 or B-2
N
SOCIAL FACTORS
0 2 4 6000 Feet
SCALE

EXHIBIT 21

of municipal utilities. Land use here is primarily for agriculture and dairy farming. The effect on neighborhood characteristics, therefore, should be negligible.

Corridor B-2 would be identical to Corridor B-1 from Black Pond to Route 9. From that point, it would follow the present Route 9 corridor through Middletown to the vicinity of Silver Street and would not further affect the character of the adjoining neighborhoods. The bridge approaches on both sides of the river would pass through mixed residential, institutional and industrial areas. In Portland, the corridor would isolate the remaining homes along Grove and Riverview Streets.

The area traversed by Corridor R in Middlefield is composed of sparse single family housing. Limited residential development exists in the vicinity of Peters Lane, where minor residential impact would occur.

In Middletown, Corridor R would follow the railroad alignment from the vicinity of Washington Street to Spring Street. The railroad could be carried on existing alignment and profile in the roadway median in this section of the corridor. The railroad right-of-way width would not be sufficient for expressway development, requiring considerable additional acquisition. Neighborhood impact in the area between Route 72 and Route 9 would be severe. Residential neighborhoods are densely developed. Lot frontages are 50 feet to 60 feet in width, with many two and three family units present. Corridor R would cut diagonally through these densely developed neighborhoods and would cross the Connecticut River into Portland north of the Arrigoni Bridge. The area adjacent to the existing bridge is generally inhabited by low income residents. The housing is old and overcrowded. Corridor R would create another physical barrier to this residential area, adding to the possibility of further isolation.

The area south of existing Route 66 in Portland adjacent to Airline Avenue, Tuccitto Road and Grove Street would be crossed by Corridor R. These neighborhoods are now constricted by existing Route 66 to the north and the Connecticut River marsh land to the south. The presence of Corridor R would impact these neighborhoods and further isolate them from the remainder of the town.

Corridor B-1 would have the least negative impact on the character of existing residential neighborhoods, with Corridors B, B-2 and R having progressively greater impact.

A.5. RELIGIOUS INSTITUTIONS AND PRACTICES

The possible effects of a transportation corridor on religious institutions and practices are: 1) physical acquisition, either in whole or part, 2) changes in access or travel time to the facilities, 3) changes in ethnic neighborhood makeup and, 4) changes in noise levels. The latter two effects are discussed elsewhere in this chapter.

The study area is typical of New England with representation of all the major faiths common to this section of the Country. There are some 35 houses of worship and related holdings, including parochial schools, cemeteries, parish houses and convents. These institutions are shown on Exhibit 21.

All the corridors would pass south of North Cemetery in Middlefield. The B corridors would not be close to any other religious institutions. Corridor R would pass close to St. Sebastian Cemetery in Middlefield, St. John's Cemetery in Middletown, and in Portland it would require acquisition of the unused northern portion of St. Mary's Cemetery. Access to the cemetery would be maintained from Riverview Street.

Changes to the street system in the vicinity of St. John's Square necessitated by the Corridor R-Route 9 Interchange would result in loss of parking facilities adjacent to St. John's Church. The R corridor would concentrate heavy traffic around the Church complex.

In summary, the B corridors would have the least impact on religious institutions and practice while the impact of Corridor R would be the greatest.

A.6. EDUCATION

A transportation corridor is most apt to affect educational facilities or school district operations by: 1) causing disturbing noise levels at existing schools, 2) acquisition of facilities or land held for future use, 3) altering access to the schools, 4) altering travel patterns affecting school bus routing or traffic on fronting streets, 5) increased traffic in areas of walking school children, and 6) changing financing of public schools. Educational facilities are shown on Exhibit 21.

With the exception of St. John's (Corridor R) and Xavier High Schools (Corridors B-1 and B-2), all other schools in the study area would be located beyond the influence of noise from the highway. The two exceptions are currently in the noise zone of influence of the Arrigoni Bridge approaches and Route 9 respectively. Special treatment may be required to ameliorate the effect of noise. This is discussed in more detail under Section C.5 in this chapter.

The R corridor would require the total acquisition of the Commodore MacDonough School on Pease Avenue. Corridors B-1 and B-2 would require closing the east driveway of Xavier High School because of its proximity to the interchange.

Otherwise, access to existing schools would not be changed, the resulting local circulation sytem would not affect school bus routings and there would be no appreciable increase in traffic in areas of walking school children.

The effect of the corridors on the financing of public education is discussed under the Conduct and Financing of Local Government section of this chapter.

The least adverse effect on education would be caused by Corridor B, with Corridors B-1 and B-2 next, while Corridor R would have the greatest effect.

A.7. DISPLACEMENT OF FAMILIES AND BUSINESSES

The following tabulation represents the approximate numbers of displacements caused by the alternate corridors, including related improvements to Route 9 necessitated by the Route 66 corridor. Efforts to refine the corridors to minimize impact on residential areas and businesses would continue in the design phase.

	Middlefield	Middletown	Portland	Total
Corridor B-1				
Houses	10	60	10	80
Families	10	70	15	95
Businesses	1	8	1	10
Employees	20	40	5	65
Other Buildings	0	0	2	2
Corridor B				
Houses	10	120	10	140
Families	10	130	15	155
Businesses	1	3	1	5
Employees	20	10	5	35
Other Buildings	0	1	2	3
Corridor B-2				
Houses	10	200	25	235
Families	10	250	25	285
Businesses	1	6	1	8
Employees	20	110	5	135
Other Buildings	0	2	0	2
Corridor R				
Houses	15	225	65	305
Families	15	380	85	480
Businesses	0	25	15	40
Employees	0	230	100	330
Other Buildings	0	4	0	4

Corridor B-1 would displace the fewest number of families; Corridors B, B-2 and R follow in that order. Corridors B-1 and B would be identical in Middlefield and Portland. The differential in family displacement between Corridors B-1 and B would result from the alternate alignments in Middletown.

Corridor B-2 would differ from Corridor B-1 in Middletown and Portland.

Corridor R would result in the highest total family and business displacement in each of the towns because it would traverse the most densely developed areas.

A.8. REPLACEMENT HOUSING

A recent survey of available housing in the Middletown area indicates a brisk, active market for both condominiums and apartments, including Cromwell Hills, Wesleyan Hills, Stony Crest Towers, Goodyear, Trolley Crossing and rental housing for the elderly and moderate income families.

Department of Transportation policy requires a thorough survey of available housing before any right-of-way acquisition is authorized by the Commissioner. If the results of the survey indicate that an unfavorable housing situation exists, the Department would consider the construction of replacement housing under the provisions of enabling Connecticut legislation and would make the necessary applications to avail itself of these replacement housing programs. The project would not proceed to completion unless all displaced families and businesses are relocated to adequate replacement sites.

The tabulation included under Displacement of Families and Businesses contains the estimated number of families for which replacement housing would have to be obtained. It also contains the approximate number of businesses estimated to be relocated.

Relocation of families from the older established neighborhoods, such as in Middletown and Portland along Corridors R and B-2, would be difficult, as most families now reside in two, three, or four unit buildings with low rentals; replacement housing of this nature is not common. Single family relocation, common to the newer, rural areas, would be less difficult to achieve.

Corridor B-1 would create the least problem in providing replacement housing with Corridors B, B-2 and R following in that order.

B.1. FAST, SAFE AND EFFICIENT TRANSPORTATION

A transportation improvement should effect a net decrease in travel time. There may be some minor increases in travel time caused by local street closures or other modifications (one-way streets, additional traffic signals).

Table VIII-1 shows travel times and overall travel speeds on various sections of existing Route 66 during the afternoon peak hour. The total travel time from the westerly end of the study at Black Pond to the easterly end at Middle Haddam Road is about twenty-five minutes at an average operating speed of twenty-four miles per hour. The situation is most severe on Main Street in the Middletown central business district, where one to five minutes is required to travel a length of one quarter mile at an overall speed of eleven miles per hour.

Section	Time	Distance	Speed
Black Pond - Rte 147	1 min	0.47 mi	28.20 mph
Rte 147 - Ballfall Rd	4 min	1.93 mi	28.95 mph
Ballfall - RR o/c	5.5 min	1.85 mi	20.18 mph
RR - Main Street	5 min	0.95 mi	11.40 mph
Main St. - St. John's	1.5 min	0.28 mi	11.20 mph
St. John's - Marlborough	2.0 min	0.99 mi	29.70 mph
Marlborough - Rte 17	3.5 min	2.05 mi	35.14 mph
Rte 17 - Middle Haddam Rd	2.0 min	1.10 mi	33.00 mph
Total	24.5 min	9.62 mi	23.56 mph

CURRENT 1970 AVERAGE PEAK HOUR TRAVEL TIME ON EXISTING ROUTE 66

TABLE VIII – 1

Projected travel times for each of the studied corridors are listed in Table VIII-2. The times are based on an average operating speed of 55 mph, which is 80% of the design speed. These travel times are representative of passenger cars and light, small trucks; heavy trucks would experience longer travel times due to the grades encountered on each of the corridors.

Traffic remaining on the existing route would also experience faster travel times because of improved traffic operations after the diversion of traffic to the relocated route.

A significant element affecting motor vehicle accidents is the presence of intersections. Access control is therefore a major factor in the reduction of the rate of accidents. A controlled access facility would provide safer transportation in two ways:

1. Diverting some existing traffic from the present route.

2. Providing a safer route for future traffic which would have used the present route if there were no alternate.

Corridor	Limits	Length	Time
B	Black Pond to Middle Haddam Rd.	9.6 mi	10.47 min
B-1	Black Pond to Middle Haddam Rd.	10.8 mi	11.78 min
B-2	Black Pond to Middle Haddam Rd.	12.2 mi	13.31 min
R	Black Pond to Middle Haddam Rd.	9.1 mi	9.93 min

1990 RELOCATED ROUTE 66 TRAVEL TIMES
(At assumed operating speed of 55 mph)

TABLE VIII – 2

The accident rate on controlled access highways is generally about half that for unlimited access facilities. This difference is in part due to the higher design and safety standards which are generally used in planning controlled access facilities.

All the corridors would divert traffic from existing Route 66. For example, at the Meriden-Middlefield Town Line, the 1990 ADT on Route 66, without a relocation, is estimated to be 27,200. The 1990 estimates at the same location are 16,800 with the B corridors, and 5,000 with Corridor R. The diversion at this location would be 10,400 ADT for the B corridors, and 22,200 for Corridor R.

Each of the four corridors is expected to effect a net decrease in accidents above that which would be expected to occur with no relocation. The R corridor, by virtue of its shorter length and relatively large traffic diversion, should produce a greater accident reduction (between the existing and relocated routes) than any of the B corridors.

Efficiency of transportation has been evaluated in terms of optimal use of the possible systems, consisting of the relocated route and the existing street network. Corridor R, which would carry the highest traffic volumes of all the alternate corridors, would divert more traffic from the existing route than would any of the B corridors. However, the R corridor would not provide the most efficient traffic distribution for the study area for several reasons:

a. Access to and from possible interchange locations in Middletown would be via local streets which would require extensive improvement of these streets in developed areas.

b. Route 17 traffic would continue on the present routing through Middletown, prolonging the congestion on that artery. The B corridors would intercept Route 17 southerly of the central area of the city and divert a part of the traffic.

c. Eastbound Route 66 traffic destined for the shore areas would be forced through a complex interchange with Route 9 which would have to be constructed in a densely developed area.

d. Present vacant land in the City of Middletown which will be developed in the future is southward where there is no continuous east-west highway.

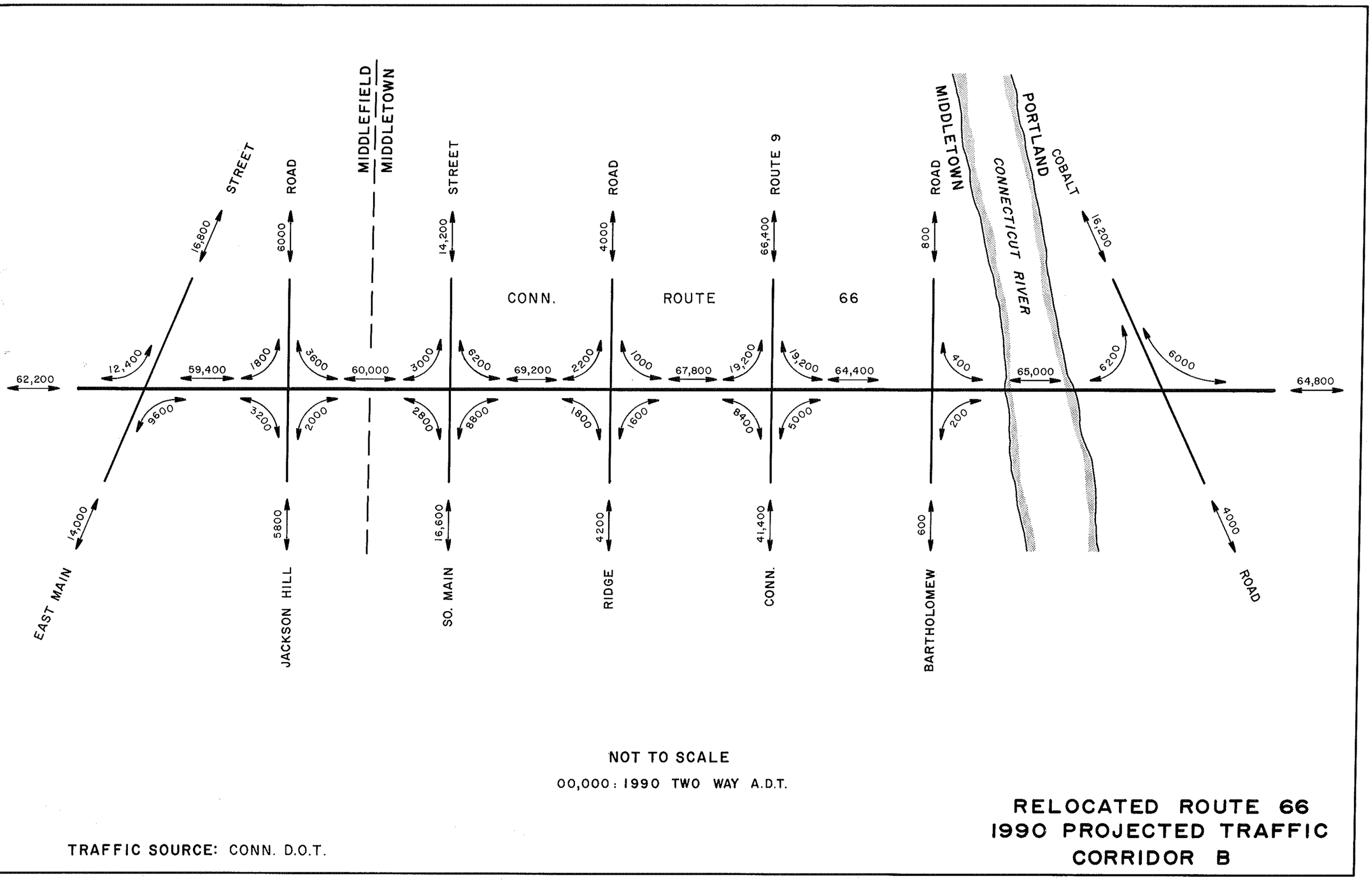
Exhibits 22, 23, 24 and 25 show the estimated 1990 ADT and interchange turning movements for Corridors B, B-1, B-2 and R, respectively.

Traffic to and from Middlefield would be serviced by all corridors with a possible interchange about one half mile north of the town center on Jackson Hill Road.

Traffic on relocated Route 66, between the Middletown central business district and points west, would use Route 9 as a feeder to the central business district with any of the B corridors. This route would provide shorter travel time than either the existing route or a connection via Route 17. Some of the traffic between the Middletown central business district and points east would also use Route 9 to relocated Route 66 with either the B or B-1 corridor. With the B-2 corridor, access to the east from the Middletown central business district would be possible by either the existing Arrigoni Bridge, or via the relocated route which would be closer to the CBD than Corridors B or B-1. Destinations in the north end of the central business district would be reached more easily by the Arrigoni Bridge, while those in the south end would be more accessible by Corridor B-2.

The R corridor would provide direct access to the Middletown central business district from both the east and west via possible interchanges at Washington Street, Route 72, and Spring Street. The south end of the central business district could also be reached via Route 9 and Acheson Drive. The R corridor would also service the commercial development on Washington Street via a possible interchange at George Street.

Access to the Portland central business district from the west would be circuitous with either the B or B-1 corridors. Traffic from the west destined to the Portland CBD would have the option of using Route 9 and the Arrigoni Bridge for either of these two alternate corridors. Conversely, the B-2 and R corridors, would provide direct access to the Portland central business district from the west.



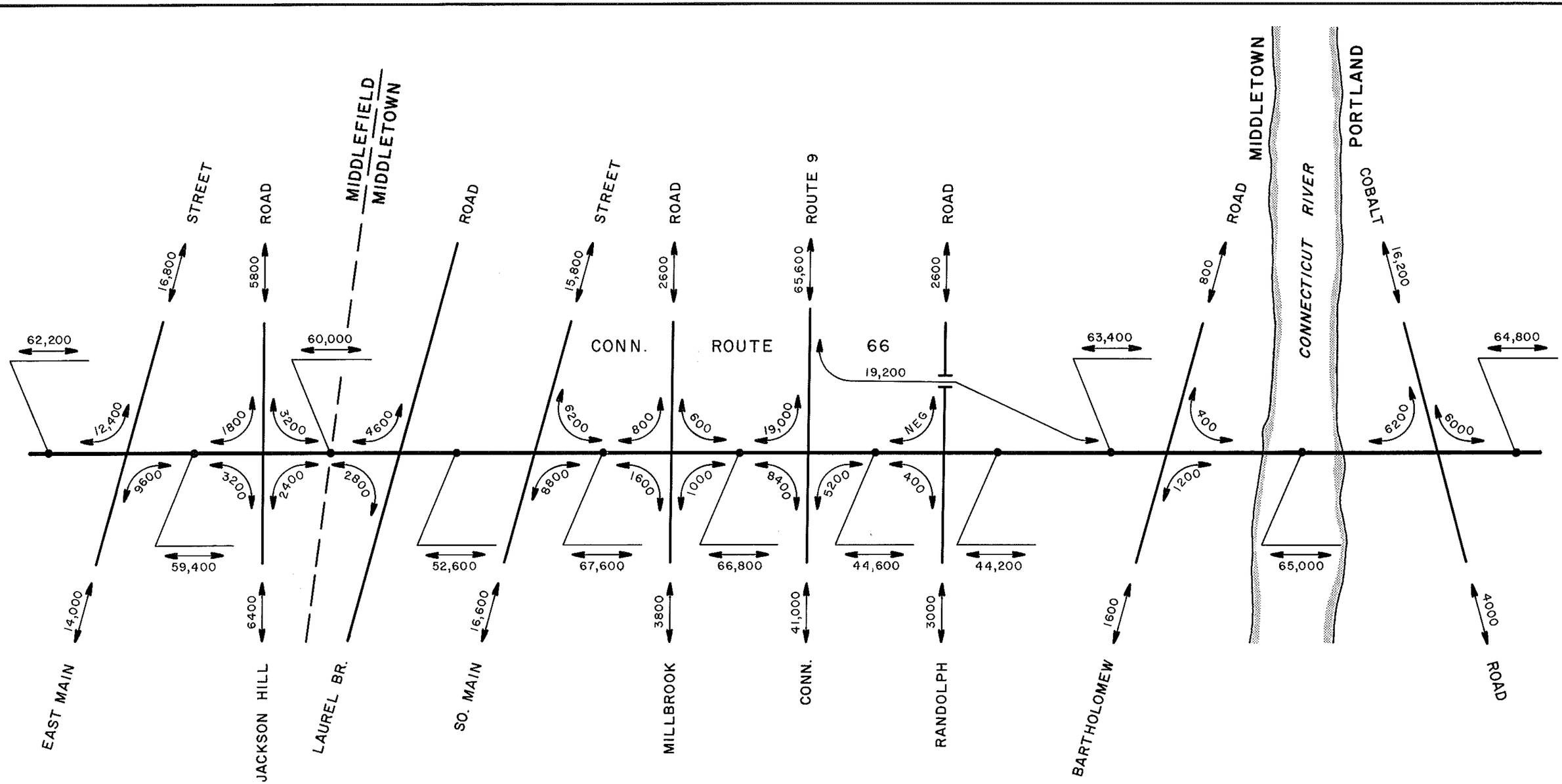
NOT TO SCALE

00,000 : 1990 TWO WAY A.D.T.

TRAFFIC SOURCE: CONN. D.O.T.

RELOCATED ROUTE 66
1990 PROJECTED TRAFFIC
CORRIDOR B

EXHIBIT 22



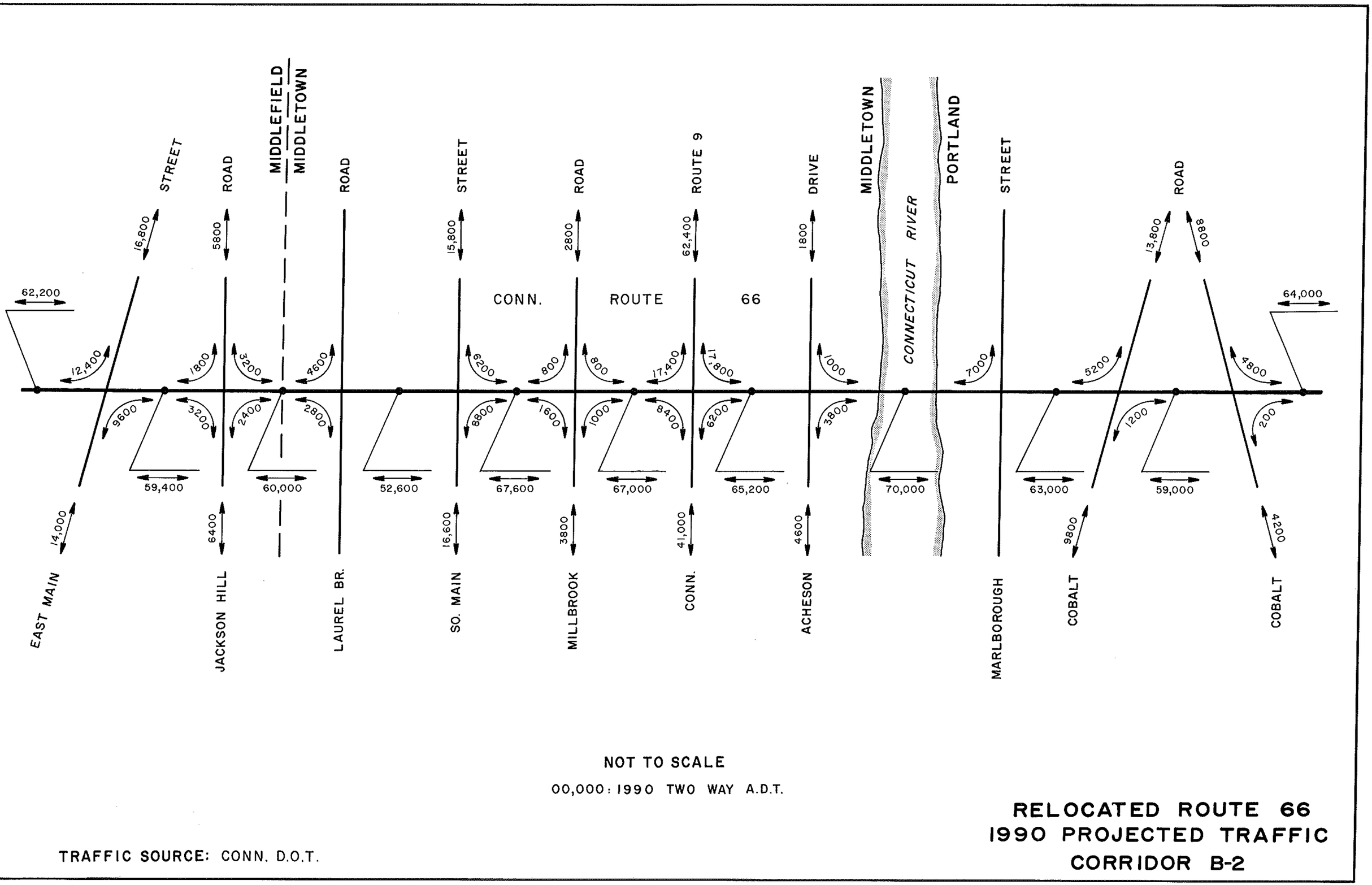
NOT TO SCALE

00,000 : 1990 TWO WAY A.D.T.

TRAFFIC SOURCE: CONN. D.O.T.

RELOCATED ROUTE 66
1990 PROJECTED TRAFFIC
CORRIDOR B-1

EXHIBIT 23



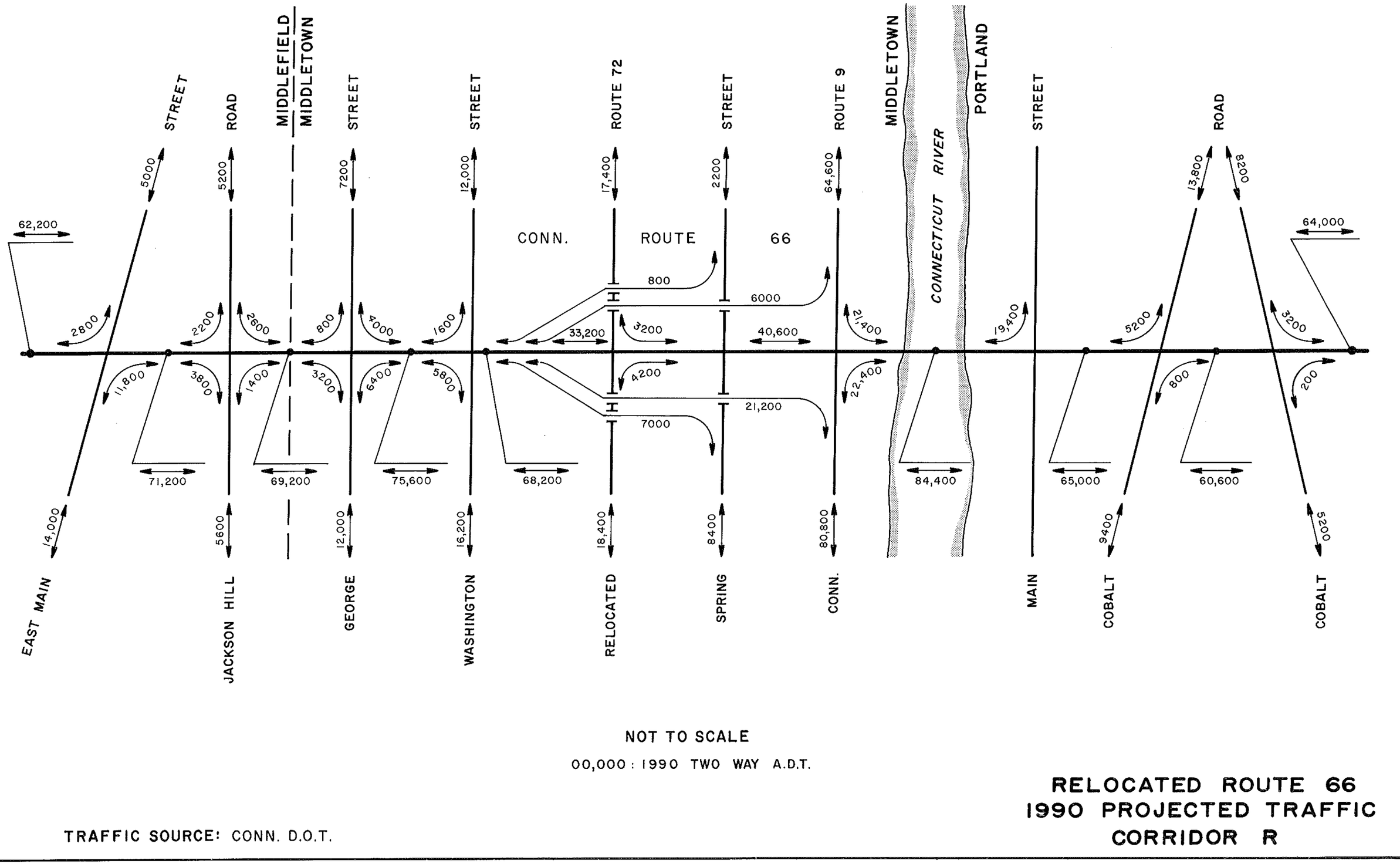
NOT TO SCALE

00,000: 1990 TWO WAY A.D.T.

TRAFFIC SOURCE: CONN. D.O.T.

RELOCATED ROUTE 66
1990 PROJECTED TRAFFIC
CORRIDOR B-2

EXHIBIT 24



NOT TO SCALE

00,000 : 1990 TWO WAY A.D.T.

TRAFFIC SOURCE: CONN. D.O.T.

RELOCATED ROUTE 66
1990 PROJECTED TRAFFIC
CORRIDOR R

EXHIBIT 25

All of the B corridors would interchange with Route 17 in Middletown about three miles south of the central business district; the B and B-1 corridors would interchange with existing Route 66 in Portland about one mile east of Route 17 just south of Jobs Pond while the B-2 corridor would interchange with existing Routes 66 and 17 in Portland east of Grove Street. Through traffic on Route 17 destined for South Glastonbury, Glastonbury and possibly East Hartford would therefore use this section of relocated Route 66 rather than existing Route 17 through Middletown. Thus, this portion of the B corridors might be signed as Route 17 as well as Route 66. The interchanges with these corridors in Portland would provide for connections to Route 17 in its present location. The Connecticut Department of Transportation Master Plan of Expressways shows Route 17 from Portland to Glastonbury as an eventual expressway.

The R corridor would not interchange with Route 17 in Middletown, and thus would not divert Route 17 traffic from the existing system in Middletown. A disadvantage of Corridor R would be that all expressway traffic is carried through developed areas of Middletown and Portland, through a complex and costly interchange between Route 66 and Route 9, resulting in heavy traffic concentration in this area.

Although Corridor R would provide a more direct route and greatly reduce traffic on existing Route 66, Corridors B, B-1 and B-2 would provide better traffic distribution for the study area.

B.2. ECONOMIC ACTIVITY

The potential impact of alternate corridors on economic activity has been evaluated in terms of retail (commercial) development and industrial development. Other indicators of economic activity appear under the Employment section of this chapter.

Exhibit 26 shows the locations of present and planned commercial and industrial areas. The locations of major concentrations of residential development are also shown in relation to these significant economic factors.

Highway construction may have both beneficial and detrimental effects on the general economic activity of an area. The beneficial effects are realized in terms of increased retail sales due to the increased accessibility of existing retail centers and increased accessibility of land available for such development. Increased retail sales will cause an increase flow of capital into the area. This same benefit will apply to other sectors of the regional economy, such as a wholesale trade, industrial development and services.

Possible negative effects of highway construction include the acquisition of industrial or commercial development which would then move out of the region. This situation would represent a net outflow of capital, along with a concomitant loss of employment.

The projections and estimates in this section represent net effects, over and above losses due to right-of-way acquisition.

Two studies have been used as bases for projecting the economic effects of alternate corridors for the relocation of Route 66. These reports are referred to in this section and in several other sections for the development of some of the economic parameters used in the various analyses.

One is a study made by Walter C. McKain on the impact of the Connecticut Turnpike upon Eastern Connecticut. The other is a study by Leonard F. Wheat on the growth of manufacturing in a cross-section of paired impacted cities in New England.

Impact Upon Regional Retail Trade

The retail sales analysis is based on a survey of retail purchasing patterns undertaken by the Midstate Regional Planning Agency in 1968. The Midstate Planning Region consists of the towns of Cromwell, Durham, East Haddam, East Hampton, Haddam, Middlefield, Portland and the City of Middletown.

For purposes of this evaluation, the potential retail market area which would be influenced by a relocation of Route 66 throughout this study area was considered to be the Midstate Planning Region plus 60% of the population of six surrounding towns: Chester, Deep River, Essex, Marlborough, Colchester, and Killingworth.

The projections of the impact of a relocated Route 66 upon retail trade in the area were made assuming that construction of the Middlefield-Portland segment will be completed by the end of 1980 and that Route 66 and I-84 east to Providence will be completed by the end of 1990.

The following items have been evaluated in developing the impact of alternate corridors on retail trade:

1. Changes in buying patterns induced by changes in accessibility to existing retail centers from the alternate corridors.

2. New retail center growth induced by the alternate corridors.

3. Population changes effected by alternate corridors.

Middletown is the prime commercial center for many of the surrounding, relatively rural towns. Most of these rural towns do not have a complete retail market. Middletown competes with other cities at a vantage point reaching out toward these towns to the east and south. The city is located northwest of the market area's geographic center.

According to the Midstate Regional Planning Agency's Study, "Retail Trade, Results of Survey", there are five major commercial centers which are used by Midstate residents:

1. Downtown Middletown (Central Business District)
2. South Main Street area
3. Washington Street area
4. Meriden (Downtown, Barkers and G. Fox included)
5. Downtown Hartford and Wethersfield

The relocation of Route 66 would have a significant impact upon the future importance of each of these commercial centers for Midstate residents.

In 1963, Midstate residents bought about 84% of their non-food retail goods in the region. A large part of these purchases were made in Middletown. This figure declined to approximately 82% by 1968.

The decline in the central business district's proportion of sales is largely due to parking problems; parking time is a component of travel time. According to the MRPA 1967 Survey, 53.5% of respondents cited difficulty in parking as an undesirable feature of downtown Middletown. Limited selection of goods was cited by 33.6%.

If Route 66 were not relocated, it would become increasingly more difficult for residents of the surrounding towns to shop in Middletown. As a result, it is expected that the Midstate Region's share of its potential market area business will increase 1% from the 1968 survey estimate by 1990, and decline a total of 6% by 2000. This decline would be greater except that due to traffic congestion and intolerable delays, Middletown residents might buy locally what they otherwise would have chosen to buy elsewhere.

With a new highway, it is anticipated that regional residents would shop more within the region than they do now because a new highway should provide greater accessibility to its retail hub, the City of Middletown. Travel times to commercial centers indicate that improved access into Middletown would have a greater impact on sales than improved access out of Middletown. More business would also be attracted from the fast growing towns east of Middletown, such as East Hampton, Colchester and Marlborough.

For either of the southern corridors, B, B-1 or B-2, a sixth major shopping area would likely be developed near one of the new interchanges. Land zoned for commercial expansion would be available as well as the population and income to support it. Without a southern corridor, it is expected that this would not take place. A new shopping area at one of the interchanges would attract shoppers from East Hampton, Middlefield, Portland and Durham and residential areas in the general vicinity. It would also bring Middletown's shopping closer to Haddam, Chester, Deep River and Essex.

The B-2 corridor would provide better access from Portland and points northeasterly to downtown Middletown than would the B and B-1 corridors. Downtown shopping would benefit more, especially if downtown parking facilities were improved. Still, the aggregate impact upon the region would be similar to that for the B and B-1 corridors. It is likely that major stores would be attracted to the area available for retail expansion to the south at a slightly later date. None of the B corridors would provide a direct route from the outlying towns to the shopping centers on Washington Street.

It is estimated that a southern corridor would increase the Midstate Region's share of 1990 sales by 9% over the likely share with no relocation. Assuming relocated Route 66 is extended further east at that time, the region would subsequently attract more business from Marlborough and Colchester.

The R corridor would increase accessibility to downtown Middletown and the Washington Street shopping areas. Both areas would become easier to reach from Middlefield, Portland and East Hampton. While it is unlikely that a new shopping center would be built, Washington Street shopping facilities would be expanded somewhat. However, Durham and Middlefield shoppers would find travel times to Meriden shopping less than to the Washington Street shopping.

The R corridor would not bring Middletown shopping closer to Haddam and other towns to the south. As a result, the R corridor would increase the region's share of 1990 business by an estimated 3% over what would prevail with no relocation.

It is estimated that the B corridor would increase sales in the region by 15% in 1990 and 35% in 2000 over the projection with no relocation. The R corridor would increase regional sales by 6% in 1990 and 21% in 2000 over the projection with no relocation. These increases would be largely the result of increased sales in Middletown. Most of the increases are due to the direct effect of improvement in access rather than the indirect effect of induced population growth.

Retail Trade Summary

1. Without a new highway, access to Middletown would steadily deteriorate and with it, its standing as a major trade center vis-a-vis Meriden, Hartford and New Haven.

2. The three B corridors would have a greater positive impact on the region's retail sales which would increase by about 15% in 1990 and 35% in 2000 over projections without a new highway.

3. The R corridor would increase retail sales in the region by about 6% in 1990 and 21% in 2000 over projections without a new highway.

4. A major impact of the B corridor upon retail sales could be the development of a new commercial center south of Middletown. This would not be likely to occur with the R corridor. Access to the region's shopping would be improved considerably with both corridors.

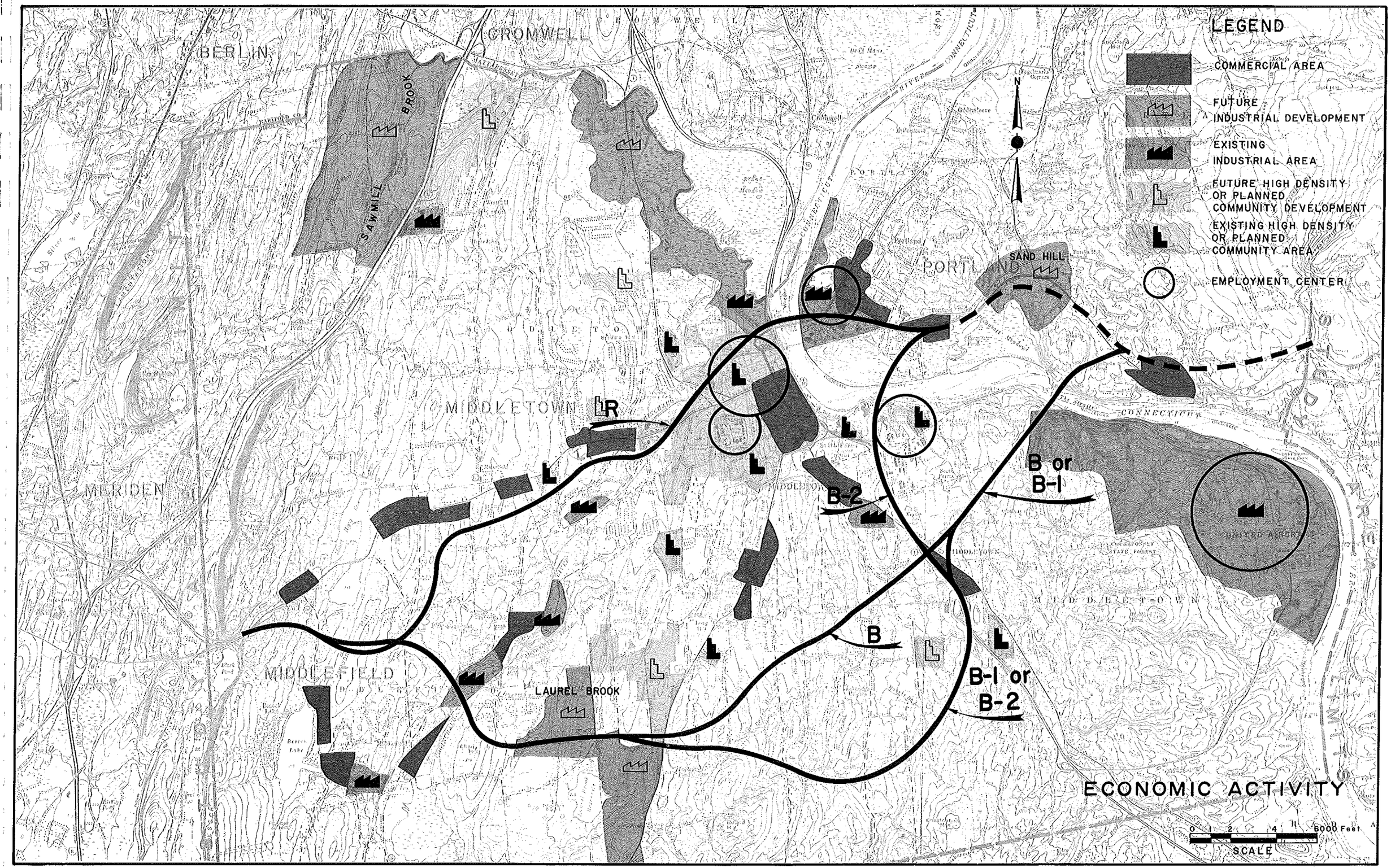
5. The induced increase in population accounts for only a small percentage of the total impact of the corridors upon retail trade.

6. Department stores, clothing stores, appliance and furniture stores should benefit most, as food shopping is generally local in nature.

7. The region's economic geography argues strongly for a highway south of the City, increasing its commercial role in its traditional market area.

Impact Upon Industrial Development

The analysis is based on an evaluation of (1) present and future circumstances surrounding the development of areas zoned for industrial expansion; (2) factors which influence site selection by manufacturing firms; and (3) applicable conclusions derived from the above studies. The range of additional jobs expected to be attracted


LEGEND
COMMERCIAL AREA
FUTURE INDUSTRIAL DEVELOPMENT
EXISTING INDUSTRIAL AREA
FUTURE HIGH DENSITY OR PLANNED COMMUNITY DEVELOPMENT
EXISTING HIGH DENSITY OR PLANNED COMMUNITY AREA
EMPLOYMENT CENTER
BERLIN
CROMWELL
MIDDLETOWN
MERIDEN
MIDDLEFIELD
PORTLAND
SAND HILL
SAWMILL BROOK
LAUREL BROOK
R
B-2
B
B or B-1
B-1 or B-2
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SCALE
ECONOMIC ACTIVITY

EXHIBIT 26

by a relocation has been projected and is included in the Employment section of this chapter.

There are areas zoned for industrial expansion in all three towns. A firm attracted by an advantageous location might consider these three towns among the alternatives. Thus, a new highway would intensify the competitive nature of these three areas. The areas considered in this report which are located on Exhibit 26 are:

1. Laurel Brook Industrial Area — Middlefield
2. Sawmill Brook Industrial Area — Middletown
3. Sand Hill Area — Portland

While, at present, Sawmill Brook has an advantage based on location, availability of utilities, and community interest, circumstances may differ when and if Route 66 is relocated. At that time, both Middlefield and Portland may have adequate utilities available to good industrial land.

New manufacturers in the Connecticut Turnpike area were interviewed in a study by Paul Taylor (a progress report for the McKain study). Their responses were weighted by number of employees and those factors relevant to the present study were excerpted. Weights for each factor were estimated. A MRPA Survey of manufacturers who recently relocated in the Midstate area, approximately confirmed the McKain study. These factors indicate that while a highway is necessary for growth, only those areas with a favorable development potential will tend to benefit.

According to Taylor, most firms do not attract workers from beyond fifteen to twenty miles. The Sawmill Brook area is easily accessible to a large labor market by virtue of access from the urban centers served by I-91. Laurel Brook even with a highway, is located about eight miles further from Hartford than Sawmill Brook resulting in a smaller potential labor market. Portland's Sand Hill is at a similar disadvantage.

A new highway would reduce trucking costs to Sand Hill and Laurel Brook. However, within the competitive context referred to above, this may not be sufficient to attract other than small firms. It may be necessary to provide the advertising or image value of land within view of a heavily travelled highway. Any of the B corridors would provide Laurel Brook with this advantage, while only the B-2 or R corridors would assist Sand Hill in this way.

To the extent that railroad service to Sand Hill might be continued, it may have a significant advantage in attracting those types of firms which require sidings since areas zoned for industrial expansion with that facility are rare. (The railroad has unsuccessfully petitioned for abandonment of services across the Connecticut River into Portland.)

Community cooperation is an important factor which is difficult to predict. At present, Middletown is apparently making more efforts to attract new industry than Middlefield and Portland. However, this situation might be altered after utilities and immediate highway access were provided.

The general area is located within reach of a broad consumer market. However, accessibility to such markets is not especially sensitive to the small differences in the distance from the three industrial areas to major cities.

Corridor B, B-1 or B-2 would have a greater impact on possible industrial development in Middlefield than Corridor R. All would favor development in Portland, with the R or B-2 corridor slightly more advantageous than the B or B-1. After extension of the route to the east in the future, the positive impact upon Portland would be greater. Middletown's industrial potential would not be significantly impacted by any corridor.

B.3 EMPLOYMENT

This section projects the effects of the alternate corridors upon employment conditions in the study area.

There are two ways in which highway construction can affect employment. The first is a short-term loss of jobs due to businesses displaced by the construction. The extent of this loss depends on whether the businesses relocate or terminate their operations as a result of the acquisition. Even if they relocate, the level of employment within the zone of influence of the highway may drop if a business moves out of this zone.

The second effect is the increase in employment which results from new industries and services attracted to the area by the highway. This increase could be from newly created businesses or those which transfer from other areas outside the zone of influence due to the accessibility of the new facility.

Loss of employment is estimated under "Displacement of Families and Businesses". This section is concerned with induced employment. For purposes of this study, the figures in this section can be assumed to represent net increased employment, above the loss due to acquisition and removal of businesses.

Major concentrations of employment within the study area are depicted on Exhibit 26.

The study area had a labor market of approximately 22,300 nonagricultural jobs in 1969. As stated in the 1966 Study of the Economy by the Midstate Regional Planning Agency, many residents of Middlefield now work either in Middletown or outside Middlesex County. Also, many Middletown and Portland residents commute to jobs in other counties. Thus, there is little purpose in projecting the number of jobs likely to be generated by a relocated Route 66 in each town. In fact, however, it is expected that most of the additional jobs in the trade and service sectors will be located in Middletown and most of the manufacturing positions in Middlefield and Portland. This is because the expressway is not expected to affect the Sawmill Brook Industrial area. Many workers may be drawn from other communities since the labor market area is broad and will be further broadened by increased accessibility created by the expressway system.

By projecting the value of retail sales expected per employee in 1990 and 2000, the number of additional jobs can be estimated. The B corridors should increase retail trade employees by three hundred in

1990 and seven hundred in the year 2000. It can be assumed that the R corridor would increase retail trade employees by one hundred in 1990 and four hundred in 2000.

The additional jobs in wholesale trade induced by the highway are related to the increase in retail employment. Wholesale trade had been increasing in the United States, and in the three towns, faster than retail trade. However, wholesale sales per employee have also increased faster. Thus, the proportion of wholesale to retail employment has remained steady in the three town area. There are approximately twenty-three wholesale workers for every one hundred retail workers in the three town area. The impact of the highway upon trade is assumed to occur in this same proportion.

Employment impact in selected services is projected in a similar manner. This includes hotels and motels, personal services, repair services, amusements, recreation and miscellaneous services. The relationship of the effect of access upon employment in these services and the rate of growth of these services in the economy is assumed to be equal to the corresponding relationship for retail trade. There has been consistently almost twenty-five employees in these services per one hundred retail employees.

The B corridors should show an increase in the wholesale and selected services trades of one hundred jobs in 1990 and three hundred jobs in 2000. The R corridor should show an increase of fifty jobs in 1990 and one hundred jobs in 2000.

The Wheat and McKain studies both provide means of estimating the possible increase in manufacturing employment due to a limited access highway.

While Wheat's procedure of comparing impacted and non-impacted cities limited the number of comparisons in New England, there are clear indications that highway impact is less in this region than many other regions of the United States. This is thought to be related to its low rate of manufacturing growth.

It is estimated that, as a result of the highway, there would be an increase of between six and twelve industrial jobs per one thousand population of the three towns, or three hundred to six hundred jobs based upon their projected total population in 1990. Since the three industrial areas are competitive, one cannot anticipate where these additional employees would be located.

According to the McKain study, manufacturing employment increased by 21% from 1957 to 1962 in the towns of Eastern Connecticut, adjacent to the Turnpike, as compared with 7% in the control (non-impacted) towns, and a decline of 4% in the State as a whole. However, 82% of this increase was attributed to one firm (the Electric Boat Company). The increase would probably be between 11% and 15%, excluding that one firm. Therefore, the increase in the impacted towns, induced by the Turnpike, was between 4% and 8% of the total.

In June, 1969, before the current recession, manufacturing employment in the three towns totaled 9,530 (Middlefield: 460; Middletown: 7,900; Portland: 1,170). A 4% to 8% increase induced by the highway would mean an additional four hundred to eight hundred industrial jobs for the three town area.

Thus, despite the fact that the studies were different in several respects, their results appear similar.

This impact upon employment is likely to take place over the ten year period following completion of the highway. Thereafter, the rate of growth is likely to be no greater than without a highway, as occurred in Eastern Connecticut. By 1969, employment in the Turnpike area had increased an additional 2% over 1962, while there was an additional 7% increase in the control towns and 14% for the State as a whole. It is not felt that this subsequent greater increase in other areas suggests that normal growth is merely accelerated by a highway. Rather, additional growth is generated but remains constant rather than accelerating.

Any of the corridors is expected to induce from three hundred to six hundred additional manufacturing jobs within the study area. The final result will be conditioned by several variables such as the type of firms attracted to the area, the communities' efforts to attract industry at that time and the growth of manufacturing in the regional and national economy.

The rate of growth of residential and other construction in the area is expected to increase slightly due to the migrants indirectly attracted by the highway. According to population projections to 1990 and 2000, the rate of growth of population in the three town area is expected to be greater with, than without, a relocation. The B corridors should show an increase in construction jobs from two hundred in 1990 to two hundred fifty in 2000. The R corridor should show an increase to one hundred jobs in 1990.

As a result of the B corridors, there should be an additional 900 to 1200 jobs in the year 1990 and 1500 to 1850 jobs in the year 2000 located in the three town area, not all of which would be filled by local residents.

The R corridor should result in additional employment, averaging roughly 60% of the projections for the B corridors.

For purposes of analyzing employment opportunities, the location of employment among the three towns is not significant due to traditional commuting patterns as shown in the 1966 Connecticut Labor Department report labelled "Commuting Patterns in Connecticut". However, most of the additional trade jobs would be located in Middletown and most of the additional industrial jobs in Middlefield and Portland.

B.4. PUBLIC UTILITIES

The impact of highway construction on public utilities is analyzed in terms of costs of relocating or modifying them in order to maintain service during and after construction. It is assumed that all existing

utility service will be maintained; hence there is no ultimate detrimental effect. The costs are included in the section on "Engineering, Right-of-Way, and Construction Costs". The major utilities in the study area are depicted on Exhibit 27.

Wherever feasible, existing utility "corridors", such as those occupied by overhead transmission lines, should be utilized.

Middlefield

The B, B-1 and B-2 corridors would be identical in the Middlefield area and therefore require the same utility work. These corridors in Middlefield could be aligned to follow the existing HELCO transmission lines to take advantage of the "utility corridor" which now passes through this town. The B corridors would parallel the line for approximately three miles; the R corridor much less. Wherever necessary, the power lines should be relocated within, or directly adjacent to the expressway right-of-way, preferably underground.

There are no sewers in the area, each house or other facility has its own septic system. Where gas is needed, bottled gas is used; gas mains are nonexistent in this area. Middlefield does not have water mains; the area is served by ground water wells.

All the corridors require some relocation of electric and telephone lines where they cross existing streets.

Middletown

Since the B and B-1 corridors would pass well south of the built-up areas in Middletown, they would require the least amount of utility work (electric, telephone, gas, water main and small lateral sewers). The B-2 corridor would necessitate slightly more adjustments, mainly in the interchange area with Route 9. The R corridor would require still more utility work due to its proximity to the urban area of the City.

There is no HELCO transmission line relocation required in Middletown in the B corridor. Some realignment of the HELCO lines could be necessary for the B-1 corridor in the vicinity of Millbrook Road. The R corridor would pass extremely close to a major HELCO sub-station at Columbus Avenue, just east of Route 72, which would be an alignment control.

The B corridor would cross a water main from the Laurel Brook Reservoir. Since this route would be on low fill, some protection of this pipe may be required.

The B corridor would pass directly over a trunk sewer at Millbrook Road and some relocation or protection would be required. A future expansion of this trunk line is planned that would intersect the B-1 corridor also at Millbrook Road. A future trunk line extension is planned at Route 17 that will eventually cross the B and B-1 corridors. It is anticipated that no conflict will result in either case. Planned trunk sewers will cross the B-2 corridor at Bow Lane and the R corridor at Washington Street and the Arrigoni approach, but no special problems are anticipated. Existing sewers would be crossed by the B-2 and R corridors near the Connecticut River; these sewers may require some protection.

A jet fuel line lies within the existing railroad right-of-way and since the R corridor would follow the railroad track east of Washington Street, steps must be taken to protect and maintain approximately 2000 feet of this fuel line.

Portland

The R corridor would be most disruptive to utilities in Portland because of its greater length and its path through more heavily developed areas. There will be some water main and sewer relocation in the interchange area in the vicinity of the existing Arrigoni Bridge, as well as along existing Route 66 to Grove Street. The effect on electrical and telephone facilities would also be heaviest from the Arrigoni Bridge Interchange to Grove Street. The remainder of the corridor would cause negligible utility disruption from Grove Street to its terminus at Route 17 (Gospel Road).

The B-2 corridor would require relatively little utility relocation from the Connecticut River to Grove Street. Since this corridor would join the R corridor at Grove Street, and would be coincidental with the R corridor after Grove Street, the impact on utilities would be the same.

The B and B-1 corridors would pass through a rural area causing little effect on utilities. There is, however, a transmission line crossing which may require some vertical adjustment.

Corridor B-1 would cause the least relocation of or disruption to the public utilities with corridors B, B-2 and R following in that order.

B.5. PROPERTY VALUES

The generally recognized effect of a highway improvement on a neighboring piece of land is to increase its accessibility. This increased accessibility results in decreased travel time and costs from any particular location; the internal or direct transfer of this benefit will be reflected as increased value of the property. Theoretically then, a highway improvement, or any transportation improvement which results in reduced travel time and costs, will have the effect of increasing property values, subject to the net effect of other social and environmental factors.

The above applies to existing land, in whatever state of development, and for whatever purpose it is used. The specific effect on any particular land use will vary according to that use, as discussed below. Increased property values also result from changes in land use associated with highway construction. The extent of this change depends upon the nature and density of development existing prior to new highway construction. Vacant land is usually developed before land in use is converted to a higher use. If no vacant land is available for development, changes in land use due to highway improvements may be minor. As the greatest increases in land value

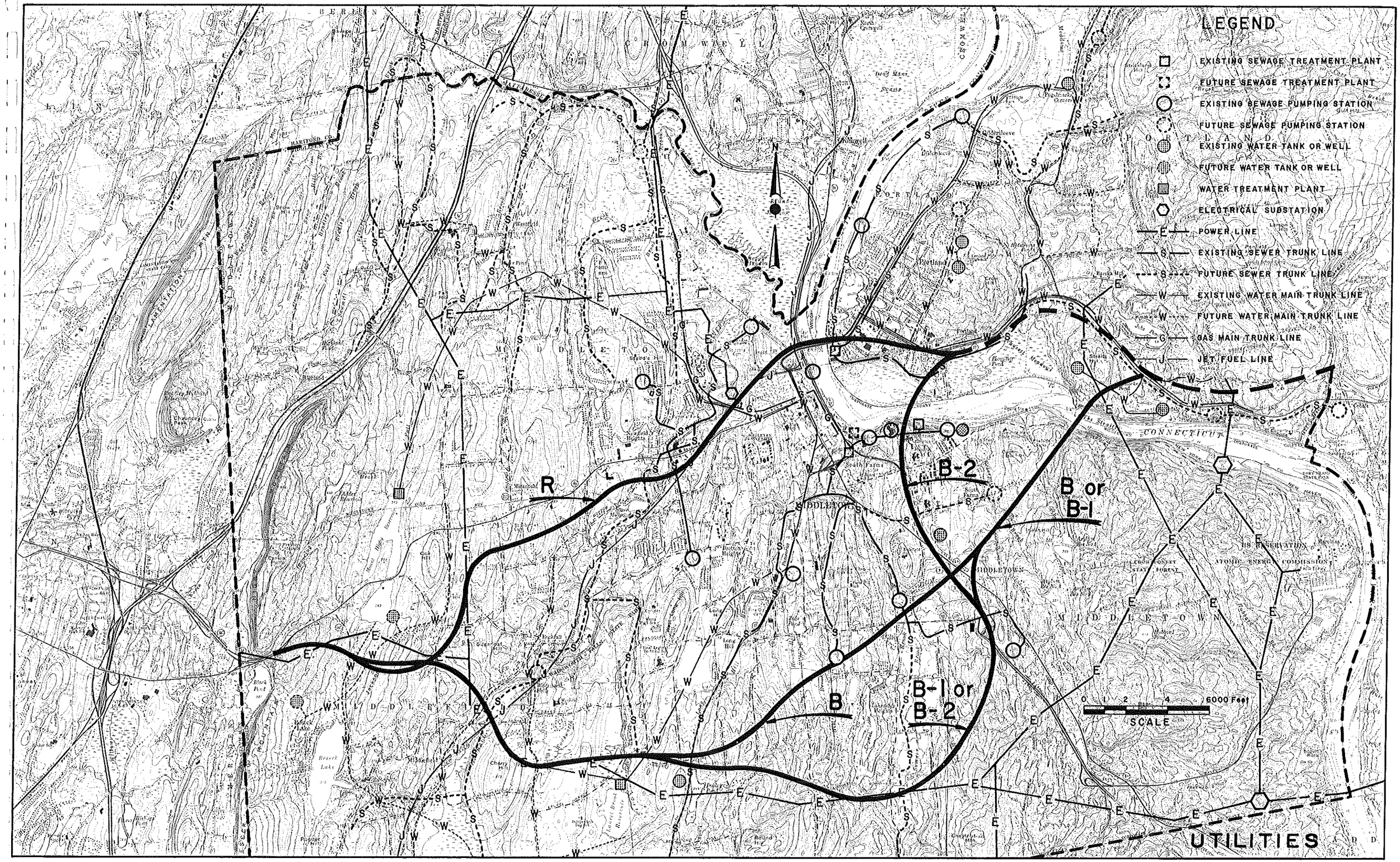

LEGEND
EXISTING SEWAGE TREATMENT PLANT
FUTURE SEWAGE TREATMENT PLANT
EXISTING SEWAGE PUMPING STATION
FUTURE SEWAGE PUMPING STATION
EXISTING WATER TANK OR WELL
FUTURE WATER TANK OR WELL
WATER TREATMENT PLANT
ELECTRICAL SUBSTATION
E POWER LINE
S EXISTING SEWER TRUNK LINE
S FUTURE SEWER TRUNK LINE
W EXISTING WATER MAIN TRUNK LINE
W FUTURE WATER MAIN TRUNK LINE
G GAS MAIN TRUNK LINE
J JET FUEL LINE
R
B-2
B or B-1
B
B-1 or B-2
0 1 2 4 6000 Feet
SCALE
UTILITIES

EXHIBIT 27

result when highway improvements create a conversion of land use, vacant land is a sensitive indicator of total impact.

A new highway makes residential land more valuable primarily by reducing the commuting time for the household worker. The land becomes more valuable because the reduced commuting time to any concentration of employment makes it attractive to a greater number of people, thereby increasing the potential demand for the land.

There are also deleterious aspects of highway construction which can affect property values, and are most pronounced on their effect on residential property. Noise and air pollution caused by vehicles are undesirable intrusions into the residential environment; hence, their presence may diminish the attractiveness of a location as a homesite, and reduce the potential demand for it. Therefore, the value of the property for residential use could drop due to traffic related effects.

Noise and air pollution are discussed separately in this report. They are mentioned here for the purposes of discussing their effects on property values.

There are, then, two opposing forces affecting residential property values. The net effect is discussed below.

There have been numerous studies of the impact of highway construction on residential property values. The results of these studies corroborate the theoretical considerations previously discussed. In general, they show that new highway construction produces a net increase in residential property values. The effects of noise produce a depression in value relative to the overall increase in property immediately adjacent to the new construction; that is, all property within the proximity of the construction generally increases in value, but that property adjacent to the construction increases at a lesser rate than the average for all property affected.

A study was made by Walter C. McKain on the impact on property values of the Connecticut Turnpike in eastern Connecticut. The approach was to evaluate the increase in values between sales of individual properties. Residential properties were excluded from the analysis when sales were not negotiated at arm's length, or when the property was also used for commercial purposes or when the property was modified between sales.

The results indicated that while average annual appreciation of property sold in the two years prior to the highway were almost the same for towns along the route under construction and those distant from it, in the four years after completion of the Turnpike, the annual rate of appreciation in the Turnpike towns was approximately 1.1% greater than for the control towns.

The amount of noise generated by adjacent highways may influence property values. However, the McKain study indicates that the value of residential properties within a quarter mile of the highway increased at a similar rate to values in the towns as a whole. Values from one quarter of a mile to a mile from the highway increased at a faster rate. Thus, noise pollution is at least not detrimental to property values. Its effect on human behavior, comfort and convenience must however be recognized and dealt with.

In summary, a net increase in residential property values is anticipated as a result of new highway construction.

Changes in values of residences have been recognized in the analysis of Conduct and Financing of Government as an item affecting local tax bases. The analysis is based chiefly on the McKain study mentioned above.

Commercial activity will benefit from a highway improvement by the reduction in transportation costs for its products and the increased market which it enjoys as a result of decreased travel time for potential customers. In addition to improved access, increased highway exposure (advertising) is important for some commercial enterprises which have an immediate need to reach the market (entities which rely heavily on passing traffic rather than generating traffic themselves).

Proximity to a highway generally is less important to industrial firms than to commercial or service organizations. The benefits of highway construction which accrue to industrial firms are the savings in costs of transporting their goods and materials. Thus, the increased value of industrial land is directly related to the savings in transport costs which the particular location will afford to the industry.

Changes in the values of existing commercial and industrial property have not been calculated separately, but are included with the calculations for residential property. This procedure understates the true impact, as the values of such property, especially at interchanges, normally increases at a much greater rate than the general increase in residential property. However, the amount of the increase is difficult to predict, as changes in land use and zoning contribute significantly to the increase. The McKain Study determined that property values at interchanges increased from 24% to 33.8% in six years. Increased land values accounted for approximately one third of these increases.

The estimated increase in property values in 1990 due to the corridors follows. The effect of any of the corridors is essentially the same in each town.

Middlefield	$ 1,800,000
Middletown	$ 9,500,000
Portland*	$ 5,700,000
Total	$17,000,000

*Includes extension of corridors to Easthampton

B.6. CONDUCT AND FINANCING OF GOVERNMENT

The following items have been analyzed, for each of the three towns in the study area, for their effect on the financial status of the local governments. The analysis was basically to examine the changes in revenues and expenditures to be anticipated from the construction of each alternate corridor.

Changes in revenues include:

1. Loss of tax base due to highway right-of-way acquisition.

2. Increased property taxes resulting from:

   a. increased commercial (retail) development
   b. increased industrial development
   c. increased value of residential property

Changes in expenditures result from increased demand for government services due to increased population induced by the highway construction. The analysis has been divided into educational and other costs.

Tax bases in Middlefield and Portland are similar in many respects. The average property tax paid by each resident is approximately the same. Also, the grand lists of the two towns have a similar composition. Both towns' finances are heavily dependent upon residential property, representing about 65% of the grand lists.

Middletown has a more diversified tax base. Over 45% of the property is industrial or commercial as opposed to about 15% for Middlefield and Portland. Table VIII-3 shows the make-up of each town's tax base.

Loss of tax base due to highway right-of-way acquisition has been calculated based upon the value of the land and improvement expected to be acquired. This analysis assumes a complete loss to the locality of the acquired development or potential thereof and thus is conservative.

Increased commercial and industrial development have been discussed under Economic Activity. The results of the analyses have been incorporated into the increased property taxes which would be realized from the induced development.

Increased value of residential property has been discussed under Property Values. The estimated increases in values have been converted to increased property tax revenues for each of the towns.

Changes in expenditures have been projected on the basis of the towns' present expenditure patterns and the anticipated induced population growth, developed as part of the Economic Activity section. Increased educational expenditures have been calculated separately to account for State and Federal educational grants which vary in each of the three towns.

A recent California State Supreme Court ruling declared the property tax as a source of educational funds unconstitutional in that State. It is not known at this time whether or not this decision will be contested in the United States Supreme Court, or how any rulings reached as a result of such a contest or any similar cases which may be heard in Connecticut will affect changes in educational financing. However, educational expenditures constitute between 50% and 80% of the total net governmental costs of each of the towns. Any reduction in the direct use of the property tax as a source of educational funds would result in a lower impact on local government finance than has been calculated. The analysis, however, is based on current methods of educational finance.

Table VIII-4 shows the projected changes in tax revenues for each of the corridors in each town based on the present tax rates. These figures allow the comparison of the relative effects of the alternate corridors on local finance. They indicate that any corridor would be beneficial to either Middlefield or Portland, while either the B or B-1 corridor would benefit Middletown. The B-2 corridor would have a slight negative effect on Middletown's financial structure, and the R corridor would have a more severe effect.

	Middlefield	Middletown	Portland
House and Building Lots[1]	11.5%	11.5%	11.0%
Residential[3]	64.5%	39.0%	66.5%
Industrial[2]	10.5%	33.0%	10.5%
Commercial[2]	5.0%	13.0%	7.0%
Agricultural	3.5%	1.0%	2.5%
Acreage	5.0%	2.5%	2.5%
Net Exemptions[5]	(−3.6)	(−2.0)	(−3.2)
Total Grand List (in $1,000)	$16,415	$188,051	$35,813
Average Tax Rate (per $1,000)	.0505	.0389[4]	.0485
Grand Levy (in $1,000)	$826	$7,729	$1,735

Source: State of Connecticut, Information Relative to the Assessment and Collection of Taxes, 1969, 1970.

NOTES:

1. The lots with improvements could be allocated proportionately to the residential, industrial and commercial categories.
2. Includes furniture allocated proportionately to other industrial and commercial property.
3. Includes vehicles, garages and boats.
4. Excluding Fire District Taxation.
5. Exemptions to ex-servicemen, their relatives, the blind, and the elderly.

APPROXIMATE COMPOSITION OF TOWN GRAND LIST AND SUMMARY ITEMS—1968

TABLE VIII-3

The most significant aspect in the evaluation of the effect on local government financing is that all of the induced industrial development has been assumed to occur in Middlefield and Portland. Middletown, on the other hand, is assumed to accommodate most of the projected increases in population (and therefore the expenditures) induced by the corridors, together with the commercial development which is valued at a lower rate than industrial property.

The combination of the two factors produces the somewhat anomalous result that with any corridor Middlefield and Portland would experience a significant positive impact on government financing, while Middletown would experience a slight positive impact with Corridors B and B-1, a slight negative impact with the B-2 corridor and a more pronounced negative impact with the R corridor.

Item	Middlefield		Middletown				Portland		
	R	B[1]	R	B-2	B-1	B	R	B-2	B[2]
Increased Revenue from Property Taxes									
Residential Development	30	30	60	150	150	150	120	120	120
Commercial or Industrial Development[3]	120	400	70	230	230	230	320	320	240
Appreciation in Land Value	60	60	240	240	240	240	180	180	180
Loss of Taxes due to Right of Way	−40	−60	−420	−260	−200	−140	−329	−124	−58
Increased Educational Expenditures	−5	−5	−90	−220	−220	−220	−70	−70	−70
Increased Other Expenditures	−25	−25	−60	−150	−150	−150	−20	−20	−20
	+140	+370	−200	−10	+50	+110	+201	+406	+392

NOTES:
1. Same for B-1, and B-2
2. Same for B-1
3. All induced Commercial Development assumed to occur in Middletown.All induced Industrial Development assumed to occur in Middlefield and Portland.

IMPACT OF CORRIDORS ON LOCAL GOVERNMENT FINANCE, 1990
(Figures in $1,000)

TABLE VIII-4

B.7. MULTIPLE USE OF SPACE

In an effort to meet the ever increasing demand for land, whether it be for residential, business or recreational use, or simply as "open space", attempts are made to plan a corridor, or parts thereof, for multiple compatible uses, where possible and practical. An example of multiple use is the selling or leasing of air rights above a transportation facility to be used by either another mode of transport or, in highly urbanized areas, for parks or building construction. Another example is the utilization of an existing transportation right-of-way as the path for a new facility.

One concept of multiple use of space involves provision in a new corridor for future transportation needs. The Connecticut Department of Transportation has established right-of-way requirements leaving adequate room in the median areas for mass transit facilities when the need supports such future construction. In that transportation is also defined as the movement of goods, it is possible that future pipelines laid in expressway medians will reduce truck traffic by moving encapsulated solid goods or liquid products. This potential is common to all the corridors, with the exception of a portion of the R corridor which would carry the Penn-Central Railroad in its median.

Wherever possible, the alignments would follow the existing HELCO overhead transmission lines. Some relocation of the powerlines would be required, which conceivably could be underground, within or adjacent to the corridor right-of-way.

Corridor R would utilize the Penn Central Railroad right-of-way in Middletown from the vicinity of Washington Street to the vicinity of Spring Street. Corridor B-2 would utilize the existing Route 9 right-of-way from Randolph Road to Silver Street.

Corridor B-2 would most effectively utilize existing corridors. In Middlefield and Middletown it would follow the HELCO powerline and in Middletown it would utilize a portion of the existing Route 9 right-of-way.

Corridor B-1 would also follow the HELCO powerline but would not take advantage of the Route 9 right-of-way to the extent of Corridor B-2.

Corridor R would follow a portion of the HELCO powerline in Middlefield and the Penn Central Railroad right-of-way in Middletown.

Corridor B would follow the HELCO powerline in Middlefield similar to Corridors B-1 and B-2.

B.8. ENGINEERING, R.O.W. AND CONSTRUCTION COSTS

The right-of-way and construction cost estimates for the four alternate Route 66 corridors, B, B-1, B-2 and R, including related improvements, are shown on Figure IX-1.

The following summary is presented for comparative evaluation purposes:

	B-1	B	B-2	R
Construction	$100,500,000	$ 90,400,000	$120,000,000	$127,400,000
R.O.W.	10,300,000	9,000,000	14,000,000	20,200,000
Utilities	5,400,000	4,200,000	5,400,000	2,700,000
Sub-Total	$116,200,000	$103,600,000	$139,400,000	$150,300,000
Engineering	10,000,000	9,000,000	12,000,000	13,000,000
Total	$126,200,000	$112,600,000	$141,400,000	$153,300,000

The additional cost to move the HELCO powerlines underground is estimated to be $8,300,000 for Corridors B, B-1 and B-2, and $300,000 for Corridor R.

These estimates are based on 1971 unit prices and property values. More precise estimates would be prepared during subsequent project stages when larger scale design drawings are available.

B.9. MAINTENANCE AND OPERATING COSTS OF THE PROJECT AND RELATED FACILITIES

Maintenance costs for the alternate corridors have been calculated from data supplied by the State Department of Transportation for 1969-1970. The resulting costs are tabulated below.

Corridor	Annual Maintenance Costs (1970 Dollars)
B	$157,000
B-1	186,000
B-2	209,000
R	135,000

As a means of offsetting rising maintenance costs, consideration has been given to the use of "weathering" steel for the highway and river bridges. The decision concerning the utilization of "weathering" steel should be based upon an economic analysis in later design stages.

Because it is the shortest in length, the R corridor has the lowest estimated maintenance and operating costs with corridors B, B-1 and B-2 following in that order.

B.10. OPERATION AND USE OF EXISTING HIGHWAY FACILITIES DURING CONSTRUCTION AND AFTER COMPLETION

The construction estimates include amounts for maintenance of traffic on existing facilities during construction, including such items as temporary pavement, lighting, bridges and the use of manual traffic control. Another consideration is inconvenience to the motoring public related to the staging of construction, duration and location.

The intersection of any of the corridors with local cross streets normally would result in little if any inconvenience to highway users. The areas of greatest inconvenience would be Black Pond (common to all), along Route 9 (Corridor B-2) and Corridor R from Washington Street in Middletown to Marlborough Street in Portland.

The operation and use of existing facilities after construction is related to the degree of traffic diversion from these facilities to any particular corridor. All alternate corridors would reduce traffic on Washington Street, although Corridor R would have a greater effect in this regard. The net result would be the prolongation of an acceptable level of service on Washington Street.

Corridor R would have little effect on Route 17. The B corridors, conversely, would do less to relieve Washington Street, but would reduce traffic on Route 17 in Middletown by providing an expressway alternate to the City's central business district and points north and east of the river.

In Portland, the R corridor would relieve the Main Street-Marlborough Street intersection whereas this effect is somewhat less with the B corridors.

Corridor B would cause the least amount of inconvenience during construction followed respectively by corridors B-1, B-2 and R.

C.1. RECREATION AND PARKS

The effects a corridor may have on existing recreational facilities and parks are 1) physical acquisition or damage; 2) changes in accessibility; or 3) noise disturbance (discussed elsewhere).

The study area has many recreational, park and open space areas, some in private ownership, others in the public domain. The major areas are listed below and are shown on Exhibit 28.

Facility	Identification Number
State Ownership	
Game Management Areas	
Boggy Meadows	7
Round Meadows	18
Wangunk Meadows	19
Forests	
Cockaponset	14
Meshomasic	15
Recreational Facilities	
Black Pond	3
Wadsworth Falls State Park	5
Dooley Pond	8
Crystal Lake	9
Open Space	
Zoar Pond	11
City Ownership	
Recreational Facilities	
Wilcox Island	6
Crystal Lake	9
Veterans Memorial Park, Palmer Field	10
Ravine Park	12
Butternut Hollow	13
Hubbard Park	16
Lions Park	22
Private Ownership	
Wetlands, Sanctuaries, Flood Plains	
Coginchaug River Valley	1
Pecausett Meadows	17
Spiderweed Preserve	21
Recreational Facilities	
Beseck Lake	2
Powder Ridge Ski Area	4
Great Hill Pond and Brook	20
Indian Spring Golf Club	23
Jobs Pond	24

Existing park and recreational facilities were major controls in establishing corridor locations, and were avoided wherever possible. All corridors would affect a section of State Forest near Black Pond, operated by the State Forestry Division; there would be no feasible way to bypass this area.

The Coginchaug River meanders through Middlefield and Middletown and is an important regional recreational facility. In a report to Governor Meskill, dated January 1, 1971, Morton S. Fine and Associates recommended acquisition of additional open space in the Coginchaug River Valley, including a one-acre parcel at Starr Millpond and a seven-acre parcel adjacent to Palmer Field in Middletown. In Middlefield, a four-acre expansion of Wadsworth Falls State Park was recommended. None of the corridors would conflict with these recommendations, although all would require crossing the river valley.

The facilities listed under State and City ownership are presently used or held for recreation, parks or open space. Boggy and Pecausett Meadows and most of the Coginchaug River Valley are privately held and undeveloped but are likely to become future open space areas. Corridors B-2 and R would pass along the northern edge of Pecausett Meadows and therefore would reduce the total acreage available for future open space acquisition.

Corridors B-1 and B-2 would pass through the northern end of Dooley Pond and would require modification to or replacement of the earth dam and boat launching access drive. Carefully planned restoration should not have a detrimental impact on recreational usage of this pond.

Crystal Lake lies roughly midway between Corridor B-1 and Corridor B. Increased accessibility to this lake by virtue of an interchange with Millbrook Road should encourage further development and utilization of this facility. This is most likely with Corridor B-1 as the City-owned recreational development is at the southern tip of the lake.

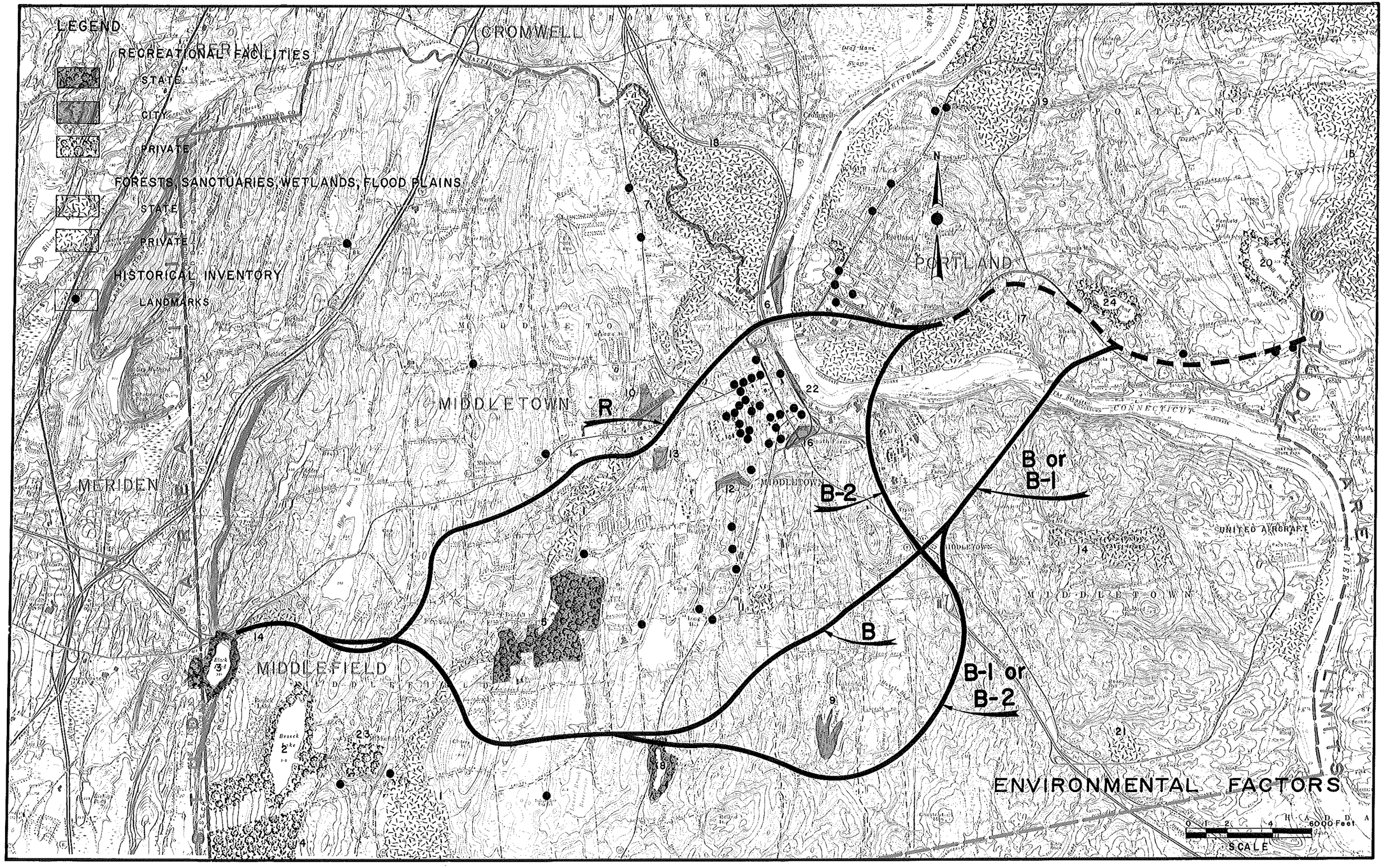

LEGEND
RECREATIONAL FACILITIES
STATE
CITY
PRIVATE
FORESTS, SANCTUARIES, WETLANDS, FLOOD PLAINS
STATE
PRIVATE
HISTORICAL INVENTORY
LANDMARKS
CROMWELL
PORTLAND
MIDDLETOWN
MERIDEN
MIDDLEFIELD
B
B-1
B-2
B or B-1
B-1 or B-2
ENVIRONMENTAL FACTORS
SCALE
6000 Feet

EXHIBIT 28

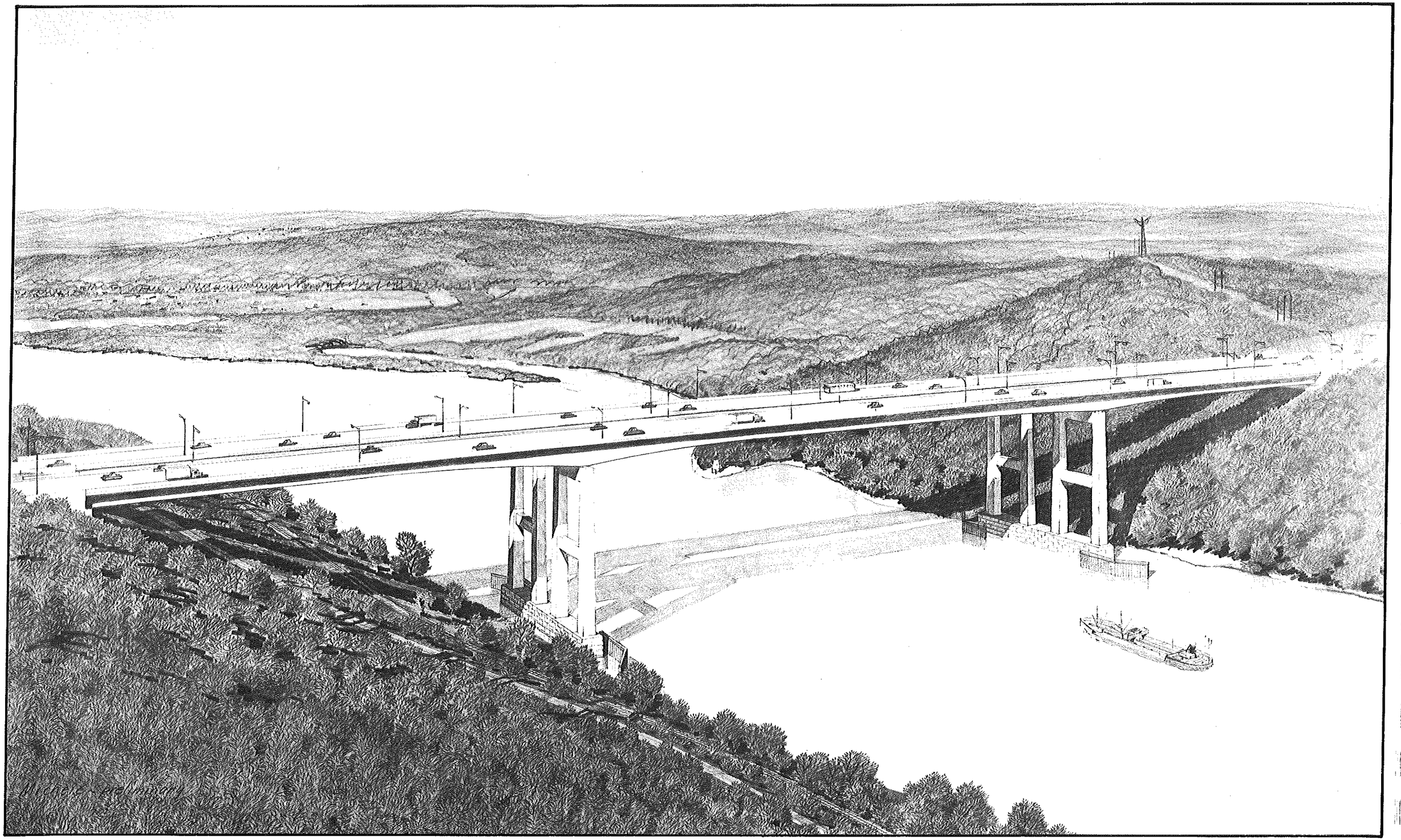


FIGURE X-1

POSSIBLE RIVER CROSSING

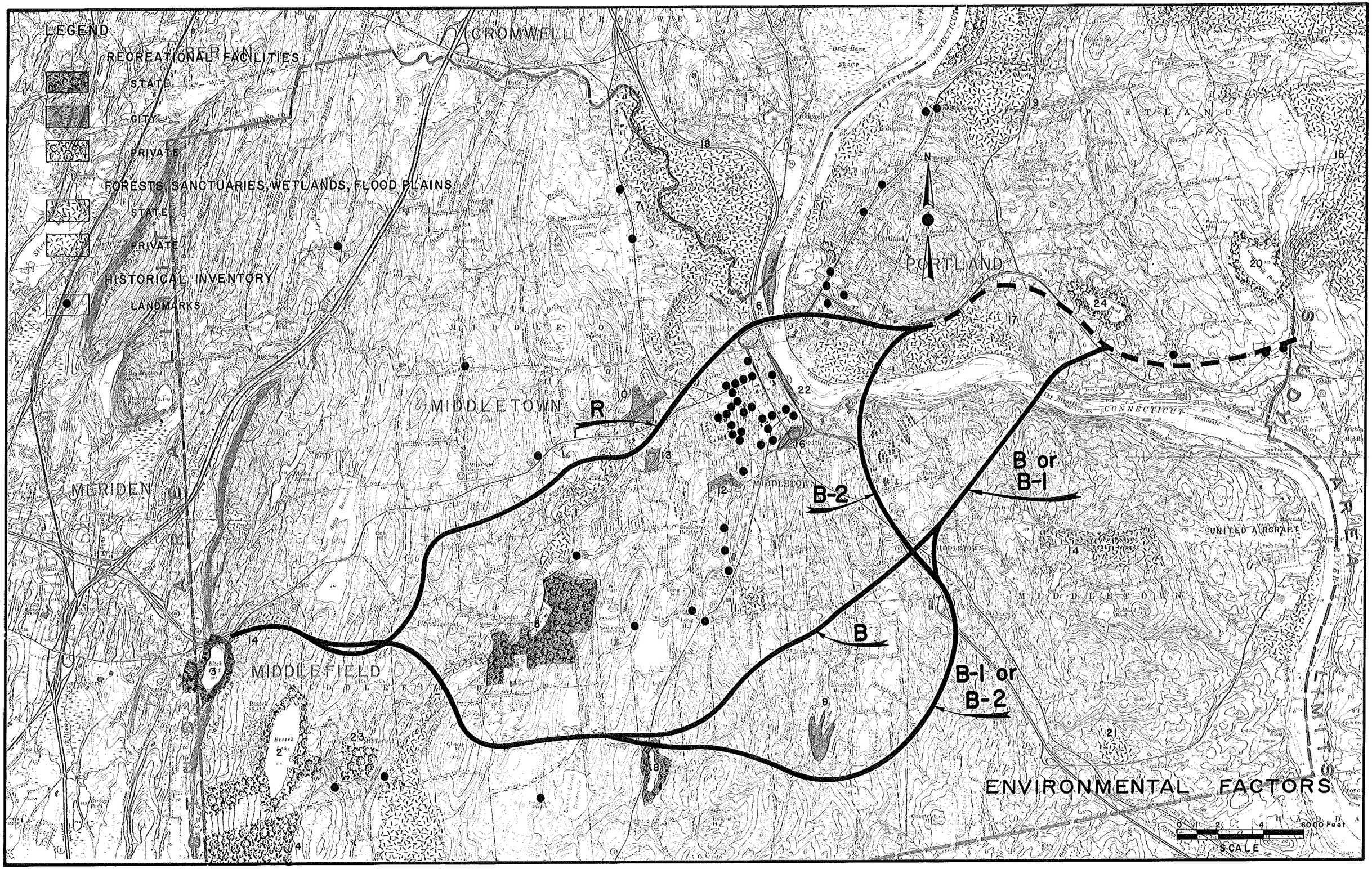

LEGEND
RECREATIONAL FACILITIES
STATE
CITY
PRIVATE
FORESTS, SANCTUARIES, WETLANDS, FLOOD PLAINS
STATE
PRIVATE
HISTORICAL INVENTORY
LANDMARKS
CROMWELL
MIDDLETOWN
MERIDEN
MIDDLEFIELD
PORTLAND
B-2
B
B or B-1
B-1 or B-2
ENVIRONMENTAL FACTORS
SCALE
0 1 2 4 6000 Feet

EXHIBIT 28

Another consideration is recreational driving and sightseeing. Any of the corridors would be beneficial to shore-bound motorists originating in Middlefield, Middletown, Meriden and points to the west. The B corridors will, in general, provide pleasing panoramas for the "Sunday" driver.

In summary, none of the corridors is expected to have serious adverse effects on existing recreational facilities. Corridor R, however, would interfere with the proposed North End Recreational Development in Middletown.

C.2. AESTHETICS

Aesthetics, the branch of philosophy dealing with art, its creative sources, its forms, and its effects, is an extremely personal, and at times, emotional, consideration. The aesthetic evaluation of a corridor can most simply be confined to an expression of the success in sculpturing a highway into its environs, as viewed from vantage points beyond the facility, as well as the highway users "windshield" view from a particular location.

For highway noise abatement as well as for aesthetic reasons, every attempt, within economic reason, would be made to depress the expressway, even though this generally would be at the expense of the "windshield" view. The bedrock of the area trending north-south causes the corridors to traverse almost all of the bedrock formations and the many cut sections would expose a variety of the interesting underlying rock formations in each routing. However, extensive cut and embankment sections may cause difficulties in landscaping.

It is recognized that these cuts would cross ridge lines which Middlefield is anxious to preserve. There is no feasible alternative to these cuts; however, a more natural appearance could be achieved by a combination of flattening side slopes, terracing and landscaping.

The navigational clearance requirements over the Connecticut River require profiles which, in the case of Corridor B-2, would necessitate a long viaduct over the meadowland in Portland, an aesthetically displeasing intrusion. However, at the Bodkin Rock crossing, which would be used for Corridors B and B-1, the approach profiles would control, resulting in a pleasant, high level crossing, as depicted in the rendering in Figure X-1.

The R corridor river crossing would require a structure similar to the adjacent Arrigoni Bridge, resulting in a displeasing concentration of steelwork. The approach structures and ramp connectors between Route 9 and this new river crossing would add to this concentration.

Corridor B-1 would have a scenic variety, passing through areas of varying topography and land use. It would be the most satisfactory corridor in terms of aesthetics because it is most descriptive of the entire natural environment. The river crossing would provide an unchallenged view of the River Valley.

Corridor B-2 would have many of the same aesthetic features as B-1 followed by Corridor B, with Corridor R as the least favorable.

C.3. CONSERVATION

Man, animals, and plant life all exist in a complex system of interdependence. When man encroaches heavily upon the land, or uses it unwisely, this complex balance is affected, sometimes adversely. All wild living things seek a relationship between food, cover, and breeding areas within their habitat which offer them maximum protection. The needs of some species are simple, but for others the relationship is sophisticated and when altered may lead to the reduction or elimination of the population. It may also lead, on occasion, to an undesirable explosion of some like form. For this reason, sensitivity to the ecological effects of any project is vital.

The ecological factors of concern in this study area are generally as follows:

1. animal life
2. plant life
3. land, air and water free of pollution
4. soils protected from erosion

These general categories, plus man in the environment, constitute the ecology of the area as each of these elements is related and dependent on the others.

The study area, with its wide variety of topographic and ecological characteristics contains many fish and wild animal species.

The major State operated game management areas are Boggy and Round Meadows in Cromwell, Durham Meadows in Durham and Wangunk Meadows, north of Portland. The game species include pheasant, water fowl, grey squirrel, woodcock, cottontail rabbit, grouse and raccoon. For the bird watcher, rails, marshwrens, ducks, warblers, thrushes and larks are a few of the many species found in the management areas.

Within the major game management areas there is a variety of habitat consisting of open marsh, bushy marsh, hardwood swamps, reverting fields and open water. In addition, the study area has forests containing a variety of soft and hard woods, and agricultural areas which provide habitat and cover for the forest wildlife.

Cockaponset and Meshomasic State Forests, the Nature Conservancy's Spiderweed Preserve near Bear Hill, Wadsworth Falls, Hurd and George Dudly Seymour State Parks serve also, in the broad ecological picture of the area, as major conservatories.

The lakes of the area, principally Beseck Lake, Black Pond, Crystal Lake and Dooley Pond provide fishing for large and small mouth bass, cat fish, pickerel and perch. Many trout streams, among them Cox Brook, Muddy Gutter Brook and Reservoir Brook, are listed by the Connecticut Board of Fisheries and Game as "good small stream trout fishing".

The study area also contains a number of important reservoirs. The larger two are the Mount Higby and Laurel Brook Reservoirs. The group of Asylum Reservoirs, serving the Connecticut Valley Hospital is also an important conservation control in the location and selection of a corridor.

In order to minimize ecological impact, the corridors have been aligned to avoid critical areas. In general, the soils have characteristics which are stable and will support vegetative cover, minimizing the possibility of erosion. The limited areas within any corridor containing soils of lesser characteristics represent a situation which can be rectified with topsoiling, planting and other normal procedures to establish vegetative cover. Therefore, erosion of these soils, with subsequent sedimentation that might result in a conservation problem, is not likely to develop.

An abundance of interesting views of lakes and forests, as well as fields and towns, are visible to the motorist at many points. The appreciation of natural beauty, an important element of the psychology of conservation, is encouraged, and although wilder areas may be closed to all but the hiker, State parks and other open areas are accessible by vehicle for less hardy souls who wish to get out into the country.

Exhibit 28, depicting the relation of the corridors to the conservation controls, shows that they would not affect important lakes, state forests, game areas and wetlands. Because of their greater lengths through undeveloped terrain, Corridors B-1 and B-2 would have the most impact upon natural wildlife and plant life. Corridor B would traverse more developed land and would have a lesser impact on conservation. Corridor R, by virtue of its multiple use of the railroad right-of-way and its more urban location, would have the least adverse effect on conservation.

C.4. NATURAL AND HISTORIC LANDMARKS

A corridor can affect landmarks by 1) total or partial acquisition or 2) changing access.

The Middletown, Middlefield, Portland areas have many fine historic landmarks. All historic landmarks are man made and date back to the 18th century. Most of the landmarks are houses which illustrate a certain type of architecture for that particular period of time. For instance, the High Street area has many Greek Revival Houses, Society Houses and Federal Houses as well as houses belonging to famous people associated with Wesleyan University. These houses are well preserved and illustrate many fine architectural points of historic nature. Portland has two rare octagonal houses, a stone arch bridge, and its famous Brownstone Town Hall.

The National Register of Historic Places lists the Alsop House at 301 High Street, the Russell House, at the corner of Washington Street and High Street, and the Seth Wetmore House at the corner of Camp Street and Route 66.

No historic landmarks would be affected by the alternate corridors.

There are many natural features in the region, including the forests, ridges, rivers, lakes and wetlands. Wadsworth Falls in Middlefield and Bodkin Rock in Portland are perhaps the best known natural landmarks. Corridors B and B-1 would cross the Connecticut River alongside of Bodkin Rock providing a scenic view of this landmark.

With the exception of the passage through the State Forest at Black Pond, the transverse path through the ridges in Middlefield, and the crossings of the Coginchaug and Connecticut Rivers, the alternate corridors would not have a serious adverse impact upon the natural landmarks in the study area.

C.5. AIR AND WATER POLLUTION; NOISE

Air Pollution

The Department of Health, Education and Welfare reported in The Sources of Air Pollution and Their Control, 1966, that motor vehicles emit 60.6% of the total U.S. air pollution; industry contributes 16.2%; power plants 14.1%; space heating 5.6% and refuse disposal 3.5%.

An expressway can affect air pollution in a region in several ways:

1. By generating traffic through the region, more vehicles will be present to contribute to the total air pollution level.
2. By diverting traffic from existing congested arteries and streets, a localized reduction in air pollution may result by reducing stop and go conditions, the greatest cause of emissions of high concentrations of carbon monoxide and hydrocarbons.
3. By locating a corridor near other major contributing sources of pollution, localized areas of higher concentrations may occur.

In the case of each alternate corridor, more traffic will pass through the study area in 1990, than would be the case with no relocation of Route 66. To reduce air pollution, the corridors should be located in such as fashion as to:

a. Minimize the total number of miles to be driven.

b. Avoid routing of through traffic through downtown areas.

The corridor mileages are 9.1, 9.6, 10.8, and 12.2 for alternates R, B, B-1 and B-2 respectively. However, Corridor R would traverse densely developed areas close to the downtown areas of Middletown and Portland, which are already subject to high volumes of traffic on local streets. The addition of through traffic in this area would not be desirable. Corridor B-2 would come next closest to such areas; Corridors B and B-1 are furthest removed. Therefore, from these considerations, Corridor B would be preferable, followed in order by B-1, B-2 and R.

Traffic diversion from existing Route 66 in the design year would be best achieved by Corridor R; the three "B" corridors would not provide as much relief although their impact compared to no relocation would be substantial. However, since Corridor R would be located generally parallel to the existing route, the diverted traffic would operate essentially along the same band. Therefore, Corridor R would, in fact, not have a mitigating effect on air pollution in the existing Route 66 corridor, whereas each of the "B" corridors would.

The other major contributors to air pollution in the study area are the industrial complexes in Middletown and Portland and the HELCO power plant in Middletown. Corridors R and B-2 would pass closest to the industrial areas and thus would contribute to localized

concentrations of air pollution. Corridors B and B-1 would not pass close to any areas presently subject to noticeable pollution.

Since the exhaust emission from motor vehicles will be drastically reduced in the coming years, to comply with established national emission standards, no significant air pollution is expected in the B and B-1 corridors.

Based on the three evaluation factors mentioned above, i.e., traffic generation, traffic diversion, and corridor location, Corridor B would contribute least to regional air pollution, followed by Corridors B-1, B-2, and R.

Water Pollution

Two basic contributors to water pollution are directly related to expressways: airborne particles from exhaust emissions and chemical pollutants washed off the pavements and carried to water sources.

Lead pollution of surface drinking water sources is of great concern to public health authorities. In a recent letter to the Middlefield Planning Commission, Dr. Franklin M. Foote, Commissioner of the Connecticut State Health Department, stated "that everything possible should be done to locate highways in such a way that the right-of-way is at least 1/4 mile from the nearest reservoir. . . .It is also important that barriers such as trees and shrubbery along the right-of-way be provided as an aid in reducing the possibility of airborne pollution". Corridors B, B-1, B-2 and R would all be located about 1/4 mile from the existing reservoirs of the area.

Chemical pollutants carried in roadway run-off include exhaust particulates, salts used for snow and ice control, and crankcase drippings. Drainage systems must, therefore, be designed to control this runoff from reaching drinking water sources.

A third possible contributor to water pollution is soil erosion from unstabilized side slopes. This can be controlled by minimizing slope gradients and stablization through ground cover planting.

By virtue of the anticipated reduction of traffic on existing Route 66 through the Mt. Higby Reservoir, which would result from any of the four corridors, roadway related pollution to this important drinking water source would be reduced.

Since Corridor R would divert the most traffic from existing Route 66, it will have a somewhat higher beneficial effect on the Mt. Higby Reservoir than would the B corridors. Middletown's other major water source, the River Road wells, would not be affected by any corridor.

Solutions to the roadway runoff source of water pollution are design oriented. Positive drainage, settling basins and recharging basins are among the solutions that would be considered during the design stages. Particular care would be essential for Corridors R and B-2 through Pecausett Meadows, an important regional aquifier.

HIGHWAY NOISE

Noise emanating from moving highway vehicles has three basic sources: the exhaust system, mechanical equipment and tires. Reports 78 and 117 of the National Cooperative Highway Research Program set forth empirical procedures by which noise levels can be estimated at varying distances from the source for different traffic densities and truck volumes. Also included are recommended design criteria consisting of average noise levels for different land uses.

These reports relate noise intensity to A-scale values in decibels, abbreviated dBA. These values are indicative of the listener's response for a limited range of noise which includes the noise generated by motor vehicles. The recommended average outdoor noise levels are:

50 dBA for "single-occupancy dwellings in a low density populated area" and for hospitals and churches.

55 dBA for schools.

Experience has shown that complaints from the public are rare for noise levels less than 70 dBA near residences.

The estimated highway noise level computations were based upon the following assumptions:

a. Traffic densities based upon projected 1980 average hourly traffic at an average operating speed of 55 mph.

b. Approximately 5% trucks in the traffic stream.

c. Noise levels from today's operating vehicles.

An analysis was performed to estimate the approximate number of homes which would be subjected to noise levels in excess of the 50 dBA criteria. Using the empirical procedures in Reports 78 and 117, 50 dBA noise level isobars were plotted on a 200 scale topographic map, where the noise level was computed from assumed pavement locations within the corridors. The dwellings located between these isobars, excluding those expected to be acquired for right-of-way purposes, were counted. The following tabulation compares the lower and upper extremes of this analysis, without consideration of noise reduction at the source, noise filtering barriers, or ambient noise levels.

	Corridor B-1	Corridor R
Middlefield	50	60
Middletown	120	400
Portland	20	220

More specifically, the following tabulation lists the existing ambient daytime outdoor noise levels at several institutions and that which would be expected to occur in 1980 from the combination of the existing ambient noise and the noise resulting from the alternate corridors. The combined noise level is not the arithmetic sum of the ambient and the projected traffic noise, but follows the procedures of Report 78. For example, if the induced traffic noise exceeds the ambient (or visa versa) by more than 10dBA, the combination is the higher of the two. At the other extreme, if both sources are equal, the combined result is 3dBA higher than either.

Name of Institution	Existing Ambient Daytime Outdoor Noise Levels	1980 Estimated Combined Noise Levels	Corridor(s) Inducing Traffic Noise
Middlefield			
Chestnut Hill School	43	43	All
Middlefield Center School	44	46	B, B-1 & B-2
Middlefield Federated Church	44	46	B, B-1 & B-2
Church of St. Colman	46	47	B, B-1 & B-2
Memorial School	42	43	B, B-1 & B-2
Independent Day School	41	42	B, B-1 & B-2
Middletown			
Meadowbrook Convalescent Home	60	61	R
Christ Lutheran Church	65	65	R
Shiloh Baptist Church	60	61	R
St. Johns Church & School	70	70	R
Middlesex Memorial Hospital	60	60	B-2
Hubbard School	65	65	B-2
St. Francis Church	65	65	B-2
Xavier High School	50	57	B-1 & B-2
Middlesex Nursing & Convalescent Home	58	60	B-1 & B-2
Bielefield School	48	50	B & B-2
Edgar W. Chapel	52	52	B-2
Connecticut Valley Hospital	55	59	B-2
Portland			
True Vine Fire Baptized Holiness Church of God	64	66	R
Elmcrest Manor Convalescent Home	60	61	R
St. Mary's Church & School	52	54	R
Seventh Day Adventist Church	52	53	R

There are effective methods for reducing highway noise which can be subdivided into the following categories:

a. Government regulatory standards
b. Barriers for filtering and reflecting sound waves
c. Development of further noise reduction design techniques to make our highways inherently quieter. For instance, continued research of road surface finishes and greater utilization of sound absorption materials and vibration isolation methods.

The most direct and efficient means of minimizing the problem would be the use of enforced regulations for noise control. For example, on July 8, 1971, the Connecticut State legislature approved substitute House Bill No. 5202 of Public Act No. 762 dealing with vehicle noise. Essentially, the bill stated that by January 1, 1973, no vehicle on state highways would be allowed to emit noise levels in excess of 90 dBA at the source. This will have the approximate effect of reducing truck noise to the levels of present day passenger cars thus eliminating truck volumes from the empirical analysis. The house count and 1980 estimated combined noise levels tabulated above would therefore be reduced as a result of this legislation. For example, the number of houses between the 50 dBA isobars in Middlefield would be reduced from 50 to less than 25.

Other methods of noise control involve the use of earth berms and planting. The utilization of earth berms approximately 8 feet high in at-grade and embankment sections has been found to be an effective means of sound attenuation. Although the sound attenuation associated with sparse planting is small, the planting does screen the source of noise and other perceivable pollutants from the residents' view, as well as provide a more agreeable environment to the motorist. The combined use of earth berms and planting would be employed primarily at points of interchange with local streets in order to reduce the higher noise levels due to accelerating vehicles.

Every available technique to reduce highway noise pollution must be considered during design.

Of all the institutions listed in the above tabulation, Xavier High School is the only one which, due to Corridors B-1 or B-2 would in 1980 be subjected to a moderate increase in noise levels, slightly above the level recommended in the NCHRP Report No. 117. This may require special treatment, such as the incorporation of acoustical baffles and parapets on structures or acoustical right-of-way walls.

Corridor R would subject the greatest number of homes to above average noise levels, followed, in order, by corridors B-2, B and B-1.

CHAPTER IX

COST ESTIMATES FOR ROUTE 66

LAYOUT CRITERIA

The engineering analysis upon which the construction costs were based, was performed in conformance with the Connecticut Department of Transportation's "Geometric Highway Design Standards". These standards are similar to those adopted for the Interstate System by the American Association of State Highway Officials in 1965. Full consideration was given to blending the corridors with the existing terrain. Every effort was made to employ standards above the minimum without unduly increasing construction costs or right-of-way taking.

Most of the corridors studied would meet the requirements for a Type "G" Urban (Residential) Expressway with complete control of access and 70 mph design speed. The exception is the urban portion of the R corridor which was designated as a Type "G" Urban (Commercial or Industrial) Expressway with complete control of access and a design speed of 60 mph. The layout criteria are shown in Table IX-1 and the typical roadway sections are shown in Exhibit 29.

GEOLOGY

The geology of the project area has been discussed in Chapter III. The glacial deposits consist mainly of sand and gravel mixtures. In the Middlefield and Middletown areas of the project, the depth to bedrock ranges from 0 to 25 feet. In Portland the depth to bedrock generally varies from 0 to 30 feet. The depth to bedrock in the Connecticut River ranges from approximately 70 to 130 feet.

SOILS

The bedrock overburden generally consists of gravel and sand, and is adequate for highway construction. There are some swampy areas of concern. The B-2 and R corridors both would skirt the Pecausett Meadow area in Portland, and connections from the Arrigoni Bridge to Route 9 would pass through the southern corner of the Boggy Meadow area in Middletown. These swamp areas contain organic material for which special embankment treatment would be required.

It is anticipated that bedrock will be encountered in most of the cut sections throughout the project area. The rock slopes are expected to vary between 1:1 and 6:1. The B corridor would involve three cuts up to 30 feet deep, three cuts up to 60 feet deep and three cuts up to 90 feet deep. There would be four cuts up to 60 feet deep, and two cuts up to ninety feet deep in the B-1 corridor. The B-2 and R corridors would involve some cuts up to 90 feet deep.

The assumed soil bearing capacity would allow spread footings to be utilized for the normal highway structures throughout the project. The foundation requirements for the structure over the Connecticut River are described in more detail hereinafter.

HIGHWAY DRAINAGE

Drainage for this project was analyzed in accordance with the State of Connecticut's Drainage Standards. It is anticipated that, for the most part, a positive drainage system will be used. Surface runoff in embankment sections would be collected in side ditches which would also drain the subgrade. In cut sections, basins would be appropriately spaced along the side ditches and connected by conduits. These inlets would be tied into main trunk lines by manholes and would outfall either into natural water courses or city storm sewers, wherever possible in urban areas. Perforated underdrains would be used to drain the subgrade in long cut sections.

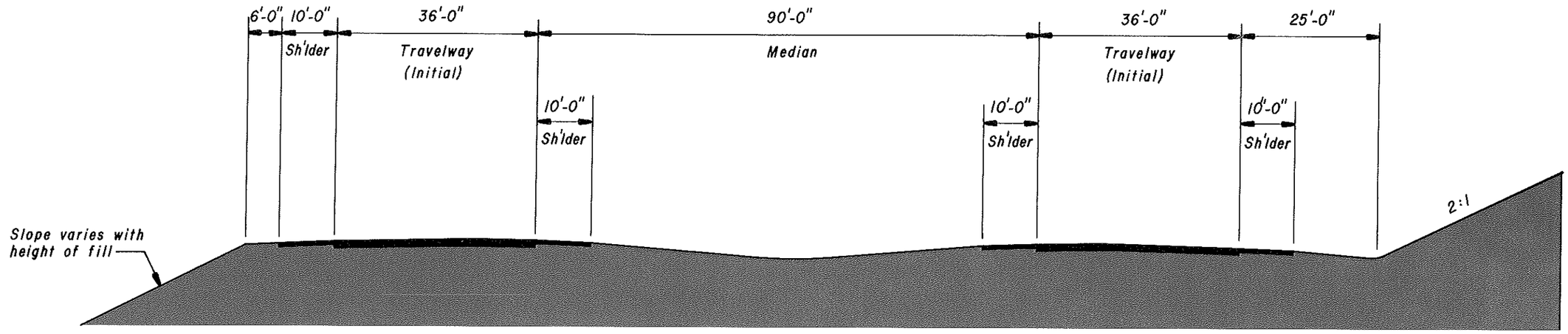
MAJOR DRAINAGE

Major drainage structures would be required on all corridors to carry water courses and overland runoff. Most of the cross culverts were considered as "Small Structures" as defined in Connecticut's Drainage Standards for a "50 year" discharge. The sizes and characteristics of the drainage areas were such that the "Rational Method" for computing runoffs was normally used. In instances where the "Rational Method" is not applicable, the Bigwood-Thomas "Flood Flow Formula" or a method using stream gages can be used as outlined in the Drainage Standards to obtain the design discharge. The majority of the culverts would be circular with standard type headwalls; for larger openings box culverts would be required.

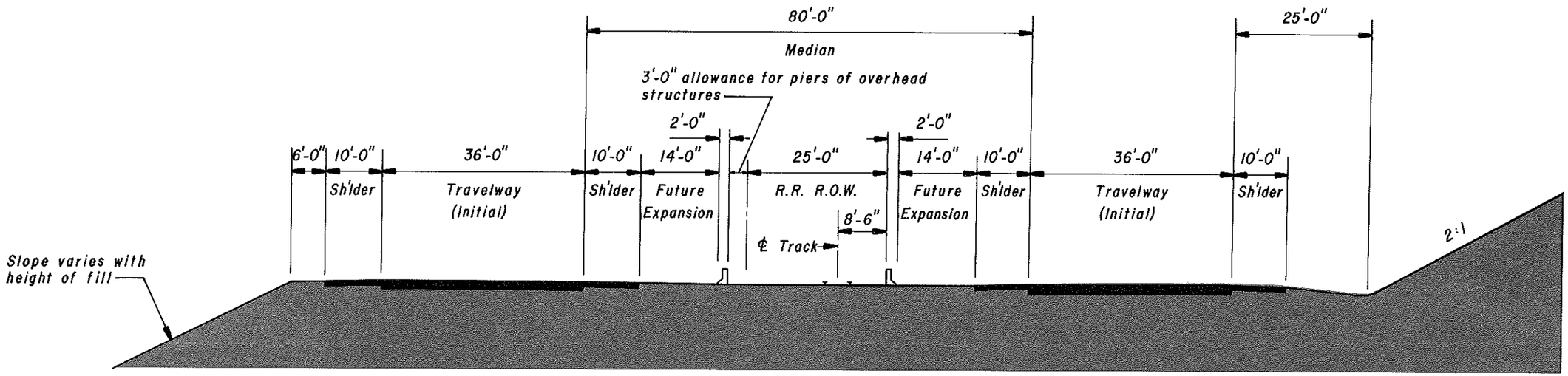
	Type "G" Urban (Residential)	Type "G" Urban (Industrial or Commercial)
Design Speed	70 mph	60 mph
Lane Arrangement	6 Lane Expandable	6 Lane Expandable
Minimum Median Width	90'	80'
Minimum Right-of-Way	100' from Pav't. edge	75' from Pav't. edge
Curvature (Maximum)	3°	4°
Gradient (Maximum)	5%	5%
Stopping Sight Distance	650'	500'
Clearances:		
Highway Vertical Clearance	16'-3"	16'-3"
Highway Horizontal Clearance	30'-0" from Pav't edge	30'-0" from Pav't edge
Railroad Vertical Clearance	22'-0"	22'-0"

LAYOUT CRITERIA

TABLE IX-1



TYPE "G" URBAN (RESIDENTIAL) ROADWAY
Scale 1"=20'-0"



TYPE "G" URBAN (COMMERCIAL OR INDUSTRIAL) ROADWAY
Scale 1"=20'-0"

RELOCATED ROUTE 66 TYPICAL SECTIONS

EXHIBIT 29

CONNECTICUT RIVER BRIDGE

The corridors under consideration would require a crossing of the Connecticut River at one of the following locations:

. . .North of the Connecticut Valley Hospital (Corridor B-2)
. . .At Bodkin Rock (Corridors B and B-1)
. . .North of the Arrigoni Bridge (Corridor R)

With the exception of the R corridor, the river crossings would consist of two independent structures, one carrying eastbound traffic and the other westbound traffic. Each one-way structure would be initially constructed with four (4) twelve foot traffic lanes and full twelve foot shoulders on each side in accordance with Connecticut Department of Transportation criteria. The construction of eight traffic lanes on the bridge would be compatible with the ultimate roadway section on the approaches without requiring future modifications to the bridge. The R corridor crossing would consist of a structure with four (4) twelve foot traffic lanes in each direction, plus an auxiliary lane on each side, twelve foot shoulders each side and a six foot wide non-mountable median barrier.

The river crossing at Bodkin Rock for the B and B-1 corridors would occur at a point where the topography prescribes a relatively high roadway profile. The resulting vertical clearance above the river would be in excess of 200 feet. The overall width of the river at this location is approximately 900 feet with a 150 foot navigable width of channel. The approaches at both ends of the structure would be aligned in the sharply rising terrain to minimize the required roadway cut and bridge skew.

The Middletown approach for the Corridor B-2 crossing would begin at the Route 9 Interchange and pass through the area north of the Connecticut Valley Hospital. The roadway profile would provide a minimum vertical clearance of 81 feet over the 400 foot navigable width of the channel at this point. This vertical clearance is based upon the existing clearance of Interstate Route 95 over the Connecticut River at Old Saybrook. The Portland approach would be on viaduct to a point just north of Riverview Street.

The R corridor crossing would begin at the Route 9 Interchange in Middletown and end in Portland at the Route 17A Interchange.

A vertical clearance of 93 feet over the navigable channel would be provided similar to the existing Arrigoni Bridge.

The river crossings for Corridors B, B-1 and B-2 are ideally suited for the use of orthotropic steel deck construction. The orthotropic construction technique is basically an extension of the principles employed in the composite design of bridges. Unlike composite construction, the orthotropic design concept fully utilizes the structural properties of a comparatively lightweight steel deck. In combination with welded steel plate box girders, the steel deck becomes an integral load carrying component, by acting as the upper flange of the bridge superstructure. The advantages of this type of construction over the more conventional design would be as follows:

1. A steel weight savings, which becomes increasingly important in reducing the dead load as the span length becomes greater.

2. Increased efficiency in erection operations. Main bridge sections are lighter, allowing longer sections to be erected. Concrete construction is limited to one operation; the construction of the substructure during the initial phase of the job.

3. In addition to the direct savings in structural steel cost, there would be an additional savings associated with the use of an epoxy-asphalt wearing surface as compared to the conventional reinforced concrete bridge deck.

4. A depth-of-structure reduction is possible. This could result in a reduction in the cost of the approaches. This would be of primary importance at the "B-2" crossing where the bridge profile is controlled by a minimum vertical clearance above the river.

5. The reduction of superstructure dead load would result in a decreased substructure cost.

6. The use of orthotropic construction should result in greater slenderness of the various bridge elements and measurably contribute to a more pleasant appearance and a better fit to the total crossing environment.

For the B and B-1 corridors, the river bridge recommended would consist of a three span continuous structure (475' - 750' - 475') with variable depth steel box girders (16' minimum to 24' maximum) and orthotropic steel deck. The pier bents would be designed as welded cellular steel frames which support the imposed loads of both the east and westbound roadways to a common pier footing. Four hundred ton capacity steel caissons could be utilized to carry the superstructure and substructure loads to a suitable rock foundation. The rubbed concrete surfaces of the semi-stub abutments would complement the simple lines of the continuous steel box girders which traverse the rugged topography at this crossing. External stiffeners and bracing would be located between the steel boxes in order to conceal them from view and not mar the appearance of the bridge.

The deck surface would be paved with a two course epoxy-asphalt. This type of surfacing adheres to the steel deck and exhibits improved skid and hydroplaning resistance characteristics. The combined use of high strength — low alloy steels, orthotropic bridge deck and epoxy-asphalt pavement would result in a reduction of the superstructure dead loads, and be reflected in the "light, slim-line" appearance of the structure. The economic feasibility of using "weathering" steel to offset rising maintenance costs should also be considered.

The bridge for the B-2 corridor river crossing would be a three span continuous structure (350'-500'-350') with variable depth steel box girders (12' minimum to 22' maximum) and orthotropic deck. The Portland approach would contain five (5) spans at 200 feet each with constant depth steel box girders (12' deep). Steel frame "V" bent piers would be used to reduce the effective length of the approach spans. Steel caissons would be used to carry the design loads to suitable foundation material.

The R corridor would require a river crossing relatively close to the existing Arrigoni Bridge, which would suggest a new structure similar to the existing bridge. Therefore, the structure should be a tied arch comprised of two 600 feet spans matching the span arrangement of the Arrigoni Bridge.

The foundation costs for the alternate bridge crossings are based upon the preliminary subsurface information furnished, which indicates suitable rock to be located at the following approximate depths below existing ground:

Corridors B and B-1	70' to 80'
Corridor B-2	90' to 100'
Corridor R	100' to 110'

In addition to the cost of the basic structure, the estimated construction costs include provision for lighting, drainage, pier protection as required, and an allowance for channel restoration.

TYPICAL HIGHWAY STRUCTURES

In general, the design criteria for these structures would follow the standard specifications for Highway Bridges of the American Association of State Highway Officials supplemented by the Bridge Standards of the Connecticut Highway Department. The minimum vertical clearance for all highway underpasses is 16'3". For railroad underpasses, at least 22'0" vertical clearance would be provided.

The various grade separation structures, although typified here in several categories, would require individual preliminary studies during later design stages. The final selection of structure type would depend on the actual subsurface conditions and span length as well as the character of the immediate environment.

Typically, for mainline under local road, a two span continuous, welded plate girder superstructure would be most economical. Stub or semi-stub abutments and rigid frame reinforced concrete piers would normally be utilized. Preliminary subsurface information generally indicates suitable rock located at shallow depths allowing the foundations to rest on ledge rock or material of reasonably good bearing capacity.

For mainline over local roads, a single span superstructure of shallow welded plate girders supported on semi-stub abutments set back from the edge of shoulder is recommended. The openness of this type of structure notably contributes to the motorist's visibility and safety.

COST ESTIMATES

The total project cost shown in Figure IX-1 has been estimated from the Black Pond area in Middlefield to existing Route 66 in Portland. The estimates are based on 1971 unit prices and do not include any adjustments to reflect costs expected to prevail during the construction phase.

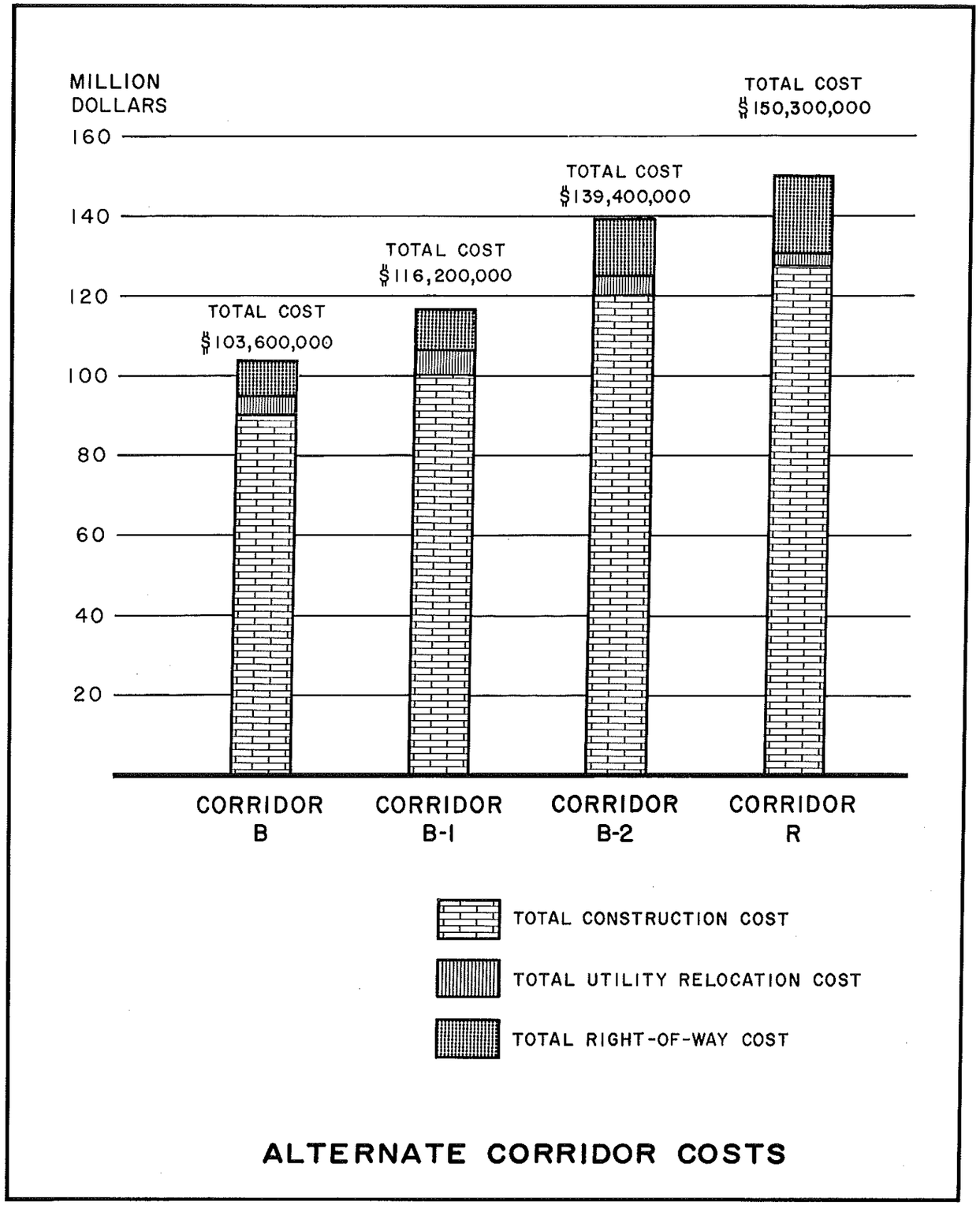


FIGURE IX-1

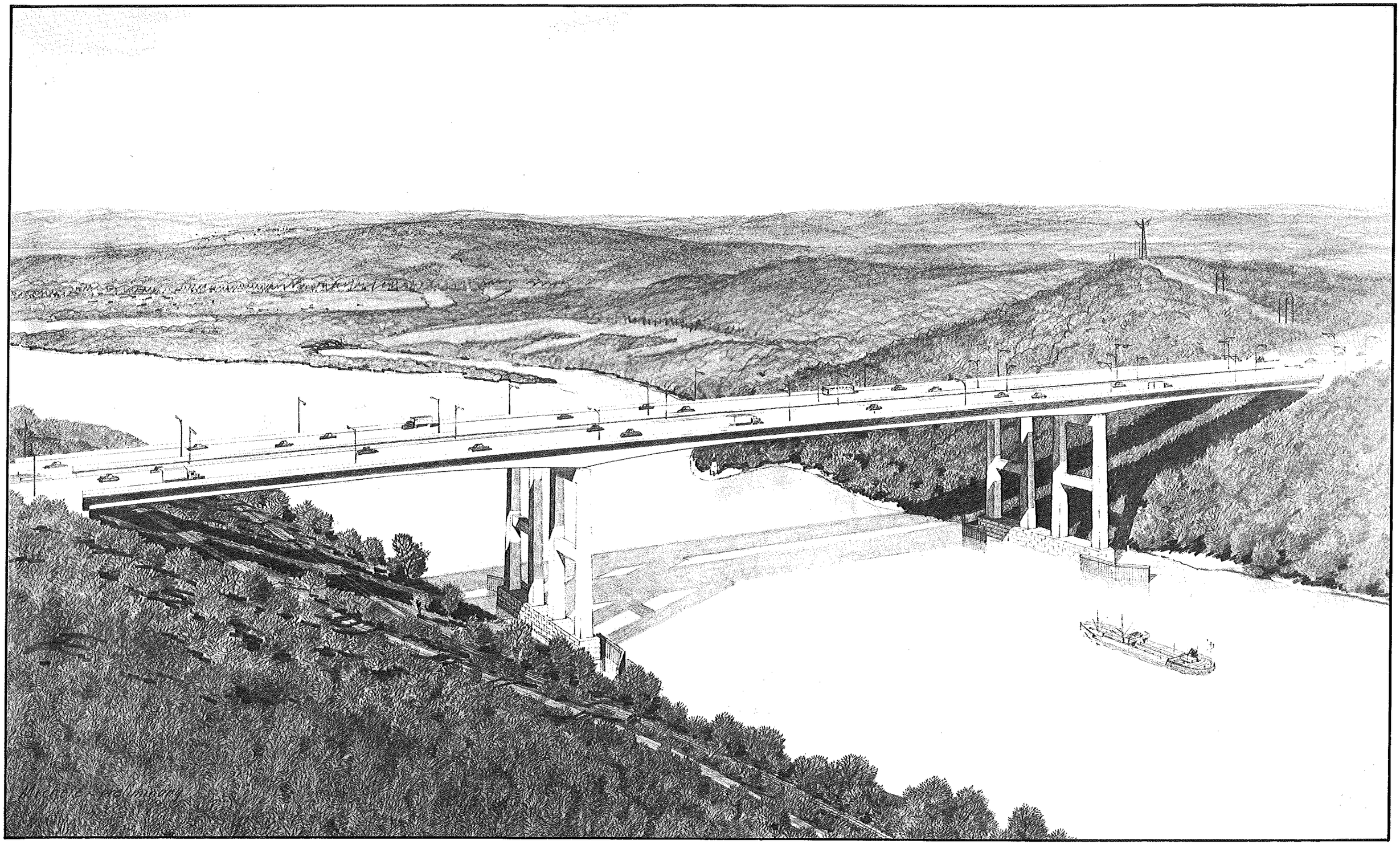


FIGURE X-1

POSSIBLE RIVER CROSSING

In addition to the cost of the basic structure, the estimated construction costs include provision for lighting, drainage, pier protection as required, and an allowance for channel restoration.

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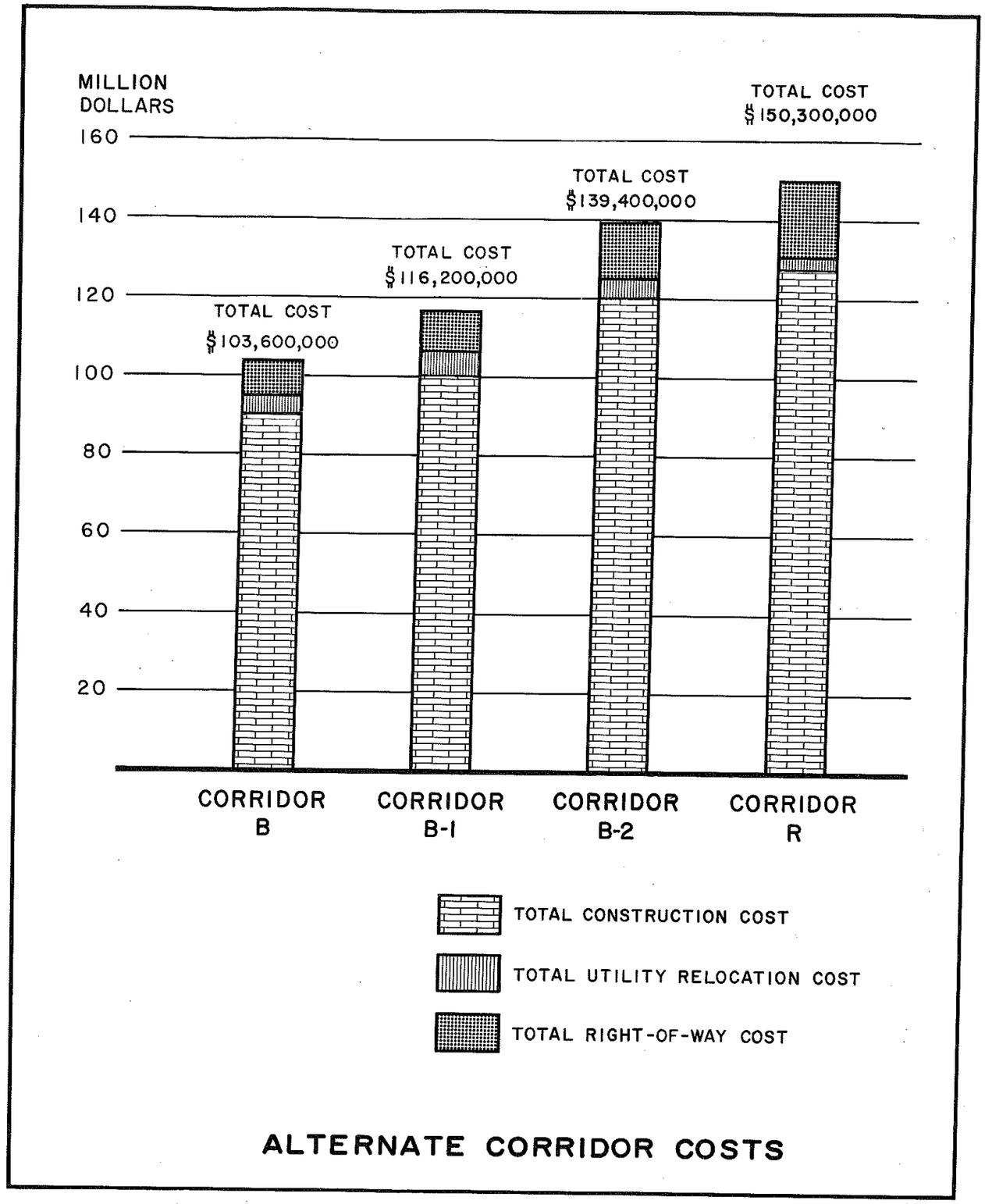
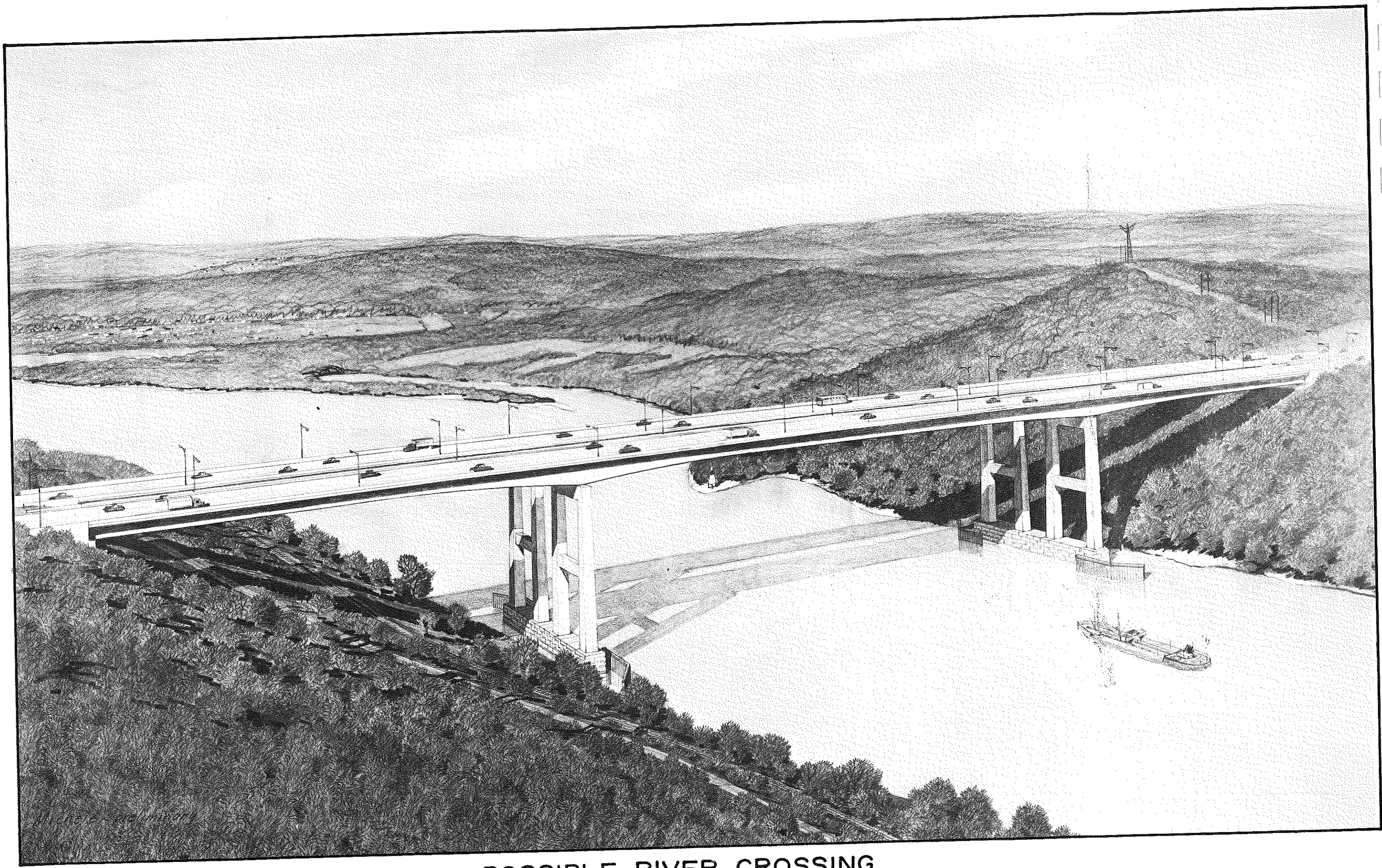


ALTERNATE CORRIDOR COSTS



POSSIBLE RIVER CROSSING

FIGURE X-1

CHAPTER X

SELECTION OF RECOMMENDED CORRIDOR FOR ROUTE 66

Chapters VI and VII are devoted to the development and analysis of the preliminary corridors and final alternates. Chapter VIII contains a detailed evaluation of the final alternates. This chapter is a summary of the various forces and considerations leading to the selection of the recommended corridor.

It is not entirely possible to quantify the evaluation of alternate transportation corridors. That is, numerical weights cannot logically be assigned to each evaluation factor which would result in a simplified rating system.

The need for a relocation of Route 66 is discussed in depth in Chapter IV. An improvement of Washington Street, as a substitute for a relocation, has been found undesirable in terms of economic impact, right-of-way acquisition, displacement of families and businesses, and general traffic service to the area. Implementation of other modes of transportation was ruled out as a solution as the study area does not possess the trip characteristics, urban population density and central business district floor space needed to sustain presently viable mass transit facilities.

The remaining alternatives would be to do nothing or to relocate Route 66 in a new corridor. The null alternative would ignore the need as also indicated by the previous comprehensive planning of the communities and the recommendations of earlier studies, discussed in Chapter II. The economic projections for the study area and region argue strongly against the null alternative, as do the design year traffic projections.

It is recommended therefore, that Route 66 be relocated through the towns of Portland and Middlefield and the City of Middletown to achieve the long range goals of the Region and State. The challenge then is to provide for the relocation in a manner compatible with local goals and aspirations and the requirements set forth to protect and enhance the human environment.

The comparative evaluation analysis indicates a trend favoring the B and B-1 corridors over the B-2 and R corridors. This trend appears to result from the more urban of the areas through which the latter two would pass. For example, the number of families displaced by the R corridor would be more than double that for the B corridor, the same is true for B-2 as compared to B-1. The higher cost of real estate and increased complexity of construction in urban areas lead to higher total cost estimates. For these reasons, as well as the severity of the social, economic and environmental impact, Corridors R and B-2 are judged to least satisfy all of the criteria for a desirable relocation.

The remaining corridors, B and B-1, are similar in many respects. Their alignment is identical in Middlefield and Portland, and differs in Middletown only, between Routes 17 and 9. Their effect on the long range economic growth of the region would be similar and superior to that of the other studied corridors.

The major points in dissimilarity result from the different corridor alignments in Middletown. Corridor B-1 would be longer as its alignment was developed to bypass the residential neighborhoods. This would result in higher construction, right-of-way, road user and annual maintenance costs. The interchange with Route 9 would be more complex and more costly.

However, these increased costs are considered reasonable to achieve the objective of reducing the impact on established residential neighborhoods. Compared to Corridor B, Corridor B-1 would affect fifty-five fewer homes and families and five more businesses.

The alignment of Corridor B-1 would be superior to that of Corridor B in several other respects. From an aesthetic viewpoint, it would generally lie in a side-hill configuration, fitting into the landscape. The terrain through which it would pass is generally too rough for development, thus it should not create a barrier to future residential expansion. An interchange with Millbrook Road would provide service for future expansion in the flatter valley to the north while also improving accessibility to Crystal Lake from other parts of the City.

It is therefore recommended that Corridor B-1 be adopted for the relocation of Route 66. The suggested structure over the Connecticut River is discussed in Chapter IX and is shown in a rendering, identified as Figure X-1.

It is further recommended that where Corridor B-1 is coincident with, or adjacent to, the HELCO transmission lines, particularly in Middlefield, provision be made to accommodate that relocation within or adjacent to the right-of-way to the greatest extent possible. Serious consideration should also be given to placing the transmission lines underground. It is recognized that the cost of going underground will be high.

STAGING

The factors normally considered in determining the staging of construction are:

a. Availability of funds
b. Availability of rights-of-way
c. Providing essential improvements at the earliest opportunity
d. Economy of construction
e. Continuity of completed sections.

For the purposes of the staging study, it is assumed that the funds and right-of-way will be available and that the remaining factors represent the basis for staging.

Economy of construction for Route 66 as related to staging, is basically a function of earthwork requirements. Ideally, the earthwork within any one construction section should approximate a

balanced condition, with contract limits established accordingly, providing the limits so established will result in a continuous or usable section when completed. Since, for earth work, the recommended corridor is essentially a waste job, one goal in staging would be to avoid a borrow contract.

The recommended construction contract sections are:

Section I	Black Pond to Route 157
Section II	Route 157 to Route 17
Section III	Route 17 to Route 9, including the Route 9 Interchange
Section IV	Route 9 Interchange to River crossing
Section V	River crossing to Route 66

AUXILIARY IMPROVEMENTS

In Chapter VIII, mention was made that either Corridor B or B-1 would provide relief to Washington Street in the design year, to the extent that traffic on that artery at that time will approximate current levels. This would indicate that with a relocation, local improvements to Washington Street, such as those recommended by the City, will adequately serve traffic needs to 1990. It is therefore recommended that the localized improvements to Washington Street in Middletown be given a high priority.

Since the relocation of Route 66 would result in the shift of the Route 17 through traffic from the Arrigoni Bridge and Route 17A to existing Route 17 in Portland, it is recommended that the existing railroad bridge which carries an abandoned railroad over Route 17 and has a sub-standard vertical clearance, be demolished to increase safety and provide a direct routing for commercial vehicles.

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CHAPTER XI

ROUTE 9 IMPROVEMENT

BACKGROUND

Connecticut Route 9 is located in the south-central part of the State on the west side of the Connecticut River. The original route, which consisted of a combination of town and county highways, was incorporated into the State system in the early 1930's. Exhibit 30 shows existing Route 9 within the study area. In Middletown, Route 9 followed Main Street until the early 1950's when a program was undertaken to relocate the facility to the river's edge. By 1951, the section between Hartford Avenue and Acheson Drive was completed, and Route 9 was shifted from Main Street to its present alignment. With the exception of three intersections in Middletown, Route 9 is currently developed to expressway standards from the Connecticut Turnpike (I-95) in Old Saybrook to (I-91) in Cromwell, a distance of approximately 28 miles. It is planned to eventually extend Route 9 to Route 15 in Berlin.

There are two at-grade intersections controlled by traffic signals at Washington Street and at Hartford Avenue. There is a left turn storage lane at Washington Street, and a continuous extra lane northerly of Washington Street for northbound vehicles turning left to Hartford Avenue. North of Hartford Avenue, there is a non-signalized at-grade intersection with Miller Street. These intersections and signals constitute a hazardous discontinuity in a route which is intended to be a relatively high speed modern highway facility.

During a recent five year period, there were 215 recorded accidents on Route 9 between the vicinity of the Sebethe River and the Acheson Drive Interchange in Middletown. More than half of these accidents were directly attributable to the three intersections mentioned above.

By Section 8, Paragraph 11, of Public Act 755 of the 1969 Legislature, the Department of Transportation was authorized to make engineering studies to improve, to modern expressway standards, the section of Route 9 from the vicinity of the south junction of Route 17 to the vicinity of the Sebethe River. This study was included in the October, 1970 Agreement between the Department of Transportation and Berger, Lehman Associates, Inc.

LOCATION CRITERIA

Existing Controls

Route 9 lies adjacent to the Connecticut River from the Sebethe River to Washington Street, a distance of about 4,000 feet, approximately half the length of the section under study. Portions of the northbound roadway are on embankment created by filling the river. Horizontal alignment and side clearance are restricted by the spacing of the piers for the west approach to the Arrigoni Bridge. Horizontal and vertical clearances are also restricted by the Penn Central Railroad river bridge located about 1,000 feet south of the Arrigoni Bridge. The bridge span over the southbound roadway is a plate girder, while that over the northbound roadway is a through truss. Floorbeams of this truss were modified when the present roadways were constructed to provide 14'6" vertical clearance.

Another branch of the Penn Central Railroad runs parallel to and immediately west of Route 9 for most of the study section. This single track facility passes over Hartford Avenue, intersects the east-west track at grade, and crosses Washington Street at grade. Route 9 passes over this track at Union Street. The track then continues in a southeasterly direction, as far as the HELCO power plant while Route 9 proceeds southerly from this location.

Route 9 begins to diverge from the shoreline south of Washington Street. The Middletown Municipal Building, the Middlesex County Court House, and the DeKoven Community Center are located on a slight hill to the west of Route 9 between Washington Street and Court Street. Riverview Center, a recent retail development, and a municipal parking structure are located just south of the Municipal Building, between Court Street and College Street.

The area between Route 9 and the river from Washington Street to the south is Lions Park, which includes a State maintained boat launching area. A pedestrian tunnel passing under Route 9 and the railroad connects the north end of this park to the lawn in front of the Middlesex County Court House. Vehicular access to this area is presently from Water Street which extends northward from River Road and Union Street. The City maintains a building as a Park Recreation Center adjacent to the river opposite College Street. A boat house belonging to Wesleyan University is located just south of the Recreation Center.

A municipal sewage treatment plant is located within the Acheson Drive Interchange. The plant lies between the southbound off-ramp and northbound on-ramp and has access from Sumner Street. An addition to this facility is to be located at the edge of the river opposite Walnut Street. The two sections of the plant will be connected by a 42" pipe passing under Route 9, the Penn Central Railroad and River Road.

Portions of Route 9 in the study area lie within stream encroachment lines established by the State Water Resources Commission. A minimum elevation of 30 feet above sea level would have to be maintained for the Route 9 improvement in order to accommodate the river flow without flooding the roadway. This control has not been held, for reasons discussed later in this chapter.

There are several utilities under and adjacent to Route 9. A municipal sewage pumping station is located in the median, opposite Green Street. Access to this station is via an opening in the guard rail along the west side of the northbound roadway. A combined sewer overflow outlet and pumping station is located between the northbound roadway and the river just north of Miller Street, with access from the northbound roadway. A 12" jet fuel line lies within the Penn Central Railroad right-of-way following Route 9 north of the east-west railroad track. A 13. K.V. electrical power line crosses under the river and Route 9 immediately north of the railroad structure; there is a similar crossing of telephone cables at Hartford Avenue. An 18" combined sewer lies longitudinally under Route 9

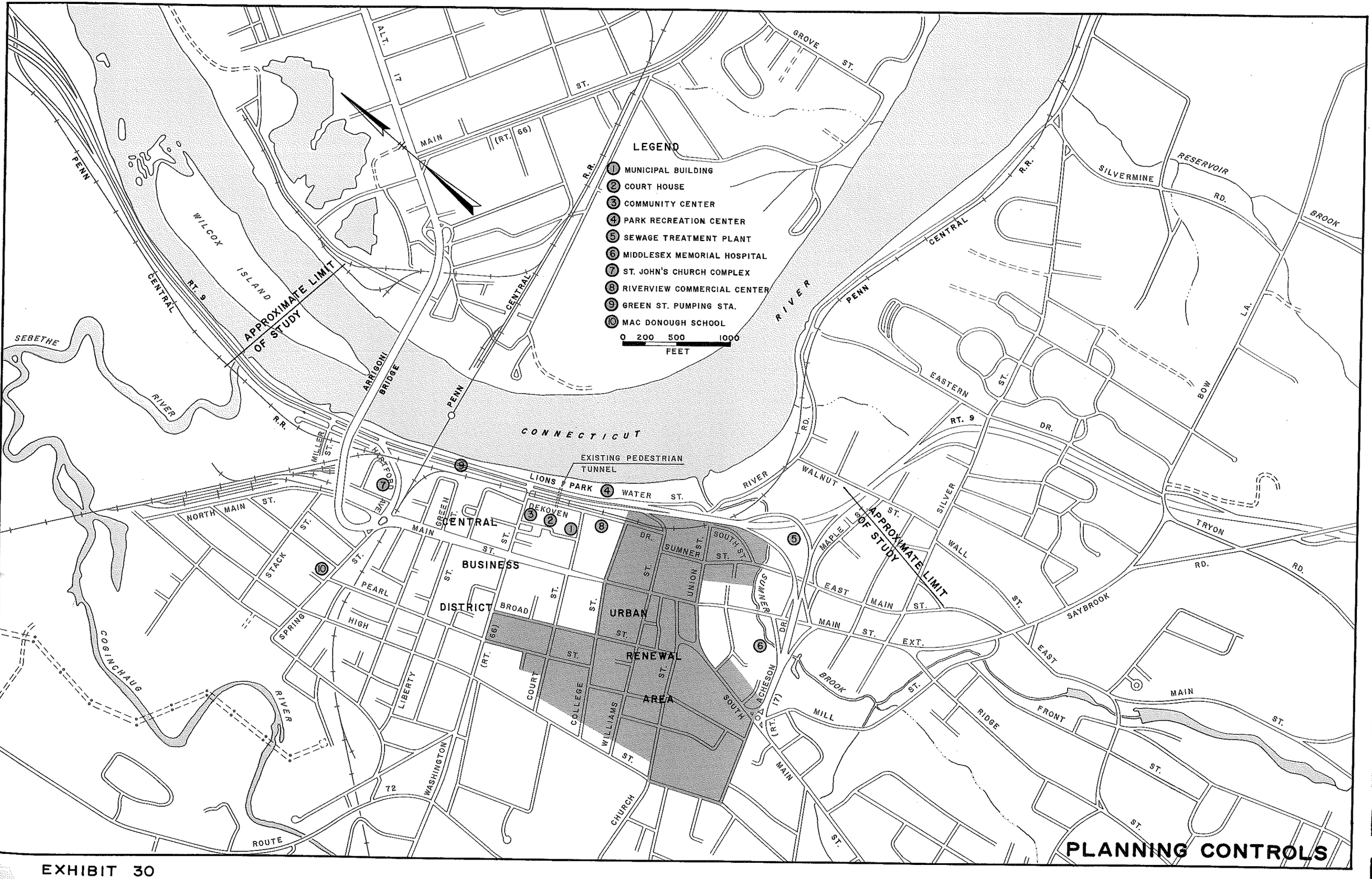


EXHIBIT 30

PLANNING CONTROLS

from the Miller Street Pumping Station to the Green Street Pumping Station. There are several overflow and storm sewer outlets into the Connecticut River. There is a natural gas storage tank west of Route 9, along South Street (just north of the Acheson Drive Interchange).

Sumner Brook flows through the Acheson Drive Interchange and empties into the Connecticut River opposite Union Street. The Brook is contained in box culverts under several roadways.

The area in the vicinity of the Arrigoni Bridge contains multi-family housing, some light industry and the St. John's Church complex, including cemeteries and a school.

Future Controls

There are also several developments now in planning stages which will constitute future controls. The Middletown Redevelopment Agency's Urban Renewal Project No. 2 (Conn. R-105) includes the areas immediately west of Route 9 from College Street to Sumner Brook, at the south junction of Route 17 with Route 9.

The Redevelopment Agency is presently in the process of acquiring properties adjacent to Route 9 in the area bounded by Union Street on the north and Sumner Brook on the south. The YMCA at the southeast corner of Main Street and Union Street is currently expanding eastward along Union Street. Preliminary plans for this area include closing Sumner Street between South Street and Union Street to provide facilities for the YMCA, and the relocation of a portion of South Street closer to Sumner Brook. The natural gas storage tank is to remain. The Middlesex Memorial Hospital has plans to construct a parking structure westerly of Main Street near Acheson Drive.

The area south of Washington Street generally has access from DeKoven Drive, which runs parallel to Route 9 on the west side of the railroad. The exception is the block from William Street to Union Street. All these areas are on a gentle incline extending westerly from the river, and thus provide the opportunity for good views of the Connecticut River. A significant objective in planning the improvements to Route 9 is to retain both accessibility and the visual relationship between the City and the river. Improvement of Route 9, in this area should, if properly conceived, provide the impetus for rehabilitation and revitalization of the riverfront area in Middletown.

These planning controls are shown on Exhibit 30.

TRAFFIC ANALYSIS

Traffic on the existing Route 9 facility incurs operational delays at the signalized intersections at Washington Street and Hartford Avenue which distribute traffic to and from Route 9.

The Washington Street intersection provides for distribution of traffic from Route 9 to the Middletown CBD as well as for traffic destined to the west of Middletown. The Hartford Avenue intersection provides for distribution of traffic from Route 9 to Portland via the Arrigoni Bridge, as well as for traffic destined to the Middletown CBD.

The average daily traffic volume on the existing Route 9 facility in the study area varies between 27,500 and 23,100 (1969 counts). Projected 1990 average daily traffic is expected to reach about 65,000 vehicles.

To accommodate this 1990 traffic, complete expressway type operation is required. All existing at-grade intersections must be eliminated, and local service restored by interchange connections.

Existing traffic between Route 9 and the Arrigoni Bridge utilizes a traffic circle at St. John's Square. The circle is congested during peak periods of travel and police supervision is often required.

The Route 9 traffic now using the Washington Street intersection is mostly destined to the Middletown CBD; some of this traffic continues westward on existing Route 66. The intersection of Washington Street and Main Street in Middletown is heavily travelled, and is presently operating at capacity during peak periods. The congestion at this intersection is accentuated by the presence of heavy pedestrian traffic requiring a special all pedestrian signal phase.

Existing traffic flow between Route 9 and Acheson Drive (Route 17) operates efficiently. There is no northbound Route 9 exit ramp to Acheson Drive; this traffic must therefore distribute itself to the existing northbound exits at Bow Lane and Washington Street. The absence of this northbound ramp would require the diversion of approximately 4,000 vehicles daily in 1990.

The future major traffic movements for which improvements are necessary along the Route 9 Corridor within the study area can be categorized as follows:

1. Traffic to Middletown CBD
2. Traffic to Middletown Urban Renewal Area
3. Traffic to Acheson Drive (Route 17)
4. Traffic to Connecticut Valley Hospital
5. Traffic to the Arrigoni Bridge (Portland, East Hampton, etc.)
6. Through traffic

DEVELOPMENT OF FEASIBLE PRELIMINARY GEOMETRIC CONCEPTS

During the initial stages of this study, consideration was given to relocating Route 9 away from the bank of the Connecticut River, along the Coginchaug River Valley, as proposed by the Midstate Regional Planning Agency some years ago. This concept was not considered feasible, since such a corridor for Route 9 would pass through Round and Boggy Meadows and the Coginchaug River Valley heavily damaging the existing wildlife areas, and would then slice across heavily developed residential areas westerly of the City center. The social, economic and environmental impact of such a concept would far exceed the limited benefit. The concept would require abandonment of the new section of Route 9, which purpose-

ly skirted Round Meadow in the interest of minimizing environmental impact. It was therefore concluded that the practical approach was to develop alternate design concepts for an in-place improvement of Route 9.

The major objectives in developing design concepts were:

a. To provide satisfactory access to the City after the elimination of the three at-grade intersections.

b. To provide the missing connection from northbound Route 9 to Acheson Drive, to produce a full interchange.

c. To keep the Route 9 profile as low as possible, and to avoid infringing on the riverfront park lands.

It was concluded that existing access could be restored by two full interchanges: one at Acheson Drive and the other north of the Arrigoni Bridge. Three design concepts were developed for each interchange, and are shown in line diagram form on six exhibits. A general description of each follows.

DESIGN CONCEPTS AT ARRIGONI BRIDGE

Scheme A-1 (Exhibit 31)

This scheme would provide direct connector ramps from Route 9 to an intersection with North Main Street. From this intersection Route 9 traffic would be routed to the Arrigoni Bridge on a loop arrangement. In addition to providing a direct routing between Route 9 and the Arrigoni Bridge, direct connector ramps would also be provided between Main Street and the Bridge.

Scheme A-2 (Exhibit 32)

This scheme would provide direct connector ramps from Route 9 to an intersection with relocated North Main Street. Route 9 traffic would then be routed to the Arrigoni Bridge or to downtown Middletown on a boulevard type roadway. At the intersection of this boulevard with the extension of the west approach of the Arrigoni Bridge, a jug-handle could provide for more efficient routing of Route 9 traffic to the bridge. Local traffic service to the Arrigoni Bridge would be maintained by the utilization of this boulevard layout.

Scheme A-3 (Exhibit 33)

This scheme would utilize the same boulevard type roadway arrangement as Scheme A-2. However, instead of direct connections between this boulevard and Route 9, a modified diamond interchange would be provided.

Traffic Service

1990 traffic assignments show approximately 1,000 vehicles during peak hour for each of the four ramps at Route 9. Schemes A-1 and A-2 would utilize direct connector ramps and would therefore be more efficient than Scheme A-3 which would include a modified diamond interchange, requiring an at-grade intersection at the crossing of two ramps. Scheme A-3 would operate at an acceptable level of service in 1990.

Peak hour traffic assignments showed that in 1990 approximately 1,200 vehicles per hour would be destined to the Arrigoni Bridge. Scheme A-1 would provide a loop ramp arrangement for this volume, whereas Schemes A-2 and A-3 would require this traffic to utilize the jug-handle layout through a signalized intersection. Scheme A-1 would therefore afford a more efficient routing for this traffic.

Projected assignments show that Route 9 traffic destined for Middletown would be approximately 300 vehicles in the peak hour in 1990. The projected peak hour traffic volume between Middletown and the Arrigoni Bridge will be approximately 500 vehicles per hour. Scheme A-1 would provide direct connecting ramps for both of these traffic movements, whereas Schemes A-2 and A-3 would force this traffic through the signalized intersection between the west approach of the Arrigoni Bridge and the proposed relocated North Main Street. Scheme A-1 would therefore be the most efficient, considering access to the Arrigoni Bridge, but it would impede access to the St. John Church and school complex.

Impact on the Community

Scheme A-1 would have a lesser impact on the surrounding community in terms of displacement of families and businesses than would the other alternatives.

The ramps in Schemes A-1 and A-2 would infringe upon the river; those in Scheme A-3 would infringe to a greater extent. Further studies must be made to determine whether the ramps should be on structure or embankment.

By routing most of the traffic to the Arrigoni Bridge close to St. John's Square, Scheme A-1 would probably result in a higher noise impact on this area than the other schemes. However, Schemes A-2 and A-3 would extend farther to the west and the impact of noise from these schemes could affect MacDonough School and the residential community in that area.

Scheme A-1, however, would probably result in the lowest air pollution impact since uninterrupted traffic flow produces less air pollution than interrupted flow.

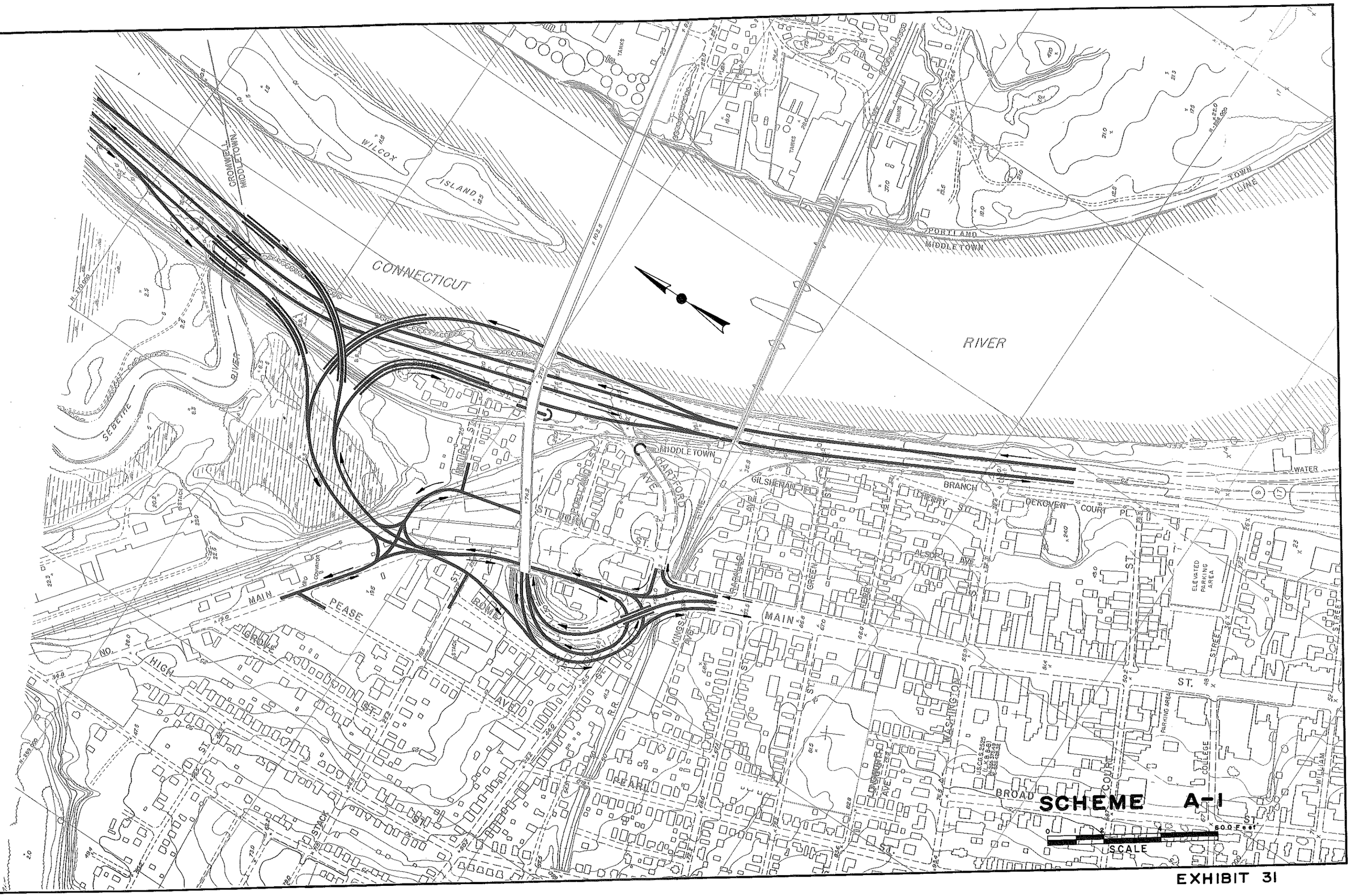

CROMWELL
MIDDLETOWN
WILCOX
ISLAND
CONNECTICUT
RIVER
PORT AND
MIDDLETOWN
TOWN
LINES
TANKS
SEBETHE
MIDDLE TOWN
HARTFORD
AVE
GILSHERAN
BRANCH
CHERRY ST.
DEKOVEN COURT PL.
WATER
ELEVATED
PARKING
AREA
MAIN
PEASE
NO. MAIN
GROVE
HIGH
ST.
AVE
PEARL
R.R.
KINGS
GREEN
ALSOP
WASHINGTON
BROAD
COLLEGE
WILLIAM
COURT
STACK
SCHEME A-1
SCALE
600 Feet

EXHIBIT 31

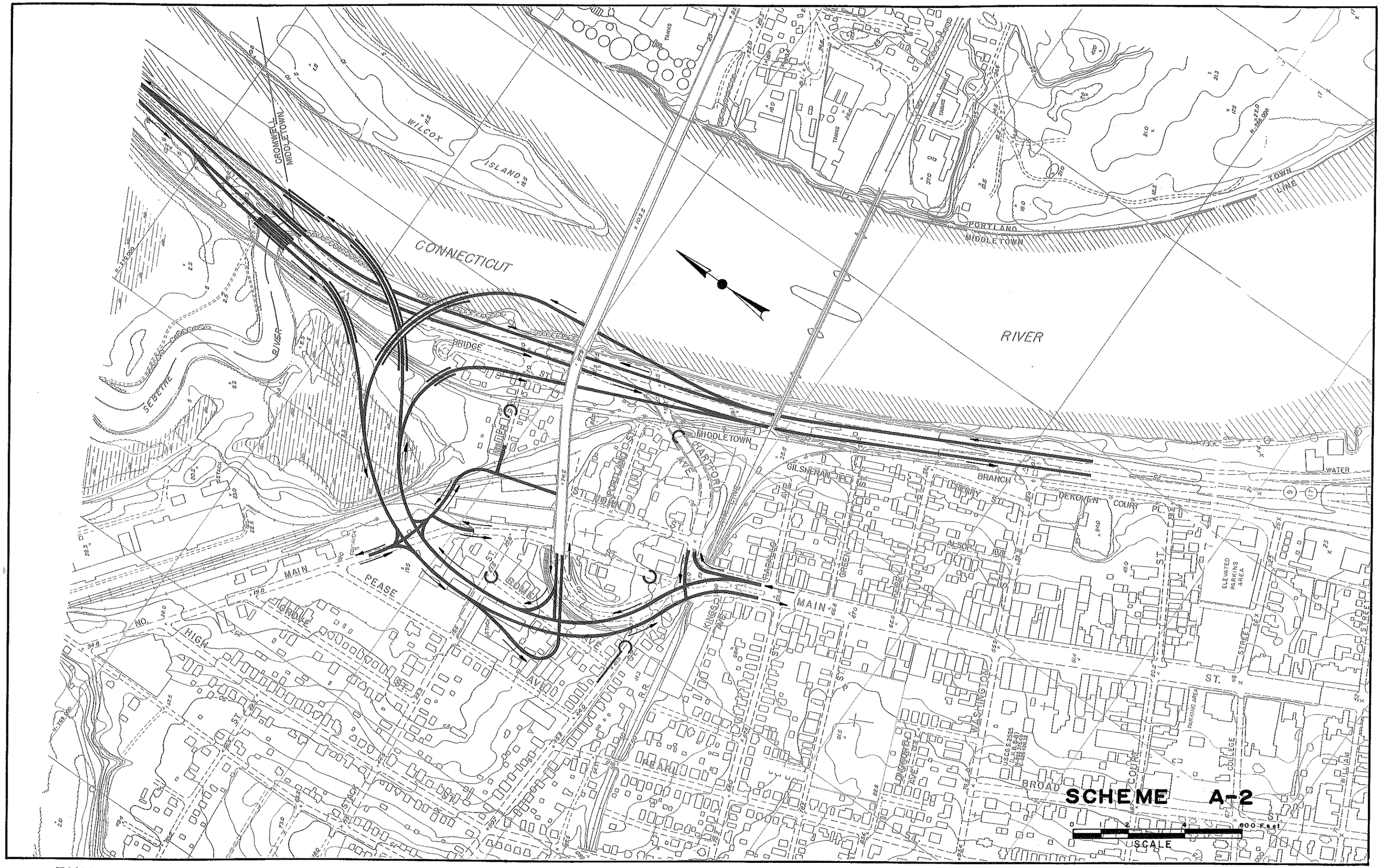

CROMWELL
MIDDLETOWN
WILCOX
ISLAND
CONNECTICUT
RIVER
PORTLAND
MIDDLETOWN
TOWN
LINE
BRIDGE
MAIN
PEASE
HIGH
GRADE
MIDDLETOWN
HARTFORD
AVE
GILSINNAN
BRANCH
TERRY
DEKOVEN
COURT
PL
WATER
ALSOP
AVE
ELEVATED
PARKING
AREA
WASHINGTON
BROAD
COLLEGE
PARKING AREA
WILLIAM
STREET
SCHEME A-2
0 1 2 4 800 Feet
SCALE

EXHIBIT 32

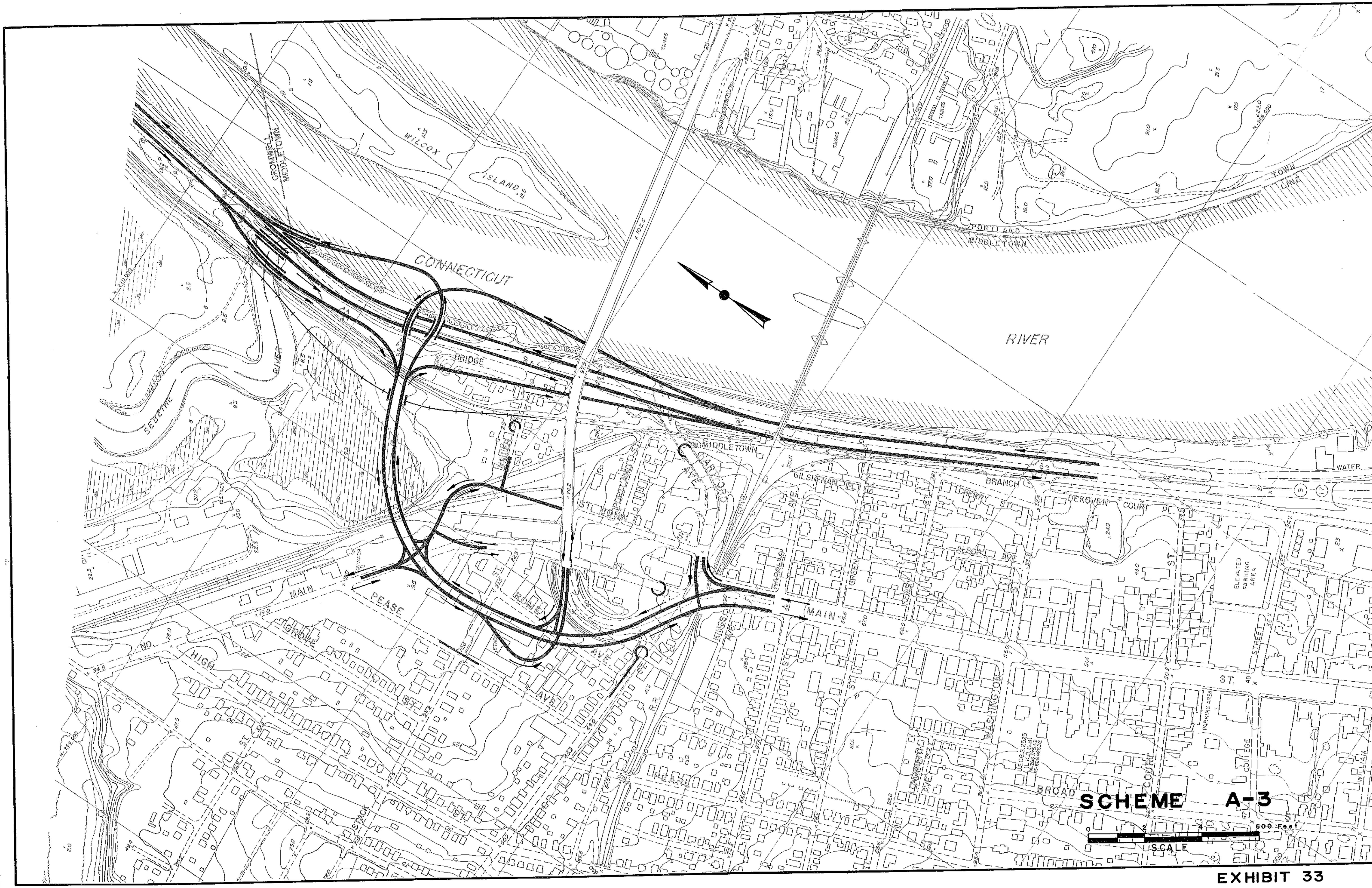

SCHEME A-3
CONNECTICUT
RIVER
WILCOX
ISLAND
CROMWELL
MIDDLETOWN
PORTLAND
MIDDLETOWN
TOWN LINE
SEBETHE RIVER
BRIDGE
MAIN
PEASE
MAIN
MIDDLETOWN
HARTFORD AVE
GILSHENAN
BRANCH
DEKOVEN COURT PL.
ALSOP AVE
ELEVATED PARKING AREA
WASHINGTON
BROAD
COURT
COLLEGE
WILLIAM
HIGH
ST.
WATER
SCALE
600 Feet

EXHIBIT 33

"MAIN-LINE" IMPROVEMENT CONCEPTS

The criteria for a six lane urban highway were used as the basis for the proposed improvement. Restrictive controls would preclude meeting all design criteria in some locations; in these cases the maximum design level practically attainable would be used. The facility would be nonexpandable, with a median width of thirty feet which would provide for two twelve foot shoulders and a six foot concrete median barrier. (See Exhibit 34) This concept would conform to the Department's standards for restricted right-of-way conditions. The median would be widened slightly in the vicinity of the Arrigoni Bridge in order to provide sufficient lateral clearance to an existing pier.

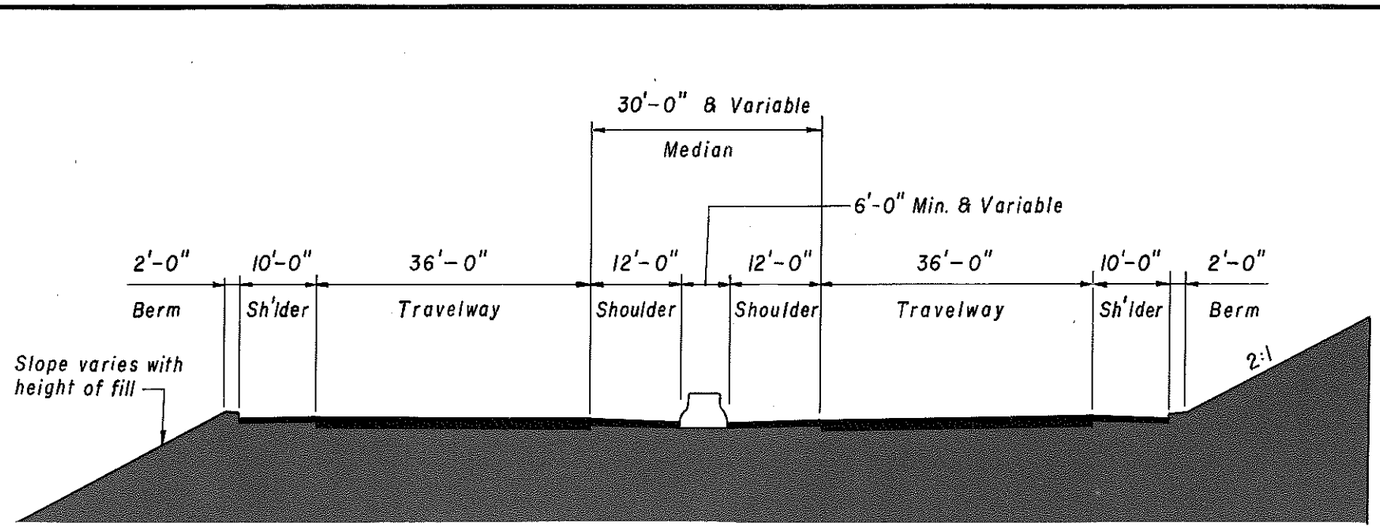
The existing plate girder span of the Railroad Bridge over the southbound Route 9 roadway would be replaced by a similar, longer span to provide the necessary additional horizontal clearance. This reconstruction could be performed with minimal disruption to both rail and vehicular traffic. Existing vertical clearance under this structure is 14'-6".

Clearances north and south of the study section are as low as 14'-3". Although the present standard for vertical clearances is 16'-3", the existing clearances are considered acceptable for this route. Portions of existing Route 9 in the area are presently within channel encroachment lines, subject to spring flooding. To raise the roadways above the flood elevation would require changing the profile to pass over the railroad or raising the railroad bridge and approaches. This would be costly and form a visually distractive barrier between the developed areas of the City and the river. Therefore, the existing roadway profiles and vertical clearance would be retained.

The Route 9 structures over the Sebethe River were designed for ultimate widening to three lanes in each direction, although shoulder standards have changed since their construction. The horizontal distance between parapets is 51 feet, which would permit a 10 foot wide right shoulder and a 5 foot wide left shoulder.

The proposed connections to and from Route 9 north of Middletown would extend slightly beyond the limits of the study area. The ramps would require auxiliary lanes between their junction with Route 9 and the existing ramps at the Route 99 Interchange in Cromwell. The existing 3°-30' horizontal curve immediately south of the Sebethe River cannot be flattened without moving the point of curvature onto the existing structures. The present alignment is therefore retained.

The existing pedestrian underpass from the Middlesex County Court House to the park area along the Connecticut River could be demolished and if it is desired by the City to retain pedestrian access in this location the underpass should be replaced with an overpass. It seems that no park land would be required for the improvement of Route 9.



ROUTE 9 IMPROVEMENT TYPICAL SECTION

EXHIBIT 34

DESIGN CONCEPTS AT ACHESON DRIVE

Scheme B-1 (Exhibit 35)

This scheme would provide direct turning roadways for all traffic movements between Route 9 and Acheson Drive. Southbound traffic on Route 9 would exit at William Street, Acheson Drive and Silver Street. The southbound entrance ramp to Route 9 would be from Acheson Drive. Northbound traffic on Route 9 would exit at Acheson Drive and Union Street. The Route 9 northbound entrance ramps would be from Eastern Drive and from Acheson Drive.

To prevent weaving on the Route 9 mainline, flanking collector distributor roads are proposed between Silver Street and Acheson Drive.

Scheme B-1 would provide local service to the riverfront by the extension of William Street.

Scheme B-2 (Exhibit 36)

This scheme would provide a modified diamond interchange between Route 9 and Acheson Drive. Acheson Drive would be extended eastward and would intersect with the Connector Road which extends to Eastern Drive to provide traffic service to the South Farms area. Southbound traffic on Route 9 would exit at William Street and Acheson Drive. All other movements would use ramps to and from Acheson Drive.

Access to the riverfront would be provided by the extension of William Street.

Scheme B-3 (Exhibit 37)

This scheme would provide a combination of direct turning roadways and intersections at grade to accommodate all traffic movements. Southbound traffic on Route 9 would exit at William Street and Acheson Drive. The Route 9 southbound entrance ramp would be from Acheson Drive. Northbound traffic would exit to the Connector Road between Union Street and Eastern Drive. Northbound entrance ramps would be provided from Acheson Drive and from the Connector Road.

This scheme would also include a William Street extension providing access to the riverfront and access between Route 9 and the State Hospital Area.

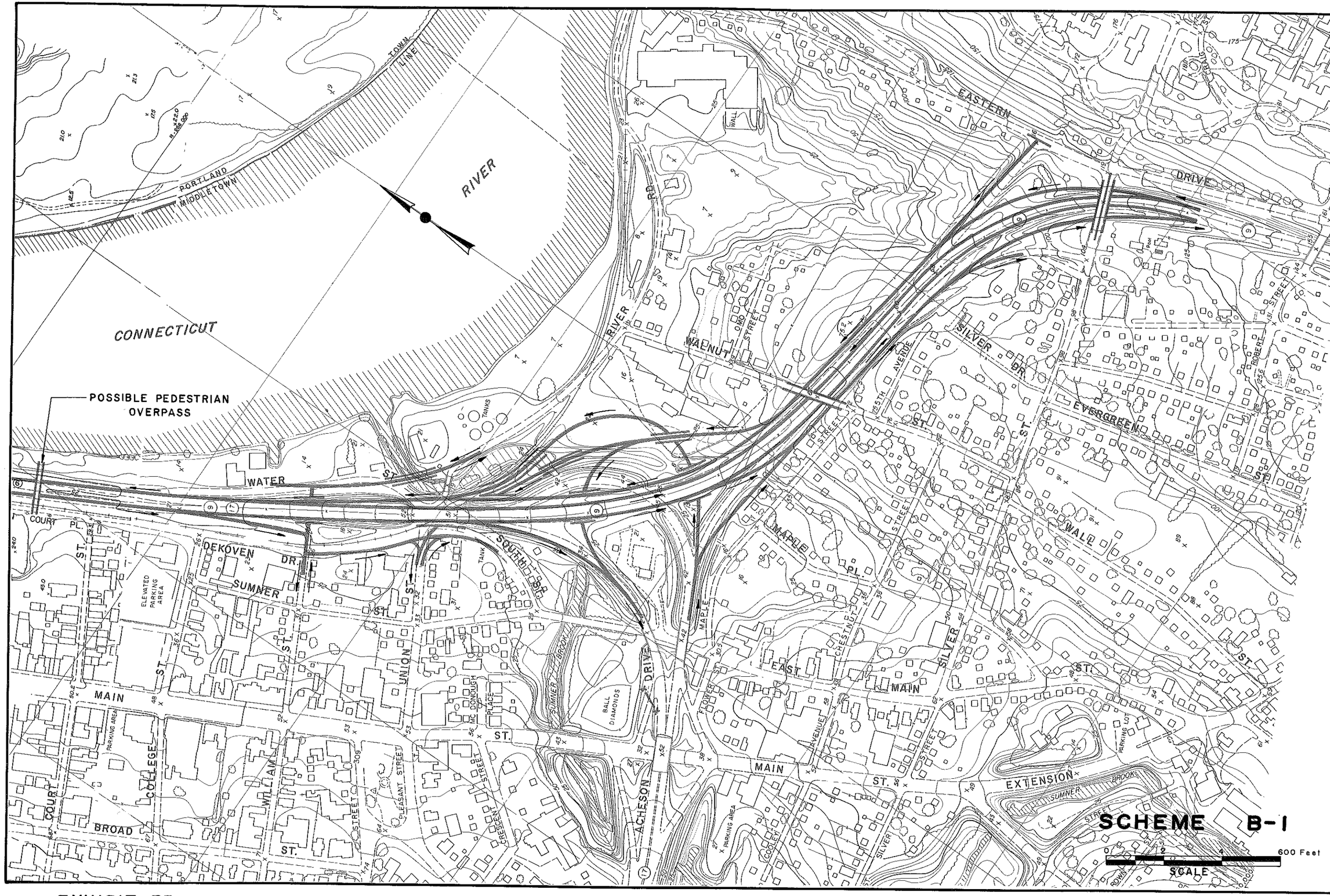

POSSIBLE PEDESTRIAN OVERPASS
CONNECTICUT
RIVER
PORTLAND
MIDDLETOWN
TOWN LINE
EASTERN
DRIVE
RIVER RD.
WALNUT STREET
SILVER BR.
WATER ST.
COURT PL.
DEKOVEN DR.
SUMNER ST.
ELEVATED PARKING AREA
SOUTH ST.
UNION ST.
MAIN ST.
COLLEGE COURT
WILLIAM STREET
PLEASANT STREET
BROAD ST.
MC DONOUGH PLACE
CRESCENT STREET
SUMNER BROOK
BALL DIAMONDS
ACHESON DRIVE
MAPLE PL.
FRONTIER CHESTNUT STREET
EAST MAIN ST.
SILVER AVENUE
SILVER STREET
PARKING LOT
EXTENSION
SUMNER BROOK
EVERGREEN ST.
WALL
TANKS
SCHEME B-1
0 1 2 4 600 Feet
SCALE

EXHIBIT 35

POSSIBLE PEDESTRIAN OVERPASS

CONNECTICUT

RIVER

PORTLAND

MIDDLETOWN

TOWN LINE

SCHEME B-2

0 2 4 600 Feet

SCALE

EXHIBIT 36

POSSIBLE PEDESTRIAN OVERPASS

CONNECTICUT RIVER

PORTLAND
MIDDLETOWN
TOWN LINE

EASTERN DRIVE

WALNUT STREET

SILVER BROOK

SOUTH ST.

DEKOVEN DR.

SUMNER ST.

UNION ST.

MAIN ST.

COLLEGE ST.

WILLIAM ST.

COURT ST.

BROAD ST.

MAPLE AVENUE

EAST MAIN ST.

EXTENSION

SUMNER BROOK

BALL DIAMONDS

ELEVATED PARKING AREA

PARKING AREA

PARKING LOT

TANKS

WATER

SCHEME B-3

0 2 4 600 Feet
SCALE

EXHIBIT 37

Traffic Service

Scheme B-1 would provide direct turning roadways for all major traffic movements between Route 9 and Acheson Drive, and would therefore be the most efficient. Scheme B-2 would handle these movements through a diamond interchange. In Scheme B-3, traffic from northbound Route 9 to Acheson Drive (600 vehicles in the peak hour) would have to traverse the Urban Renewal Area or use local streets to reach Route 17.

All three proposed schemes would provide good access to the proposed Urban Renewal Area from Route 9 via William Street and Union Street. This provision was made to satisfy future community needs for downtown Middletown.

Scheme B-1 would provide the most direct route to the Connecticut Valley Hospital since the southbound exit to Silver Street and the northbound entrance from Eastern Drive would be maintained. Schemes B-2 and B-3 would require southbound traffic from Route 9 to exit at William Street and utilize the Connector Road to reach the Hospital. The Connector Road would also be used for access from the Hospital to northbound Route 9.

Impact on the Community

All the schemes would require negligible displacement of families and businesses within this interchange area and are therefore comparable in this regard.
All three schemes would also be comparable in terms of noise impact; although Scheme B-3 may route more traffic to Union Street in the Urban Renewal Area due to the absence of a direct connection from northbound Route 9 to Acheson Drive.

Scheme B-1 would probably produce less air pollution than the other schemes due to less interruptions in traffic flow in the interchange area.

COST ESTIMATES

The six design concepts are of varying complexity and will accordingly have varying construction and right-of-way costs. None of the concepts has been developed sufficiently to permit the preparation of comparative cost estimates. However, through the use of general estimating rules of thumb, it is felt that the cost of improvements to Route 9 will range between $15,000,000 and $18,000,000.

RECOMMENDATIONS

These planning studies have proven the feasibility of improving Route 9 within the study limits. The at-grade intersections can be eliminated, and satisfactory access provided by two interchanges. The Route 9 mainline can be improved to acceptable standards. It is recommended that these concepts (i.e., the mainline widening, elimination of the at-grade intersections, and provision for full service with the two interchanges) be advanced to detailed design studies for determination of interchange geometrics and other design details. At that time a final recommendation can be made.

During these design studies, it is imperative that close coordination be maintained with the City to ensure compatibility of the Route 9 improvement with the most current community plans.