T R A F F I C A N D E N E R G Y C O N S E R V A T I O N

BOROUGH OF RIDGEFIELD MASTER PLAN

REPORT 4

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DORRAM ASSOCIATES, INC.

April 1989

BOROUGH OF RIDGEFIELD, NEW JERSEY

1989

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The help and cooperation of the above officials and many other at the Local, County and State levels is gratefully acknowledged by:

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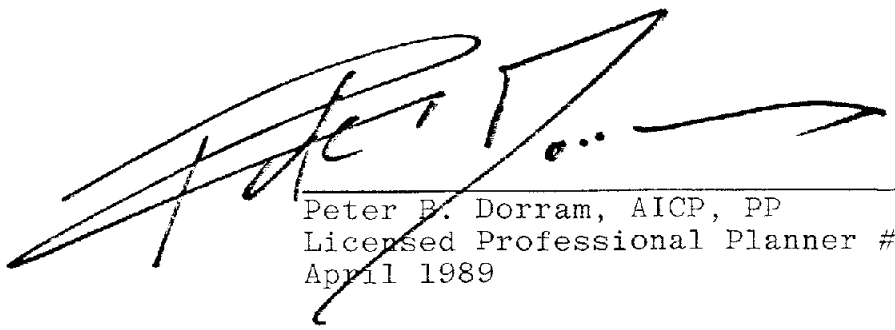
The original of this report was signed and sealed in accordance with N.J.S.A. 45:14A-12.



Peter B. Dorram, AICP, PP
Licensed Professional Planner #92
April 1989

T R A F F I C A N D E N E R G Y C O N S E R V A T I O N

R I D G E F I E L D B O R O U G H, N E W J E R S E Y

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PART I

TRAFFIC & CIRCULATION

"Until as late as 1861 Grand Avenue and Edgewater Avenue West were the only roads shown on maps of the Ridgefield area. The Bergen Turnpike built between Hackensack and Hoboken in 1807 went along Grand Avenue until it turned eastward across the meadows along what is now Edgewater Avenue West. The Bergen Turnpike was a toll road until 1915. There was a toll house located by Wolf Creek at the entrance to Ridgefield and another by Overpeck Creek immmediately after exiting Ridgefield.

Maps of 1837, 1849, 1851, and 1861 show the area which is now Ridgefield with about fifteen buildings at scattered locations along the two roads.

...Between 1861 and 1867 a small grid of streets had been laid out around Edgewater Avenue east of Grand Avenue. Additions and labeling on the map indicate that T. W. Abbot was responsible for the sub-division. A few additional houses are present and the hamlet is labeled "Ridgefield". The Sugar Beet Company had jurisdiction on part of the meadowlands."

Historic Sites Survey
Borough of Ridgefield, 1980-81.

I. INTRODUCTION

The history books inform us, that some of the early Ridgefield street patterns were determined by toll road enterpreneurs and land developers in the early, and mid 19th century. Some of these thoroughfares became major arteries by the end of the 20th century when New Jersey has the highest number of vehicles per capita in the nation, the most vehicles per square

mile, and the greatest number of cars per mile of highway. This combination of factors, coupled with New Jersey's geographical position as a corridor state and a seaboard state, provides for a densely traveled highway system with many problems.

This Traffic Study is the fourth research report in the Ridgefield Borough Master Plan series. The purpose of the study to take stock of Ridgefield's changing road conditions; right-of-way and pavement widths; trends in accident distribution; locations of traffic volumes, and the like. This knowledge is needed so that one can plan and prepare for future needs and improvements.

This current report is an inventory type research report. The major Circulation Plan improvements will be presented in the Summary Master Plan report, the last volume in this series.

It is further recommended that improvements to the local street system be evaluated further, on the basis of this study -- under the Continuing Planning Program, which hopefully will follow the completion of this Master Plan.

*

II. ROAD AND TRAFFIC CONDITIONS

CONNECTIONS TO REGIONAL NETWORK

Ridgefield Borough enjoys excellent connections to several major regional and interregional highways. State Highway Route 46 crosses the northerly end of the Borough, and provides direct connections to Interstate Highways I-80 and I-95 leading east to the George Washington Bridge, and west to State Highway 17 and the Garden State Parkway, and points further west to California, as well as south to Philadelphia, Pennsylvania, and north to the New York Thruway.

Two legs of the New Jersey Turnpike traverse the westerly part of the borough, merging near the Vince Lombardi Rest Area. While Interstate-80 provides excellent access in the East-West directions, the Turnpike (I-95) provides superior accessability in the North-South directions. The access ramps and cloverleafs are in abutting Ridgefield Park.

In addition Broad Avenue serves as U.S. Routes 1 & 9 leading also to the George Washington Bridge northward and Florida toward the south. State Highway 5, serves as a secondary East-West connector between Broad Avenue in Ridgefield to River Road in Edgewater. Grand Avenue between Broad Avenue (Routes 1 & 9), and Route 46 becomes State Highway 93. Thus, the borough is located at the hub of major regional arterial highways, and only two miles from the George Washington Bridge.

ROAD JURISDICTIONS

Nineteen percent (19%), or 337 acres of the 1745 acre Ridgefield municipal area are occupied by public right-of-ways (not counting railroads), accommodating 30.20 miles of roads! Following Table T-1 presents the various components of such road mileage.

TABLE T-1
ROAD MILEAGE BY JURISDICTION
RIDGEFIELD BOROUGH, NJ, 1983

TYPE OF JURISDICTION	MILEAGE	PERCENT OF TOTAL
New Jersey Turnpike	3.11	10.2
State Highways	3.12	10.3
County Roads	3.48	11.5
Municipal Streets	20.49	68.0
TOTAL	30.20	100%

SOURCE: Bergen County Planning Board Data Book, 1988.

From the above tabulation, one can note that about one-fifth (20%) of the Ridgefield road mileage is serving regional needs as limited access roads or State Highways. About 11% of the roads are County Roads, serving as connector roads, and about two-thirds (68%) are local streets.

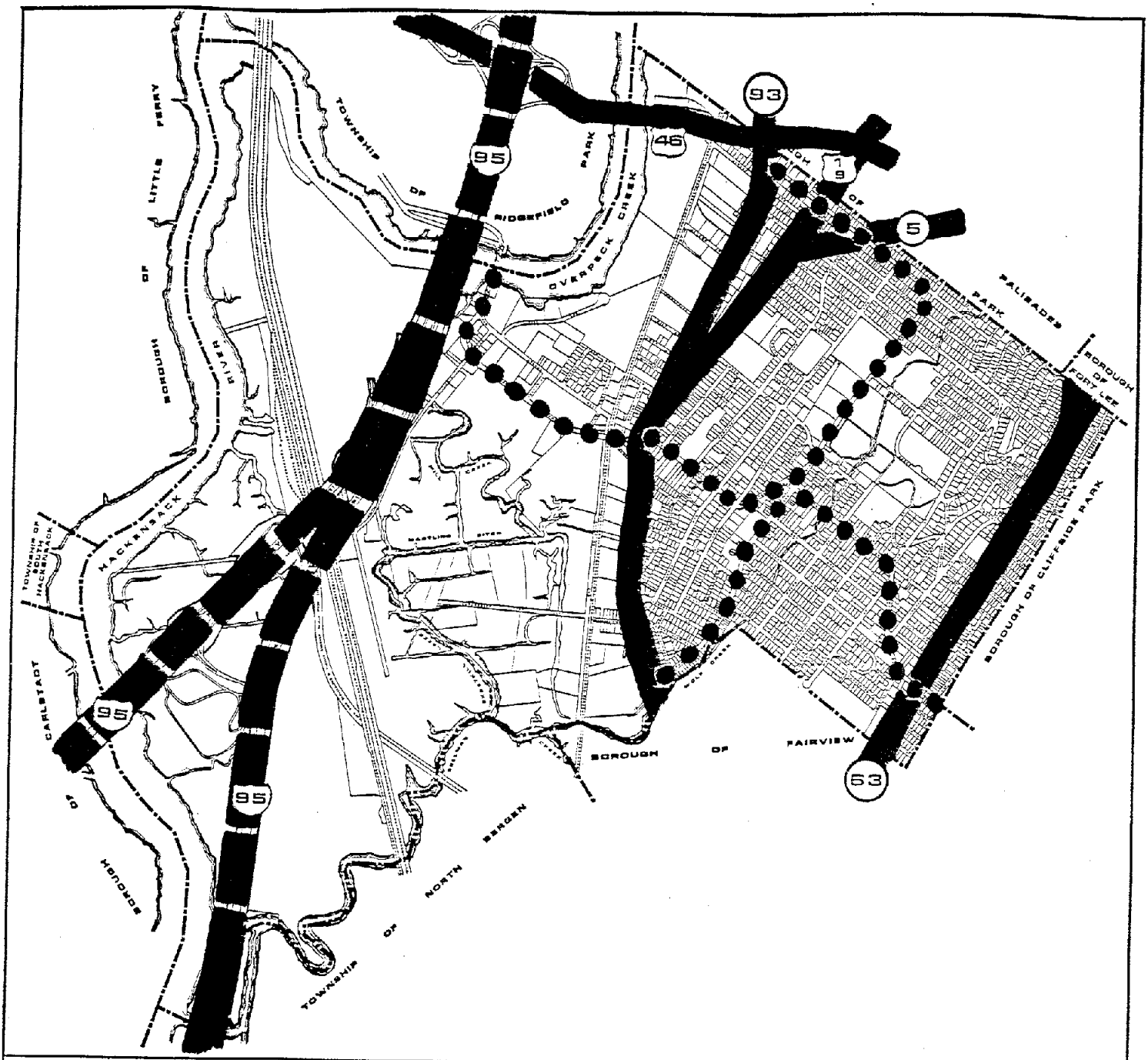
Master Plan Map 12, Road Classifications following, illustrates graphically and diagrammatically the major road network in the Borough. A large colored and more detailed map (Map No. 12) accompanies this master plan separately.

TABLE I-A

ROAD JURISDICTION INVENTORY: RIDGEFIELD

	MILES
INTERSTATE HIGHWAY	
New Jersey Turnpike - I-95.....	3.11
U.S. HIGHWAYS	
Routes 1 & 9.....	1.40
STATE HIGHWAYS	
Route 5.....	0.22
Route 46.....	0.27
Route 63 (Bergen Boulevard).....	0.62
Route 93 (Grand Avenue).....	0.98
COUNTY ROADS	
Bergen Turnpike.....	3.48
Edgewater Avenue East.....	
Hendricks Causeway.....	
Maple Avenue (partial).....	
Shaler Boulevard.....	

SOURCE: N.J. DOT, 1984.



MASTER PLAN MAP

12

LEGEND

- REGIONAL
- STATE
- COUNTY
- LOCAL

SOURCE: OFFICIAL BERGEN CTY' ROAD MAP & BERGEN CTY' ENGINEERS

SCALE IN FEET

ROAD CLASSIFICATIONS

RIDGEFIELD BOROUGH, NJ

NOT TO SCALE

1988

DORRAM ASSOCIATES, INC., CONSULTANTS

III. ROAD CLASSIFICATIONS

Ridgefield Borough's Road Classifications illustrate how the road network has been rated by the Federal Aid Urban Systems (FAUS) functional classifications.

The respective road names of thoroughfares classified under the various functional classes are not readily available. The summary classifications as received from the County Engineer, are presented in Table T-2 following. The reader will note that these classifications relate closely to the road jurisdictions presented earlier.

TABLE T-2

FEDERAL AID URBAN SYSTEM (FAUS) MILEAGE BY FUNCTIONAL CLASSIFICATION BOROUGH OF RIDGEFIELD, N.J. 1989

FUNCTIONAL CLASS	MILEAGE	% OF TOTAL
Interstate Highways	3.11	10.2
Principal Arterials	3.18	10.5
Minor Arterials	3.35	11.0
Collector Distributors	0.52	1.7
Subtotal FAUS Roads	10.16	33.4
Non-FAUS Roads (local)	20.04	66.6
TOTAL	30.20	100.0

SOURCE: Bergen County, County Engineer's Office.

IV. RIGHT-OF-WAY WIDTHS

ADEQUACY OF LOCAL ROADS

It is safe to assume that at the time when the Ridgefield Borough street network was originally laid out, it was intended to serve the needs of a typical rural North Jersey community. At that time the population was way under 1,000 persons, and no one envisioned heavy duty over-the-road tractor trailers, or traffic volumes into the many thousands of vehicles each day.

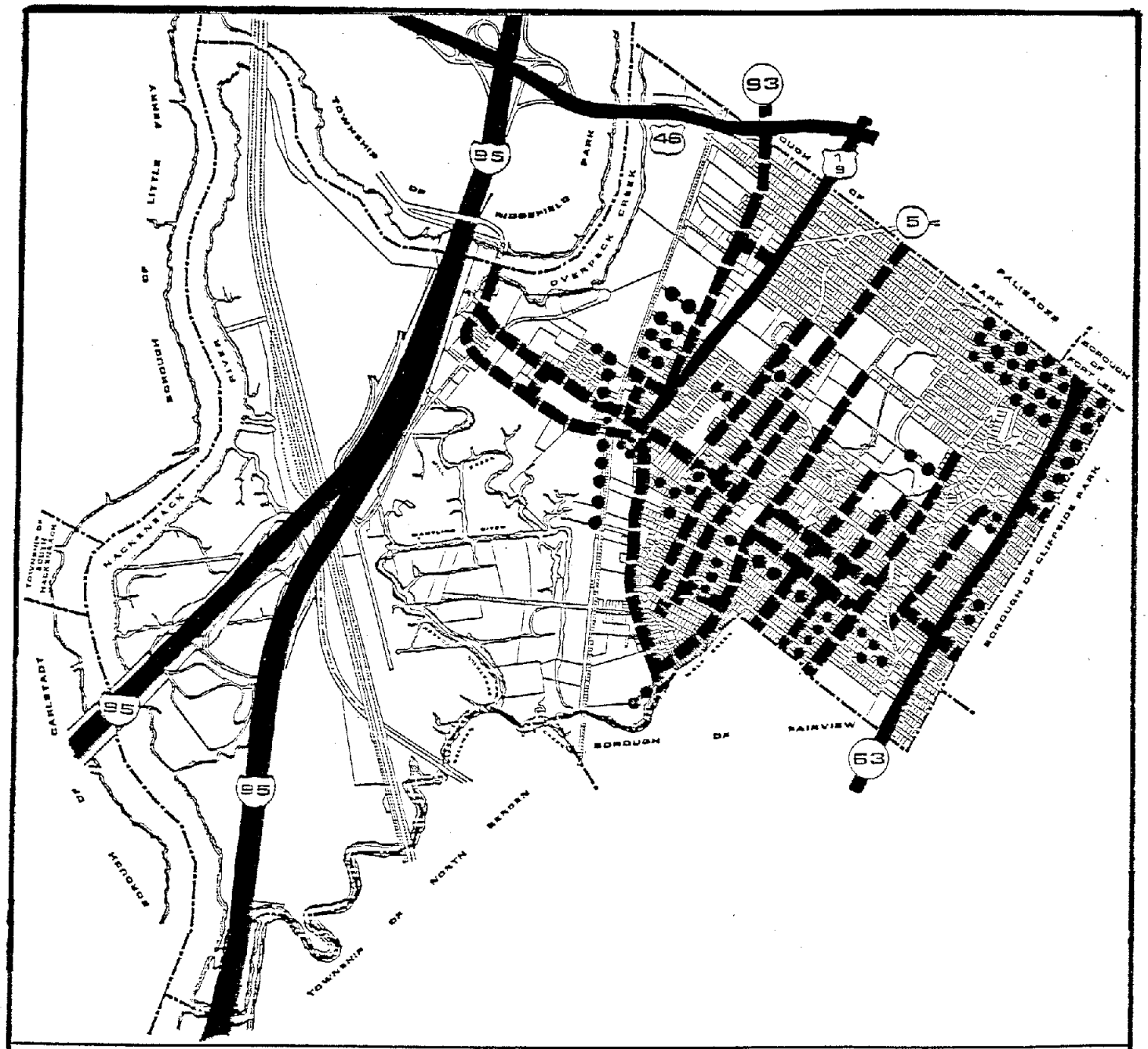
The initial concept of the role of subdivision streets is reflected by the right-of-way and pavement width of local streets. Two diagrams following: The Diagram of Right-of-Way Widths and that of Pavement Widths illustrate these concepts well.

RIGHT-OF-WAY WIDTHS

New Jersey communities require -- about uniformly -- throughout the state, a minimum 50' right-of-way width for local streets. This commonly accepted standard originates from the Municipal Land Use Law (C.40:55D-38 b-2) which stipulates the following among others: "...provided that no street of a width greater than 50 feet within the right-of-way lines shall be required, etc., etc.".

Following Exhibit #13, entitled Right-Of-Way Widths, illustrates the various right-of-way widths dedications in the Borough of Ridgefield. As can be noted from the legend, these right-of-way widths have been classified in four categories: those that are less than 49 feet wide; those that are 50-59 feet wide; those that are 60-66 feet wide, and greater than 67 foot widths.

There are about 30 streets in Ridgefield with right-of-ways narrower than 50 feet. These are mostly industrial access roads, older residential streets, or shorter connector links. The longest of such streets are Hamilton Street, and Kingsland Lane.



13

LEGEND

- LESS THAN 49'
- 50'-59'
- 60'-66'
- 67' & OVER

SOURCE: OFFICIAL TAX MAPS, 1989.

RIGHT OF WAY WIDTHS

RIDGEFIELD BOROUGH, NJ

NOT TO SCALE

DORRAM ASSOCIATES, INC. ... CONSULTANTS

Streets with 60'-66' wide right-of-ways include Route 93 Grand Avenue; Edgewater Avenue; Bergen Turnpike; Hendricks Causeway; Broad Avenue South; River Street; Shaler Boulevard; Abbott Avenue; Morse Avenue; Walnut, Chestnut and Oak Streets; Prospect, Day and Clark Avenues, and a few shorter streets.

Thoroughfares with right-of-ways in excess of 67' width include the New Jersey Turnpike; Route 46; Broad Avenue North (Routes 1 & 9), and Bergen Boulevard (Route 63).

*

V. PAVEMENT WIDTH

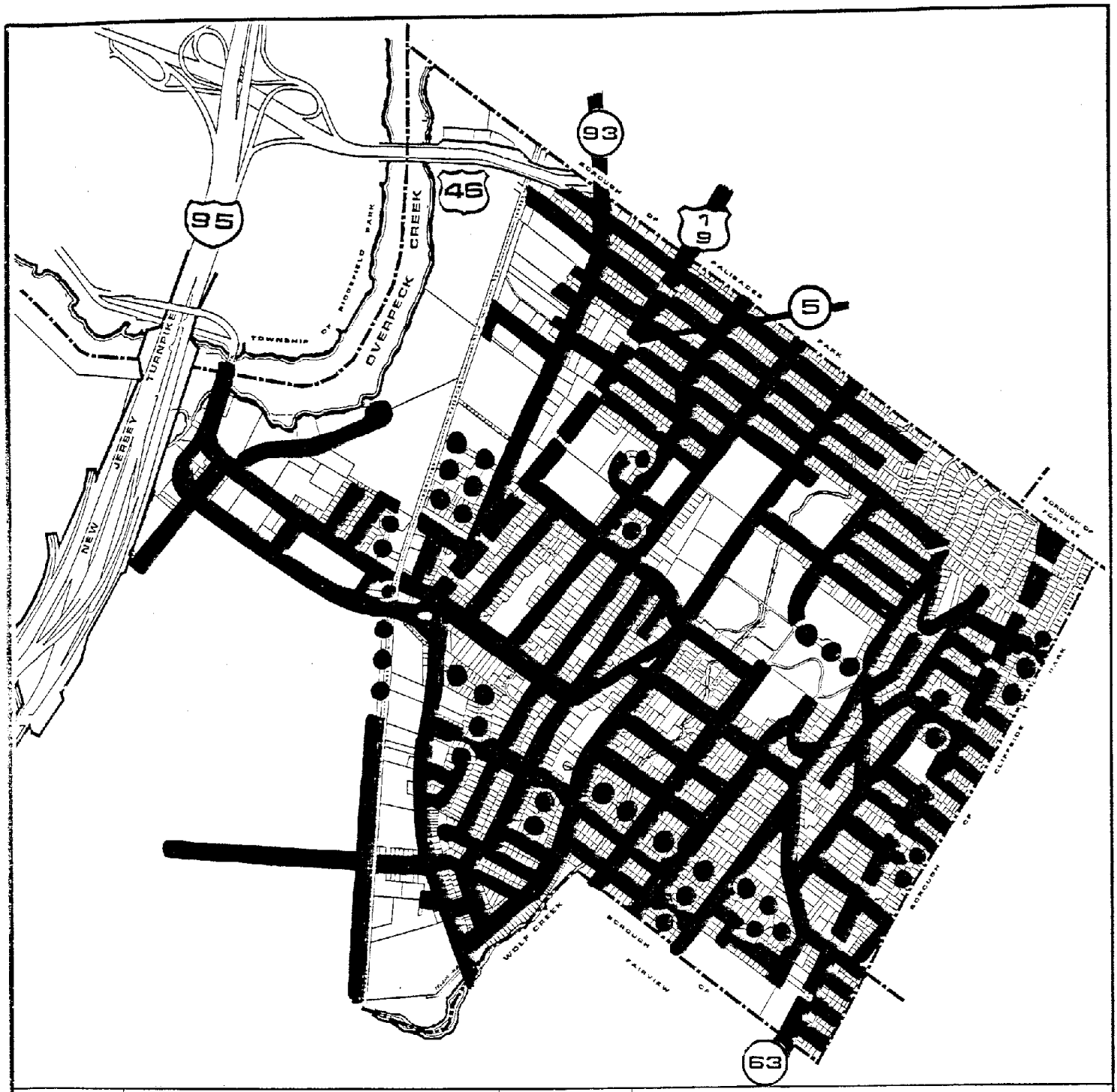
Following Master Plan Map 14 illustrates diagrammatically the Pavement Widths distribution in Ridgefield which is also delineated in further detail on a separate, larger colored presentation drawing.

Pavement widths are classified in four categories:

* Less than 24'
* 24' - 29'
* 30' - 36'
* Greater than 36'

From an analysis of this diagram we find that most streets in Ridgefield have pavement widths in the 30'-36' pavement width. This permits most often especially at the higher end of this range, two parking and two moving lanes on a street. There are a number of streets with pavements narrower than 30', and these generally correspond to those streets where we found on Master Plan Map 13, the narrower right-of-way widths. Conversely pavements wider than 36' are in addition to the Turnpike and Route 46, found on Broad Avenue North, and Bergen Boulevard.

*



MASTER PLAN MAP

14

LEGEND

- LESS THAN 24'
- 24'-29'
- 30'-36'
- GREATER THAN 36'

SOURCE: R. FOX, P.E., 1989.

SCALE IN FEET

PAVEMENT WIDTHS

RIDGEFIELD BOROUGH, NJ

EASTERN PORTION

NOT TO SCALE

1989

DORRAM ASSOCIATES, INC., CONSULTANTS

VI. ACCIDENTS

Generally planners, traffic engineers and other traffic experts such as the police departments can learn a great deal from an analysis of the concentrations and nature of traffic accidents, and the seasonal and annual trends in accidents in a community, or a region.

The Ridgefield Borough Police Department provided detailed accident data for 1987 and 1988. It would not have been reasonable to request additional data for earlier years, since the police records are not computerized, and data gathering was a tedious and time consuming process. The data requested included the identification of all traffic accidents at, or near intersections by locations, and by three classifications, namely: property damage, bodily injuries, and fatalities. The summary statistics are presented in following Table T-3.

TABLE T-3

ACCIDENTS - RIDGEFIELD BOROUGH 1987-1988

	1987	1988
Property Damage	42	24
Bodily Injuries	127	118
Fatalities	-	-
TOTAL	169	142

The above tabulation does not include accidents on I-95, the New Jersey Turnpike, or on Route 46, because these are outside the municipal police jurisdiction.

From the above statistics one can note that:

1. There was a slight decline in the number of accidents from 1987 to 1988. A single year does not make a trend, and hence the accident statistics will deserve monitoring during the Continuing Planning Program.

2. Customarily the number of property damage accidents outnumber the bodily injuries by far. This was reversed in Ridgefield, and also deserves to be watched carefully in the future.

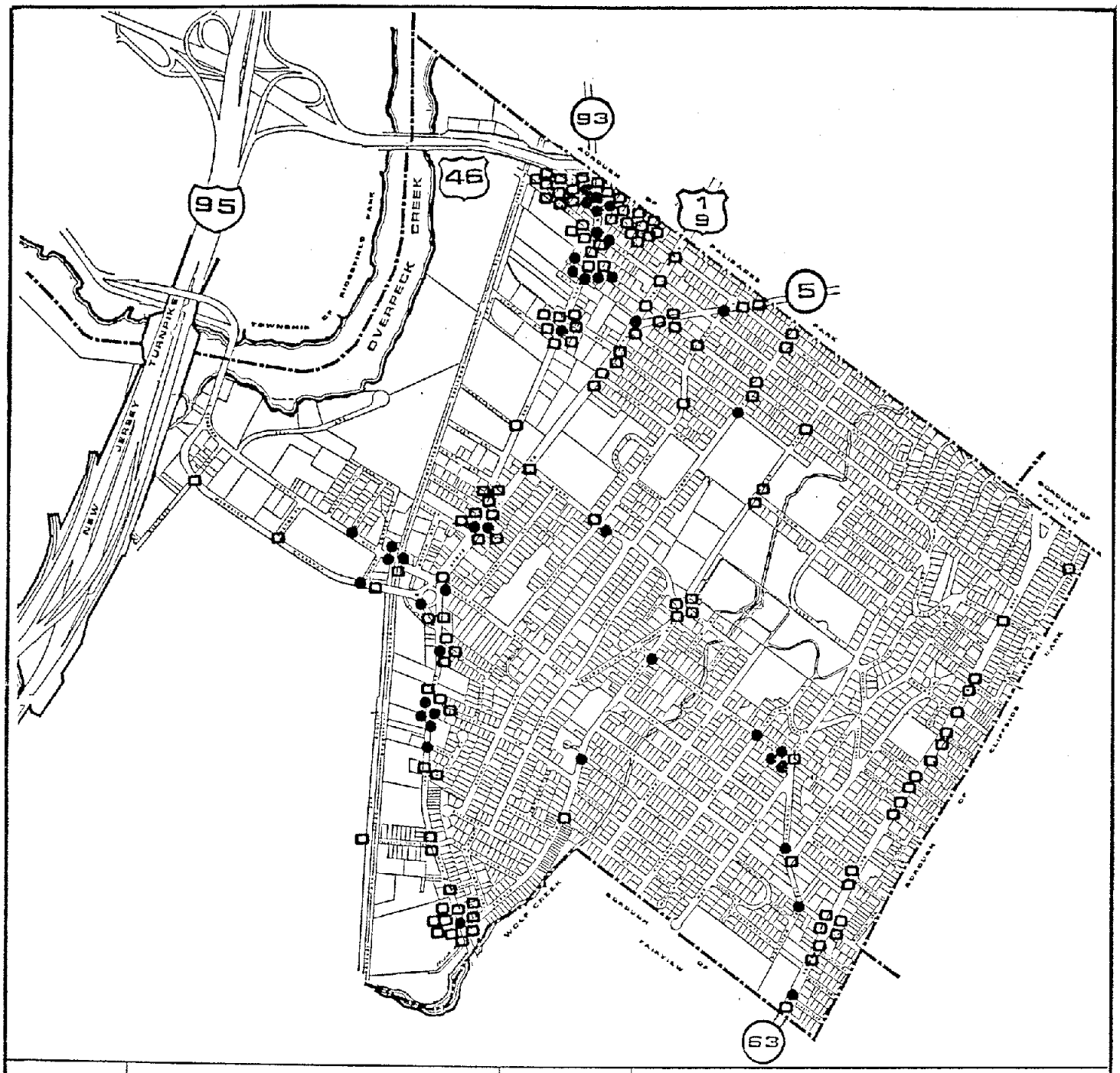
3. There were no fatalities during the 1987 and 1988 period at intersections. That is fortunate and commendable.

Following Master Plan Maps 10 and 11 entitled Accidents 1987, and 1988 illustrate graphically the geographic distribution of accident locations. Master Plan Map 16 presents the Traffic Signal Locations. A correlation of these diagrams indicates that the heaviest accident concentrations in the Borough take place at signalized intersections. Since traffic signals are usually approved only at accident prone intersections or locations, it is logical that some of these intersections would be the more acute trouble spots.

TABLE T-4

TEN MOST ACCIDENT PRONE INTERSECTIONS
BOROUGH OF RIDGEFIELD, NJ, 1988

LOCATION	PROPERTY DAMAGE	BODILY INJURY	TOTAL
1) Grand Ave., Maple Ave. @ Rte. 46 Ramp	5	18	23
2) Broad Ave. South @ Shaler Blvd.	-	8	8
3) Broad Ave. North @ Edgewater Ave.	2	6	8
4) Route 5 @ Elm Avenue	-	7	7
5) Route 5 @ Maple Avenue	-	5	5
6) Shaler Blvd. @ Edgewater Ave. East	-	4	4
7) Grand Avenue @ Linden Avenue	1	3	4
8) Bergen Blvd., Ray Ave. & Lafayette Ave.	-	4	4
9) Bergen Blvd. @ Edgewater Ave. East	1	2	3
Broad Ave. North, Grand Ave. @ River St.	-	3	3
TOTAL	9	60	69



MASTER PLAN MAP

10

LEGEND

- PROPERTY DAMAGE ACCIDENTS (42)
- BODILY INJURY ACCIDENTS (127)

SOURCE: RIDGEFIELD POLICE DEPT., 1986.

SCALE IN FEET

ACCIDENTS- 1987

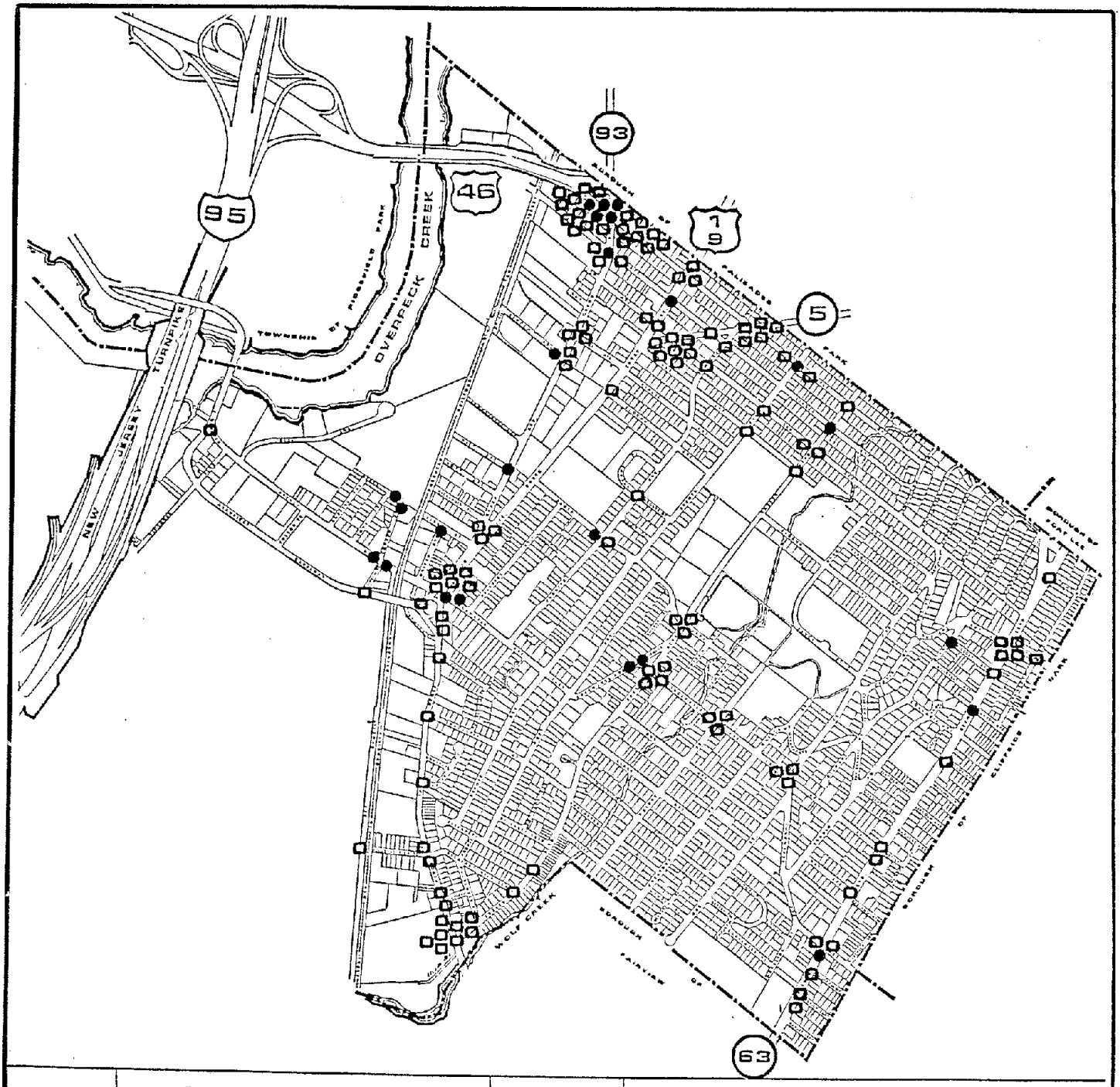
RIDGEFIELD BOROUGH, NJ

EASTERN PORTION

NOT TO SCALE

1988

DORRAM ASSOCIATES, INC., CONSULTANTS



MASTER PLAN MAP

11

LEGEND

- PROPERTY DAMAGE ACCIDENTS (24)
- BODILY INJURY ACCIDENTS (118)

SOURCE: RIDGEFIELD POLICE DEPT., 1988.

SCALE IN FEET

ACCIDENTS-

1988

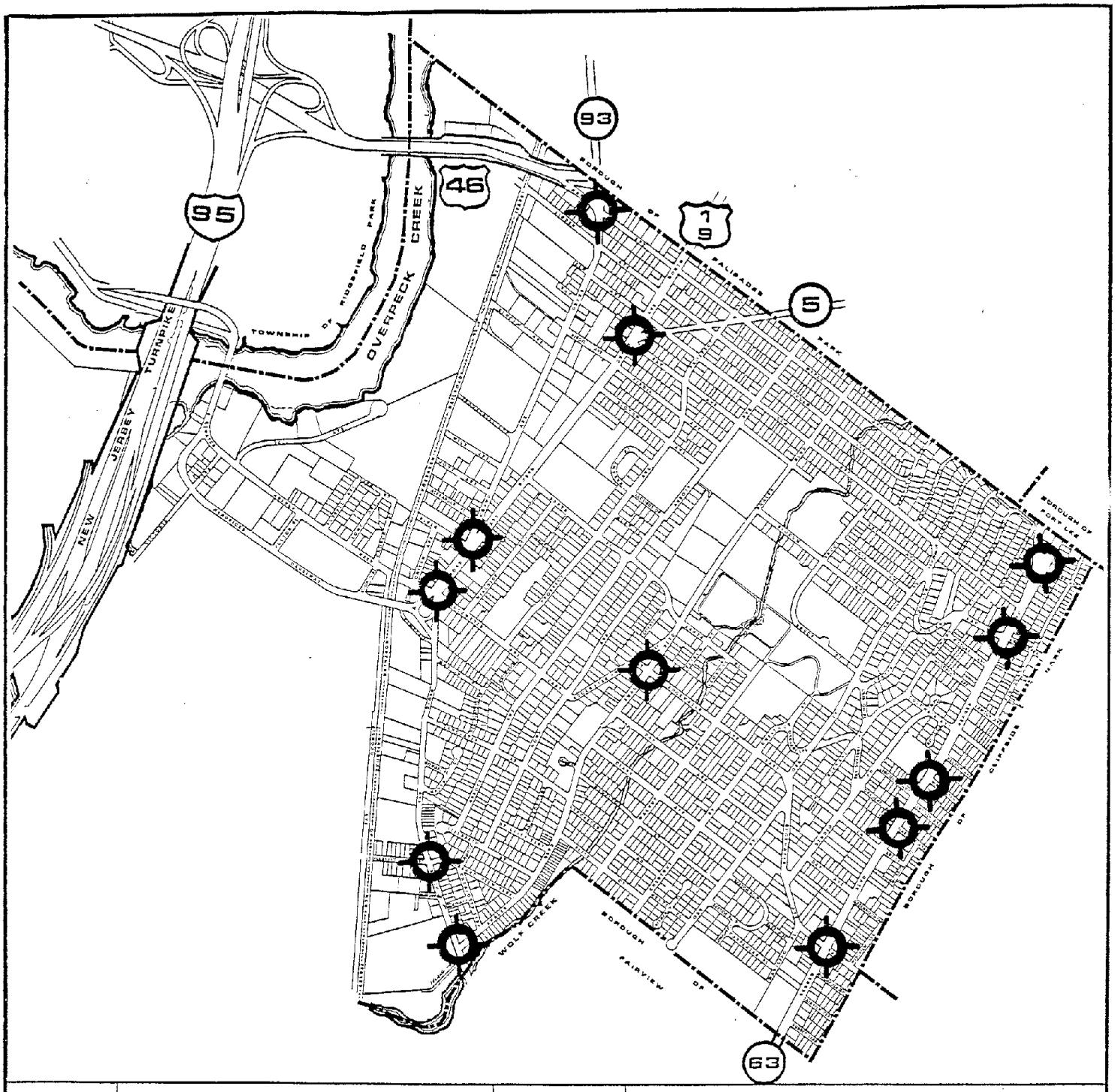
RIDGEFIELD BOROUGH, NJ

EASTERN PORTION

NOT TO SCALE

1988

DORRAM ASSOCIATES, INC., CONSULTANTS



MASTER PLAN MAP

16

LEGEND

TRAFFIC SIGNAL

SOURCE: RIDGEFIELD POLICE DEPT., 1989.

SCALE IN FEET

600 0 300 600

TRAFFIC SIGNAL LOCATIONS

RIDGEFIELD BOROUGH, NJ

EASTERN PORTION

NOT TO SCALE

1988

BORRAM ASSOCIATES, INC., ... CONSULTANTS

Preceding Table T-4 presents a listing of the nine most accident prone intersections in the Borough of Ridgefield.

From the preceding accident statistics one can note that the nine most accident prone intersections account for 69 accidents per year.

From an analysis of the accident distribution maps we observe that the most severely impacted artery in Ridgefield Borough is Broad Avenue. Next it is Route 5 that seems to have a disproportionate share of accidents for its relatively short stretch of roadway. Bergen Boulevard, Grand Avenue, and Shaler Boulevard follow in rank order.

After consultations with the Chief of Police on this matter following are some preliminary recommendations for needed improvements:

1) Routes 1 & 9 are median divided in Hudson County, but not in Bergen County. Broad Avenue South has a 60' right-of-way with 36' pavement. Accidents occur when heavy tractor trailers cross the center line. Such accidents could be prevented by the installation of median separators.

   It is recommended that median dividers be installed in Stage I on Broad Avenue South, from Fairview Borough to the traffic circle. And that subsequently all of Broad Avenue be divided.

2) At Broad Avenue South @ Shaler Boulevard the number of accidents has decreased by one-third from 12 to 8 during 1988 after the installation of the new traffic light. Recommended is additional channelization in the form of pavement widening at the approaches to this intersection, in order to provide for a left turn stacking lane, and in order to facilitate the continued moving of traffic while vehicles are awaiting left turn movements.

3) Broad Avenue North @ Edgewater Avenue East. This signalized intersection is abutting the traffic circle to the north. The State of New Jersey

Department of Transportation (DOT) plans to eliminate this circle, as well as all other circles in the state, as outmoded traffic devices. Therefore, this master plan will not present recommendations for this trouble spot (eight accidents in 1988).

4) Edgewater Avenue West @ Edgewater Avenue East. A grade crossing with proper lights, bells, signs and signals at the Conrail tracks is recommended, because the only connecting link between the easterly and westerly halves of the borough is the one-lane Hendricks Causeway, which when blocked by bumper to bumper traffic effectively isolates the heavily populated eastern half of the Borough from the rest.

5) Grand Avenue @ Slocum and @ Virgil Avenues is a troublesome spot, and site of many accidents. This stretch of road is only one block from the Fire House, the Masonic Hall, the Athletic Field and Willis Park. Here, a flashing light is recommended.

6) Grand Avenue @ Maple Avenue, and Route 46 Ramp. This is by far the most accident prone intersection in the Borough. To remedy the situation, four measures are recommended:

   a) Prohibit all left-turn movements for southbound traffic from Grand to Maple Avenue.

   b) Install on eastbound Route 46 exit ramp, at or near top of ramp a warning sign that there is a traffic light ahead.

   c) Relocate the traffic signal on the northwest corner of this intersection -- several feet away from curb -- in order to prevent large trucks from knocking this sign down when turning.

   d) Initiate a traffic study of this intersection.

7) North Broad Avenue @ Route 5 and Elm Avenue. This is a troubled stretch of road. It is recommended that the speed limit on Route 5 be reduced to 25 miles per hour.

8) Shaler Boulevard @ Banta Place. This intersection accommodates a lot of traffic from the Fire House, the VFW, Veterans Park and the High School. Recommended is the addition of a new traffic light.

9) Bergen Boulevard @ Edgewater Avenue. This signal needs a delayed light to accommodate the northbound left-turn movements for traffic coming on Edgewater Avenue East, from west of the Boulevard.

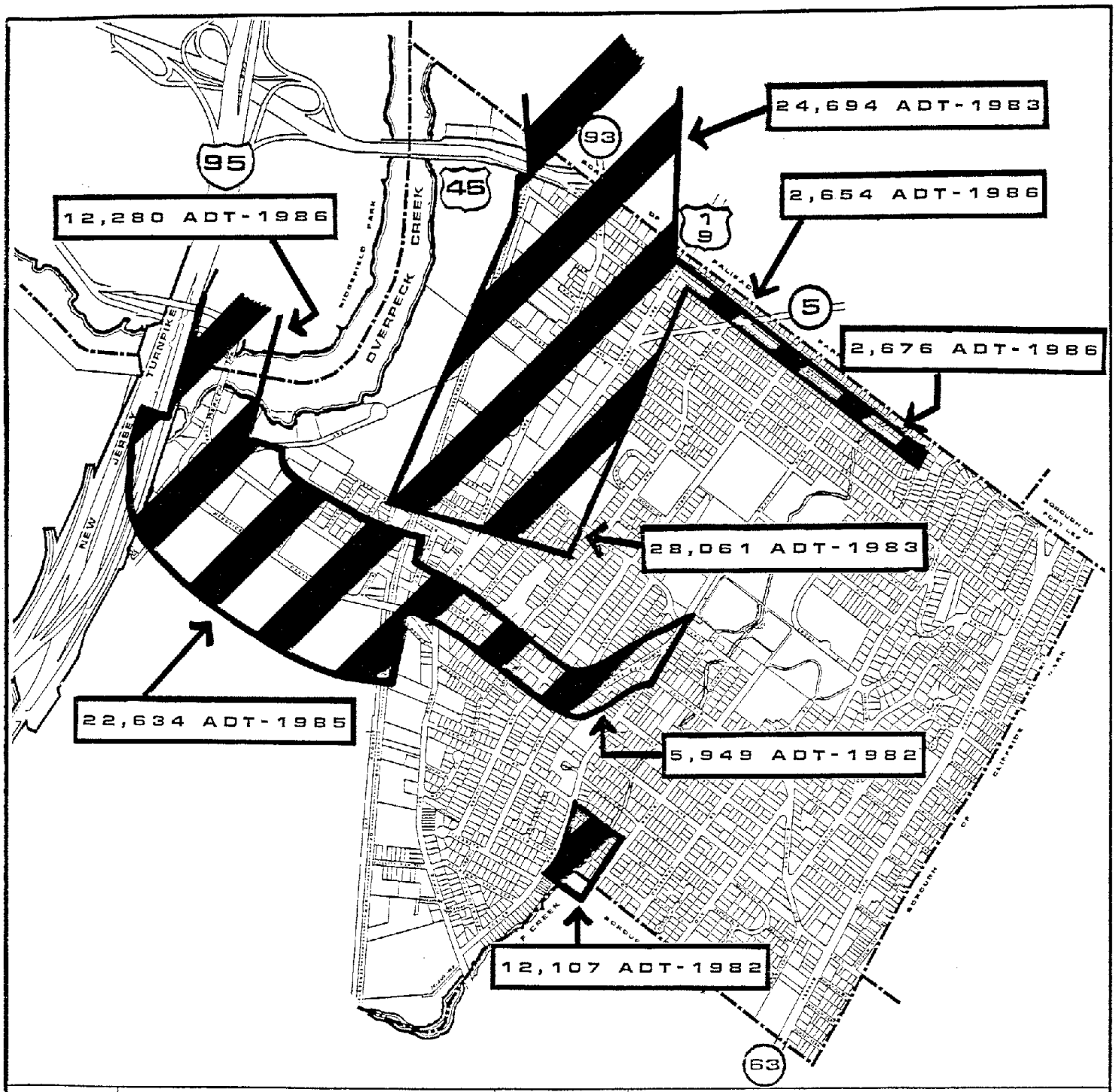
*

VII. TRAFFIC VOLUMES

The analysis of available traffic volume data provides information on the intensity of road network usage in Ridgefield Borough. The source of statistical data is the Bergen County Planning Board, Traffic Division, which conducted the original traffic surveys.

Following Master Plan Map #15 Traffic Volumes is a diagram illustrating graphically the magnitude of Ridgefield Borough traffic volumes, as counted during the past five years at selected points. Traffic counts conducted between 1982 and 1986 are further highlighted on this diagram by the numerals affixed to the map. Thus the number 28,061 at Grand Avenue (Route 93) south of Maple Avenue - in the center of the diagram, means that there were 28,061 vehicles counted passing through on the Avenue during a 24 hour period in 1983, when traffic conditions at this location were last surveyed. From the Traffic Volumes Diagram, it can be observed that there are only limited traffic volume data available for Ridgefield Borough.

Following Table T-5 presents the statistical data used for the diagram.



MASTER PLAN MAP

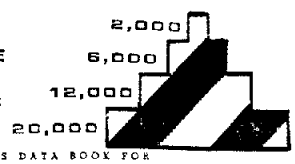
15

LEGEND

10,000 = TRAFFIC COUNT

ADT = AVERAGE DAILY TRAFFIC

VOLUME OF ADT



SOURCE: PLANNER'S DATA BOOK FOR BERGEN CO'Y, TECH. REPORT #1, 1988.

SCALE IN FEET

800 0 800 800

TRAFFIC VOLUMES

LOCAL STREETS & COUNTY ROADS

RIDGEFIELD BOROUGH, NJ

EASTERN PORTION

NOT TO SCALE

1988

DORRAM ASSOCIATES, INC., CONSULTANTS

TABLE T-5

TRAFFIC VOLUMES, RIDGEFIELD BOROUGH, NJ
1982-1986

LOCATION	AVERAGE DAILY TRAFFIC	YEAR
Rt. 93 South of Maple Ave.	28,061	1983
Rt. 93 North of Maple Ave.	24,694	1983
Hendricks Causeway	22,634	1985
Bergen Turnpike Bridge Over Overpeck Creek	12,280	1986
Elite Court Bridge Between Shaler Blvd. & Walnut	12,107	1982
Edgewater Ave. West of Shaler Blvd.	5,949	1982
Maple Ave. e/o Abbott Ave.	2,676	1986
Maple Ave. w/o Abbott Ave.	2,654	1986

SOURCE: Bergen County D.P.W. and Data Book, 1988.

VIII. C O N C L U S I O N

The scope of this traffic study is mostly limited to the eastern portion of Ridgefield, because developments in the Hackensack Meadowlands area are severely restricted by the Hackensack Meadowlands Development Commission, and also because most of the borough population and activities take place in the easterly portion.

Some of the vacant portions of the westerly part of the borough are inaccessible, or at least not readily accessible, because of the many bogs, marshes, creeks, railroad lines and the New Jersey Turnpike right-of-ways. Extreme care should be taken with the resolving of accessability prior to approving any developments in this part of town. There is an area where tanker trucks are unloading gas from railroad cars alongside the Susquehanna & Western Railroad lines. Access to this area is by a dirt road from Ridgefield Park. This could prove to be a most unsatisfactory arrangement in case of a fire, or other emergency.

The extension of Bell Avenue to Route 46 is recommended as the improvement, or redevelopment of the area east of Overpeck Creek might be contemplated.

*

PART II
ENERGY CONSERVATION

"The New Jersey Municipal Land Use Law (Chapter 291, N.J.S.A. 40:55D-1 et seq.) authorized municipalities to plan for energy conservation. Each community has the power and responsiblility to plan and direct development so that residents will have greater potential for reducing their energy demand and for using renewable energy resources.

The Municipal Land Use Law as amended under N.J.S.A. 40:55D-28b.(8) provides that Master Plans may include a conservation plan element identifying measures which the municipality plans to pursue to minimize energy consumption and the use of non-renewable energy sources."

ENERGY CONSERVATION PLAN ELEMENT

It is well known that Ridgefield is a substantially developed borough. How to proceed in such an event with energy conservation seemed to be a problem and, therefore, advice and help were requested from Vincent Pedicini, the Energy Policy Analyst of the NJ Department of Commerce, Division of Energy Planning & Conservation. Following is his report entitled: Land Use Strategies for Energy Efficiency in Ridgefield Borough. We can concur as planners with most recommendations. Of particular interest is the recommendation for a pedestrian overpass, or tunnel at the Conrail tracks at Edgewater Avenue. A similar recommendation was made by the D.P.W., requesting an emergency grade crossing for direct access to the easterly part of the Borough in emergencies such as snow storms and the like (Master Plan Report #3, p. 20).

Regarding home occupations it is true that they are energy efficient when compared to commuting to work. However great caution is justified because past experience has taught planners, that home occupations establish a precedent, generate additional traffic, and can contribute to a change in the character of a neighborhood.

Land Use Strategies for Energy Efficiency in Ridgefield Borough

Prepared by: Vincent Pedicini, Energy Policy Analyst
N.J. Department of Commerce, Energy & Economic Development
Division of Energy Planning and Conservation

February 1989

Ridgefield Borough, a long established community with little vacant developable land [1], has the potential to lessen its energy dependence. The Borough can take steps that will permit its citizens to use energy more efficiently without compromising quality of life. This report identifies specific land use related options for the Borough's consideration.

Transportation Related Energy Efficient Land Use Options

Ridgefield Borough's relatively compact development pattern and proximity to larger urban centers provides residents with a setting which is inviting for the use of efficient transportation modes. The fully developed eastern half of the Borough where most citizens' day to day activities occur is approximately one square mile in area. Consequently, residences, stores, professional offices, schools, parks, recreation areas, many light manufacturing facilities, and the like are often within walking and bicycling distance of each other. Most residents are also within easy reach of one of the four bus lines that serve the Borough.

Hilly terrain within the eastern half of the Borough does however inhibit pedestrian and cycling movement between Broad Avenue and Bergen Boulevard. In spite of this fact, options are available that will invite citizens to use these efficient forms of transportation.

[1] Borough of Ridgefield Master Plan, 1979., Steven Sussna Associates, Inc., Trenton, N.J., p. 1.

Access

The Borough should evaluate the implementation of improvements to facilitate pedestrian/bicycle access. Some specific options the Borough should consider include:

1. Establishing a pedestrian/bicycle easement across the vacant parcel of land between Broad Avenue North and Grand Avenue at the foot of Banta Place.

Intent: To provide direct pedestrian access between the multi and single family residences east of Broad Avenue and the light manufacturing facilities along Grand Avenue.

2. Developing a pedestrian overpass or tunnel to cross the Northern Railroad tracks at Edgewater Avenue.

Intent: To improve the connection between the residential area west of the railroad and the commercial uses along Broad Avenue and northwest of the traffic circle.

3. Opening the fence at the end of the Ridge Court cul-de-sac.

Intent: To improve access between School #3 on Bergen Blvd. and the residential area north of the school.

The Borough should consider installing or adding bicycle racks and/or bicycle lockers at strategic locations in order to facilitate bicycle use. Particularly suitable sites which the Borough should consider are:

1. The shopping area west of Broad Avenue South across from the foot of Shaler Boulevard.
2. The Borough Hall.
3. The Library on the Abbott Avenue side of the building. (racks are already in place on the Morse Avenue side).

4. Shaler School on Shaler Avenue.

5. School #3 on Bergen Boulevard.

6. The Swimming Pools, Youth Center, High School, Junior High School and Memorial Park Complex. (Presently two small racks serve all of these facilities).

7. The bus stop on Grand Avenue at the foot of Banta Place

8. The bus stop at the pocket park at Shaler Blvd. and Englehardt Terrace

9. The bus stop on Bergen Blvd at school #3.

The bus stops may be particularly suitable locations for enclosed bicycle lockers rather than open racks since they would serve commuters and would be located on sites where open land is available. In addition to facilitating bicycle use, racks or lockers at the bus stops will help to encourage the use of the mass transit facilities that directly connect Ridgefield Borough to New York city as well as 17 other New Jersey communities.[2]

Integrated Uses

Integrated commercial and residential uses enable citizens to travel shorter distances to meet day to day needs. This mix is presently accommodated by Ridgefield Borough's Zoning regulations. The code permits customary home occupations as accessory uses in each of the residential zones.[3] It also permits residential uses (other than multi-family dwellings) in the retail business/commercial zone.[4] Retaining and perhaps expanding these provisions to conditionally permit at home professional offices would bring business services and the consumers closer together thereby reducing travel demand. The small area

[2] "Bergen County Ride Guide", Published by: Board of transportation for the Board of Chosen freeholders, 1986.

[3] Zoning, Development and Construction, Chapter 113 from the Code of the Borough of Ridgefield 113-902/-904.

[4] Ibid., 113-905.

zoned for business uses along Shaler Blvd. proximate to Edgewater Avenue and Banta Place is an asset from the standpoint of energy efficiency since it acts as a neighborhood commercial center serving the needs of surrounding residences.

Energy Efficient Land Use Options Related to Heating and Cooling

Southern Orientation

A land use configuration which accommodates south facing residences helps to minimize heating and cooling costs. As a general rule, streets oriented along an east west axis (or within a range of 30^0 either side of true south) provide greater opportunities for longer sides of dwellings to face and be warmed by the sun as it moves across the southern sky in winter. This orientation also minimizes heat gain in summer due to the higher path the sun follows during that season. Many of the existing streets in Ridgefield run within the recommended range at approximately 30^0 west of true south. While not all houses on these streets have their long walls facing south, many do. Many residences on "north-south" streets also have a long wall facing south due to narrower but deeper lot configurations. While limited potential exists for creating southern oriented homes due to modest expectations for new residential construction in Ridgefield[5], the Borough can inform residents of existing homes of their potential for saving energy. Homeowners equipped with this information may choose to open the southern facades of their homes to the sun especially if they are contemplating room additions or improvements.

Common Wall Construction

Dwellings with party walls (multiple unit structures) provide savings for heating and cooling because the units insulate each other from the outside environment. The Borough has accommodated a relatively high

[5] Housing Element, Master Plan Report #1, 1988, Dorram Associates Inc., Totowa, N.J. p. 13.

percentage of housing units with common wall construction as illustrated by table #1. Pressures for the conversion of single family homes to multiple family dwellings are expected to mount.[6] The Borough's efforts to accommodate these pressures will have a positive impact on energy efficiency.

Table # 1.

Distribution of Dwelling Unit Types: Ridgefield, 1980.[7]

TYPE	Number	Percent
Single Family	1,741	43.5%
Two or More Family	2,263	56.5%
Total	4,004	100.0%

The final approaches pursued by the Borough to open avenues for energy conservation will depend on the local assessment of their appropriateness from a financial, technical, environmental, social and political perspective. Through this selection process, the Borough of Ridgefield will be taking an important step toward providing citizens with opportunities to maximize the benefits fron the energy they use.

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[6] Land Use, Master Plan Report #2, 1988, Dorram Associates Inc., Totowa, N.J. p. 21.

[7] Housing Element, Master Plan Report #1, 1988, Dorram Associates Inc., Totowa, N.J. p. 3.

ENERGY CONSERVATION APPENDIX

State of New Jersey

DEPARTMENT OF COMMERCE, ENERGY AND ECONOMIC DEVELOPMENT
DIVISION OF ENERGY PLANNING AND CONSERVATION
101 COMMERCE STREET
NEWARK, NEW JERSEY 07102-5102

ORDEN R. PUTNAM
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ASSISTANT COMMISSIONER

MASTER PLANS FOR ENERGY EFFICIENCY

The New Jersey Municipal Land Use Law (Chapter 291, N.J.S.A. 40:55D-1 et seq.) has authorized municipalities to plan for energy conservation. Now each community has the power and responsibility to plan and direct development so that residents will have greater potential for reducing their energy demand and for using renewable energy resources.

The Municipal Land Use Law as amended under N.J.S.A. 40:55D-28b.(8) provides that Master Plans may include a conservation plan element identifying measures which the municipality plans to pursue to minimize energy consumption and the use of non-renewable energy sources.

The following pages highlight some of the possible approaches and measures municipalities can and should consider for inclusion in their community master plans in order to open opportunities for saving energy.

The Division recognizes that a wide range of concerns must be taken into consideration when a community develops its plans and that the applicability of each of the strategies put forth here will vary from one municipality to the next. It is understood that local residents, planning board members, and elected representatives are attuned to conditions unique to each community; therefore, the final decision concerning avenues to be pursued should be determined at the local level.

If you have any questions concerning the Municipal Land Use Law as it relates to planning for energy conservation, please contact Vincent Pedicini at (201) 648-4499.

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APPROACHES FOR IMPROVING ENERGY EFFICIENCY POTENTIAL FOR MUNICIPAL MASTER PLANS

APPROACH	PURPOSE
Include a general goal statement to address energy considerations. An example of an appropriate statement would read: "To maximize the potential for energy conservation and the use of renewable energy resources."	To set a legal and philosophical basis for establishing other goals and for pursuing techniques which offer citizens the opportunity to live in an energy efficient manner.
Include a specific goal statement in the land use section of the master plan. Such a statement may read: "It is the township's goal to promote development in a manner which maximizes the use of renewable energy resources and minimizes overall fuel demand for heating and cooling."	To establish a justification for implementing land use techniques which will help to minimize energy demand.
Address the need for maximizing the southern orientation of houses and other structures.	To improve energy efficiency by increasing the potential for employing passive solar designs and the installation of active solar systems.
Address the need to protect an adequate level of solar access during the winter to the south walls of new structures.	To provide a basis for insuring the availability of solar energy for heating via passive and active systems.

APPROACH	PURPOSE
Address the value of clustering development on south-facing slopes and other areas with naturally mitigated micro-climatic conditions while steering development away from north-facing slopes, hilltops or other areas with naturally innospitable micro-climatic conditions.	To reduce energy demand for heating and cooling.
Call for flexibility in land development regulations such as side yard and setback requirements to permit adjustments for building locations which will result in improving energy efficiency.	To allow development to take advantage of natural site conditions and to allow units to be situated so as to improve orientation and solar access.
Call for provisions to make allowances for clustered housing with common wall construction.	To reduce heat loss by means of the insulating value of common wall construction.
Call for energy efficient landscaping considerations to be addressed when requirements are developed in any site plan review ordinances.	To create cooler summertime micro-climates and allow adequate solar exposure during the winter.
Establish a goal to create development patterns to minimize the need for travel and give rise to the use of efficient means of transportation.	To establish a justification for implementing land use techniques to help minimize transportation energy demand.
Call for commercial, office and industrial facilities to be laid out in a manner to encourage access for pedestrians and cyclists. As an example, the plan may call for requirements to stipulate that parking accommodations should be situated at the rear of facilities with buildings having a limited setback from thoroughfares.	To reduce the need to travel by automobile. To provide the public with the opportunity to utilize more efficient means of transportation.

APPROACH	PURPOSE
Call for expansion of higher density zones.	To improve the potential for the viability of mass transit. To reduce traveling distances and to improve the potential for walking and cycling.
Address the value of making allowances for the establishment of professional office space and cottage industries in homes.	To save energy by reducing the business operators' and professionals' need to travel and to bring services closer to the public to diminisn travel distances.
Call for provisions to allow development of housing in commercial zones.	To bring services and the consuming public closer together to diminish travel distances.
Call for commercial zones to be centrally located and call for the establishment of conveniently situated neighborhood commercial zones.	To bring services and the consuming public closer together to diminish travel distances.
Address the need to discourage leap-frog development.	To minimize traveling distances.
Give priority to situating higher density residential development within 1/4 mile from transit stops.	To improve the potential for the use of mass transportation.
Include a specific goal statement calling for the establishment of an efficient circulation plan.	To reduce traveling distances and improve the efficiency for the movement of people and goods through the community.
Call for the establishment of a sidewalk and bikeway system to include the installation of bicycle racks at strategic locations.	To provide residents with the opportunity to use efficient means of transportation.
Set efficiency as one of the criteria for the establishment of new roads and street extensions.	To minimize traveling distance to allow for a reduction of energy consumption.
Include a specific goal statement in the Housing Plan Element to foster housing development in a manner which will maximize the potential for conservation and the use of renewable energy resources.	To establish justification for implementing development controls on housing which are intended to have units developed in harmony with the natural environmental conditions of the site and to improve site conditions to help reduce energy demand

APPROACH	PURPOSE
Recognize the energy conserving value of preserving and rehabilitating existing housing stock.	To minimize the use of embodied energy, i.e., energy recuired for the production of new facilities.
Include a specific goal statement in the Community Facilities Plan element calling for the site selection process of new public facilities to give high ranking to sites which are centrally located and within close proximity to other facilities.	To afford the users the opportunity to reach community facilities with a minimal need to travel.
Establish a goal which would guide the installation and expansion of utilities to promote a concentrated development pattern.	To reduce traveling distances and save embodied energy - i.e., the energy used for the production of new products and facilities.
Include a specific goal statement in the Recreation Plan element calling for parks and playgrounds to be sited so as to enable users of such facilities to reach them by efficient means of transportation.	To afford users the opportunity to reach recreational facilities by efficient transportation modes.
Call for bicycle paths to be incorporated into the Recreation Element of the plan to connect housing developments to community-wide and regional recreation sites	To afford users the opportunity to reach recreational facilities by efficient transportation modes.