

BUSINESS CENTER PLAN REPORT
Village of Suffern, New York

Frederick P. Clark Associates
Rye, New York

September 1984



VILLAGE OF SUFFERN, NEW YORK
SUFFERN PLANNING BOARD

Chairman
JOHN A. KEOUGH

October 1, 1984

TO: Board of Trustees
Village Clerk
/ Village Attorney
Planning Board
Parking Authority Chairman
Director of Public Works
Building Inspector
Suffern Library

Re: Business Center Plan Report

For your information and use, enclosed herewith is a copy of the
Business Center Plan Report which was adopted by the Planning Board on
June 19, 1984.

Very truly yours,

John A. Keough
John A. Keough, Chairman *fmc.*

JAK/fmc
enc.

BUSINESS CENTER PLAN REPORT
Village of Suffern, New York

Frederick P. Clark Associates
Rye, New York

September 1984

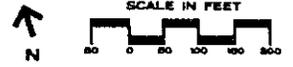
TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
II. EXISTING CONDITIONS	3
A. Land Use Survey	3
B. Transportation	4
1. Traffic and Parking	4
2. Interstate 287	14
3. Erie Lackawanna Railroad	19
III. BUSINESS CENTER PLAN	22
A. Commercial Development	22
B. Parking and Loading	24
C. Multi-Family Residential Development	25
IV. SPECIFIC LAND USE AND TRAFFIC RECOMMENDATIONS	26
A. Municipal Parking Area/Ernst Property	26
B. Multi-Family Residential Development	29
C. Lafayette Avenue/Washington Avenue Intersection	29
D. Lafayette Avenue Circulation and Parking	31
V. GENERAL IMPROVEMENT CONCEPTS	39
APPENDIX: Level of Service Definitions	

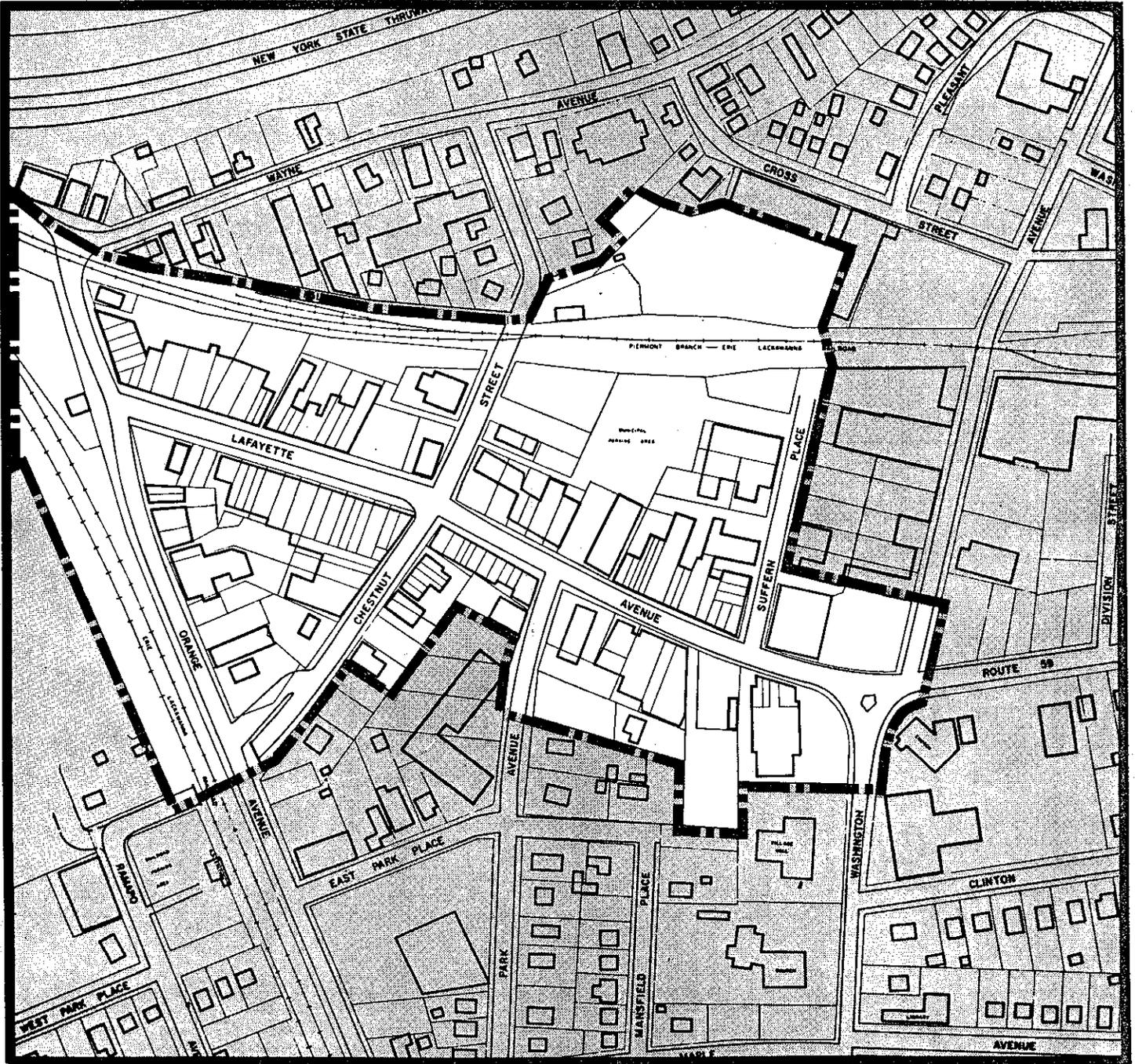
I. INTRODUCTION

As shown in Figure 1, the Business Center Study Area basically consists of both sides of Lafayette Avenue between the railroad on the west and Washington Avenue on the east. The study area also includes the municipal parking lot to the north of Lafayette Avenue between Chestnut Street and Suffern Place, an undeveloped parcel to the north of the municipal parking lot, and certain buildings in the vicinity of the Chestnut Street/Orange Avenue intersection.

BUSINESS CENTER STUDY Village of Suffern, NY



FREDERICK P. CLARK ASSOCIATES



BUSINESS CENTER STUDY AREA

--- Study Area Boundary

II. EXISTING CONDITIONS

A. Land Use Survey

A survey of the current usage of all land and buildings within the study area has been performed. The results of this survey have been plotted on two large-scale maps which have been submitted to the Village and are described below.

Ground Level

It was found that the ground level of the study area is primarily composed of retail/service uses and associated public and private parking areas.

The first floor of the buildings within the study area contain 113 distinct uses (including vacant floor area). These uses have been categorized as follows:

<u>Use</u>	<u>Number of Uses</u>
1. Residential	1
2. Retail/Service	
a. Restaurant or Bar	15
b. Food or Beverage Store	9
c. Department or Variety Store	4
d. Apparel and/or Accessories Store	7
e. Home Furnishings or Hardware Store	5
f. Miscellaneous Retail	15
g. Personal Service	12
h. Business Service	2
i. Repair Service	3
j. Miscellaneous Service	5
k. Banking	5
3. Office	
a. Real Estate, Insurance or Law Office	4
b. Miscellaneous Office	5
4. General Commercial/Wholesale/Storage	3
5. Manufacturing	4
6. Entertainment/Recreation (Theatre)	1
7. Public/Semi-Public (Post Office and Parking Authority)	2
8. Vacant Floor Area	<u>11</u>
TOTAL	113

Summarizing the above, approximately 73 percent of the first floor uses within the study area are of the retail/service variety. Office uses constitute approximately 8 percent of the first floor uses, with manufacturing, general commercial, public/semi-public, entertainment/recreation, residential and vacant floor area comprising the remainder.

Interesting highlights to be noted from the table above include the fact that there are 15 restaurants or bars within the study area, 5 banks, and 11 vacant storefronts or structures.

There are two parks within the study area. One of these parks is owned by the Village and located at the southerly corner of Lafayette and Orange Avenues. The other is owned by Avon Products and is located at the northwesterly corner of Lafayette and Washington Avenues.

Railroads form the southwesterly and most of the northerly boundaries of the study area. Public and private parking areas exist primarily to the north and south of the buildings facing Lafayette Avenue. There is one sizable undeveloped parcel within the study area. This parcel is located in the northerly portion of the study area.

Second and Third Floors

Where second floors exist, they primarily contain residential or office uses. Other second floor uses include entertainment/recreation, personal service and vacant floor area. The few third floors that exist are primarily either residential or vacant.

B. Transportation

1. Traffic and Parking

On-Street Parking

A parking inventory was conducted on Thursday, June 16, 1983 and Saturday, June 18, 1983 in the study area. There are a total of 306 parking spaces available to the general public in the study area. Of these, 136 are available on street, with 89 of those on-street spaces located on Lafayette Avenue between Orange and Washington Avenues. The remaining spaces are located on Orange Avenue, Chestnut Street and Suffern Place.

The weekday parking survey was conducted at 3:00 PM. It showed that total on-street occupancy was 75 percent of theoretical capacity, or 102 vehicles. On

Lafayette Avenue, 73 vehicles were parked, representing an occupancy rate of 82 percent. At individual curb faces in the study area, the occupancy rate ranged from 50 percent on Orange Avenue and Suffern Place to 100 percent on Chestnut Street and on Lafayette Avenue between Suffern Place and Washington Avenue.

The Saturday survey was conducted at 10:30 AM and 1:30 PM. During the morning time period, the total occupancy was 79 percent, or 107 parked vehicles, while the afternoon occupancy was 69 percent, or 94 parked vehicles. The morning survey showed that the curb parking spaces were more fully utilized and in the early afternoon parking usage dropped off. Morning and afternoon parking occupancy on Lafayette Avenue was 72 and 68 vehicles, or 80 and 76 percent respectively, of available parking. Table 1 summarizes the on-street parking inventory for both the Thursday and Saturday surveys.

Off-Street Parking

Five off-street parking areas with a total of 170 spaces were included in the parking survey. The survey was conducted on Thursday, June 16, 1983 at 3:00 PM and Saturday, June 18, 1983 at 10:30 AM and 3:00 PM. Parking areas which were private or by permit were included where it was appropriate in order to obtain a meaningful sample of parking usage.

The weekday survey shows that 78 spaces were occupied. This represents 46 percent of capacity. The parking areas had an occupancy range from 33 percent of capacity at the Chestnut Street parking area to a high of 74 percent of capacity at the Lafayette Avenue/Orange Avenue parking area.

The Saturday morning survey shows that the parking areas had an average occupancy rate of 52 percent or 88 parked vehicles. The percent occupancy range was from a low of 33 percent at the Lafayette Avenue parking area to a high of 67 percent at the Suffern Place parking area.

The afternoon survey results show that parking demand drops off and the average occupancy was only 35 percent of capacity with 60 vehicles parked in the five parking areas. Occupancy in each parking area had a range of 23 to 57 percent of capacity. Table 2 summarizes the results of the off-street parking survey. Figure 2 graphically shows the locations of each parking area in the study area.

Table 1
ON-STREET PARKING OCCUPANCY STUDY
Central Business District
Suffern, New York

LOCATION	CURB FACE(2)	AVAILABLE SPACES	OCCUPANCY(1)		VEHICLES(1)
			Saturday AM	PM	Weekday PM
Orange Avenue, east side	1	14	9(64%)	6(43%)	7(50%)
Lafayette Avenue, south	2	21	17(81%)	15(71%)	19(90%)
Lafayette Avenue, south side	3	21	15(71%)	18(86%)	19(90%)
Chestnut Street, west side	4	3	2(67%)	2(67%)	3(100%)
Chestnut Street, west side	5	13	8(62%)	7(54%)	9(69%)
Chestnut Street, east side	6	9	8(89%)	7(78%)	6(67%)
Lafayette Avenue, south side	7	8	8(100%)	6(75%)	5(63%)
Lafayette Avenue, north side	8	24	22(92%)	17(71%)	19(79%)
Lafayette Avenue, south side	9	11	7(64%)	9(82%)	7(64%)
Suffern Place, west side	10	8	8(100%)	4(50%)	4(50%)
Lafayette Avenue, north side	11	4	3(75%)	3(75%)	4(100%)
Total Spaces		136			
Spaces Occupied			107	94	102
Average Percent Occupancy			79	69	75

Frederick P. Clark Associates

¹Saturday field survey conducted on June 18, 1983 at 10:30 AM and 1:30 PM.
 Weekday field survey conducted on Thursday, June 16, 1983 at 3:00 PM

²See Figure 2

Table 2
OFF-STREET PARKING OCCUPANCY STUDY
Central Business District
Suffern, New York

LOCATION	IDENTIFICATION NUMBER (1)	AVAILABLE SPACES (2)	OCCUPANCY (3)		
			Saturday		Weekday
			AM	PM	PM
Lafayette Avenue/ Orange Avenue	2	23	11 (48%)	12 (52%)	17 (74%)
Lafayette Avenue	3	15	5 (33%)	6 (40%)	7 (47%)
Chestnut Street	4	81	44 (54%)	19 (23%)	27 (33%)
Suffern Place	5	30	20 (67%)	11 (37%)	16 (53%)
Orange Avenue Train Station	1	<u>21</u>	<u>8 (38%)</u>	<u>12 (57%)</u>	<u>11 (52%)</u>
Total Spaces		170			
Spaces Occupied			88	60	78
Average Percent Occupancy			52	35	46

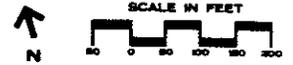
Frederick P. Clark Associates

(1) See Figure 2

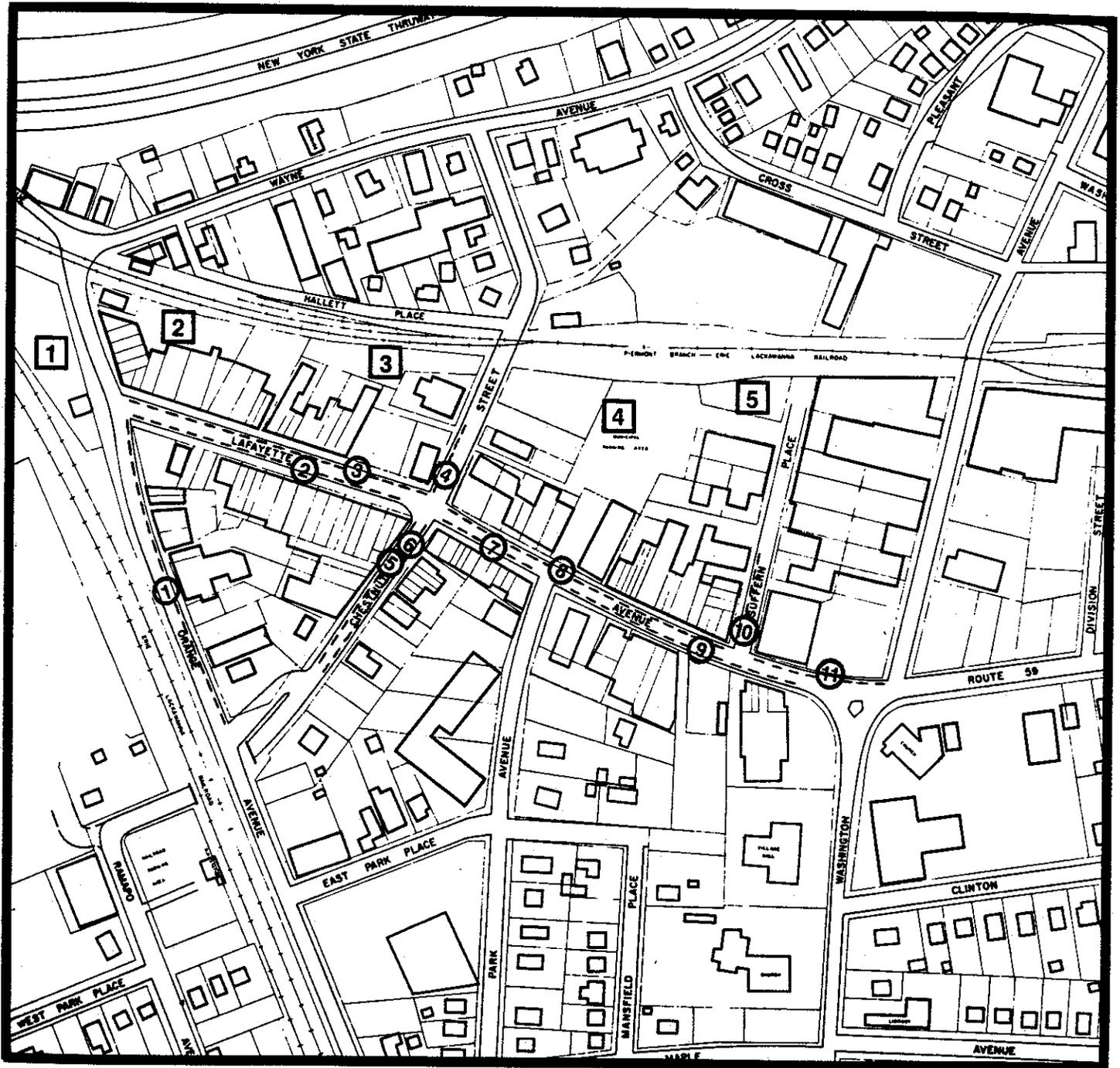
(2) Some spaces privately owned

(3) Saturday field survey conducted on June 18, 1983 at 10:30 AM and 1:30 PM
Weekday field survey conducted on Thursday, June 16, 1983 at 3:00 PM

BUSINESS CENTER STUDY Village of Suffern, NY



FREDERICK P. CLARK ASSOCIATES



EXISTING PARKING LOCATIONS

- ① - On-Street Parking
- 1 - Public Off-Street Parking

Existing Traffic Volumes

To determine the current magnitude of traffic movements in the study area, turning movement counts were conducted at two intersections on a weekday during the afternoon peak hours and on a Saturday during the midday peak hours. The weekday counts were conducted at the Lafayette Avenue/Orange Avenue and Lafayette Avenue/Washington Avenue intersections between the hours of 4:30 PM and 6:00 PM. The Saturday counts were conducted at the same intersections between the hours of 11:30 AM and 1:30 PM.

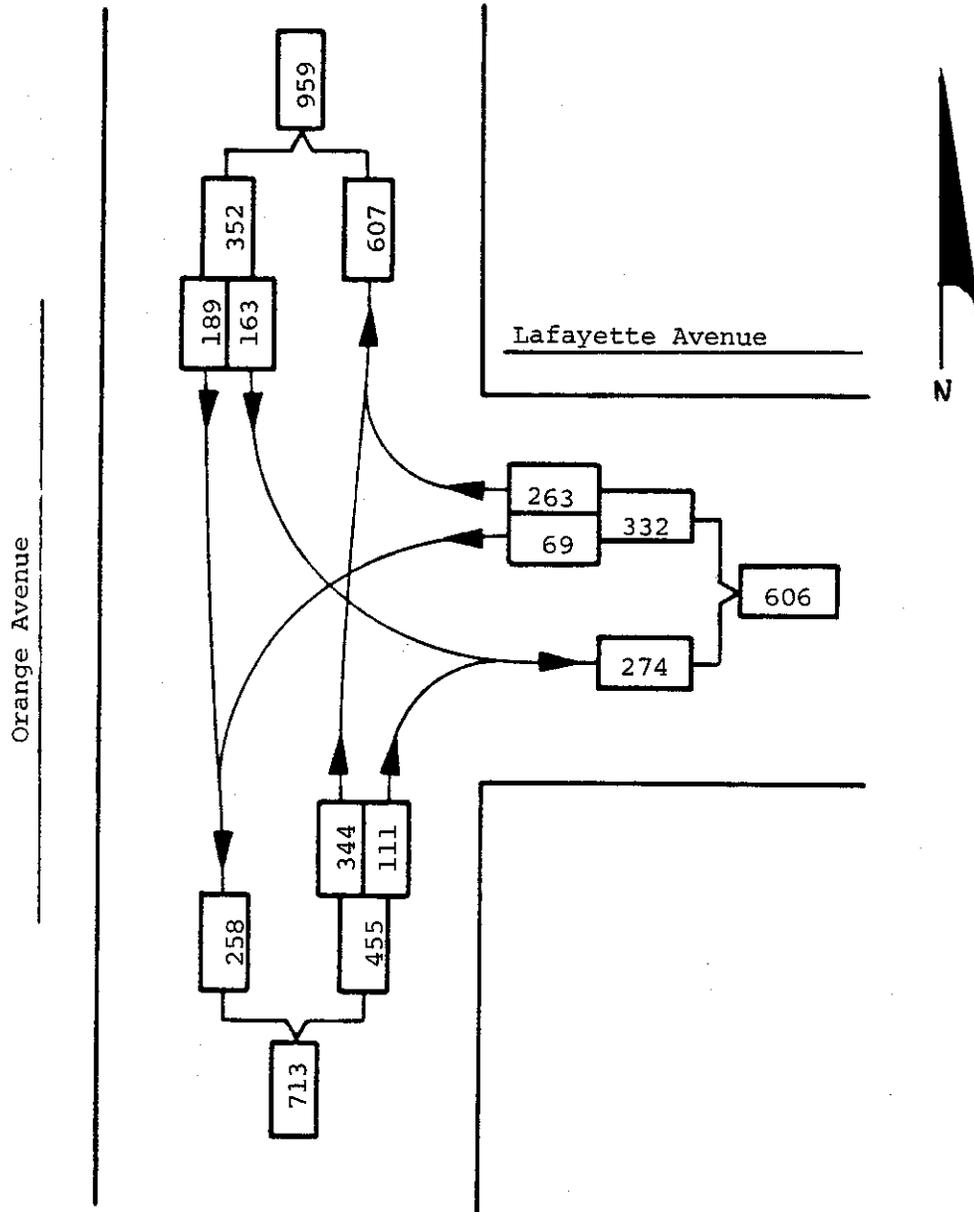
The turning movement counts show that Lafayette Avenue has a weekday afternoon peak hour (4:30-5:30 PM) two-way volume of 605 vehicles near Orange Avenue and a two-way volume of 930 vehicles west of Washington Avenue. East of Washington Avenue, Lafayette Avenue has a two-way volume of 1,200 vehicles. Two-way volumes on Orange Avenue for the AM peak hour were 960 and 715 vehicles (two-way volume) north and south of Lafayette Avenue, respectively. Washington Avenue had a peak hour two-way volume of 430 and 645 vehicles north and south of Lafayette Avenue, respectively.

Turning movement counts at the same two intersections on a Saturday show that the midday peak hour is 12:00-1:00 PM at the Lafayette Avenue/Orange Avenue intersection and 11:45-12:45 PM at Lafayette Avenue/Washington Avenue. Lafayette Avenue has a peak hour two-way volume of 585 vehicles east of Orange Avenue and a peak hour two-way volume of 915 vehicles west of Washington Avenue. East of Washington Avenue, Lafayette Avenue has a two-way volume of 1,185 vehicles. Orange Avenue has two-way volumes of 755 vehicles and 590 vehicles, north and south of Lafayette Avenue, respectively. Washington Avenue has two-way volumes of 305 vehicles and 600 vehicles north and south of Lafayette Avenue, respectively. Figures 3 through 6 summarize all turning movement counts for the peak hours at the two intersections.

Capacity Analysis

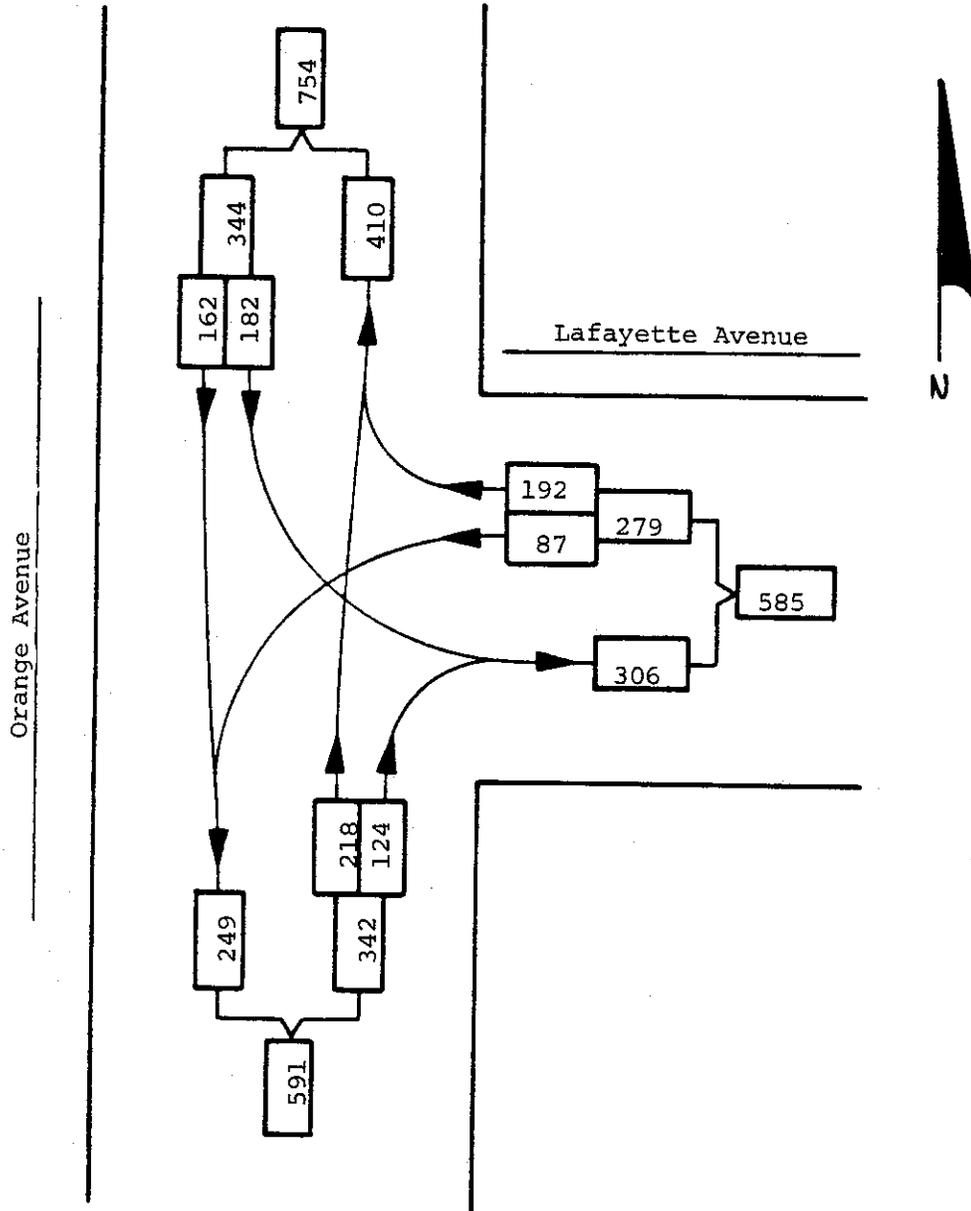
Roadways and intersections are evaluated by their ability to efficiently and safely move traffic. This ability is measured by the ratio of the traffic volume to its corresponding capacity. The Transportation Research Board of the National Academy of Science has determined the capacity, or theoretical maximum number of vehicles a roadway or intersection can accommodate under ideal conditions. The theoretical capacity must be adjusted to reflect conditions which affect capacity. Therefore, factors must be applied to account

TURNING MOVEMENT SUMMARY



Time Interval: 4:30 PM to 5:30 PM
Day of Week: Thursday **Date:** June 16, 1983
Location: Suffern
Weather: Cloudy, Hot **Surveyor:** RTH

TURNING MOVEMENT SUMMARY



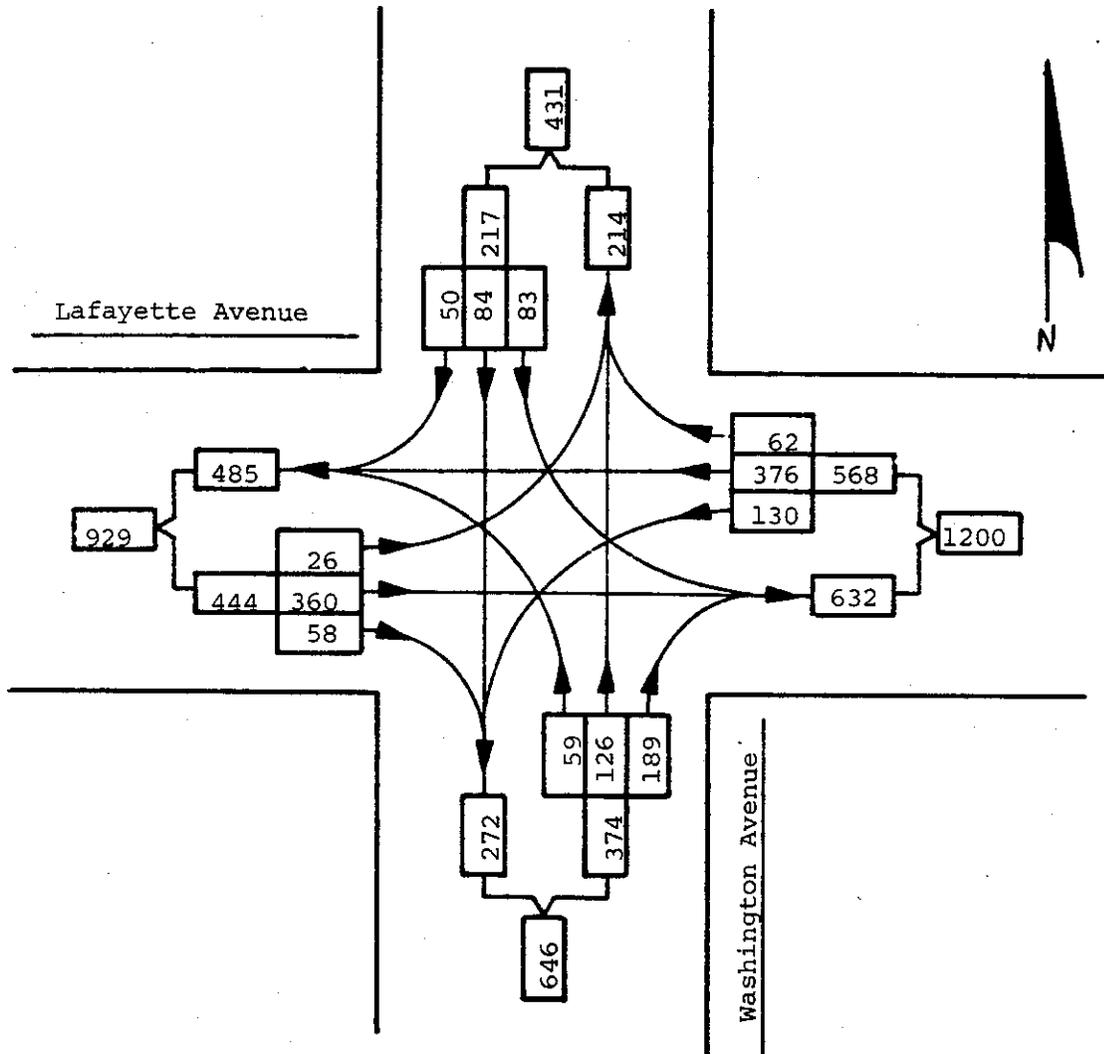
Time Interval: 12:00 PM to 1:00 PM

Day of Week: Saturday Date: June 18, 1983

Location: Suffern

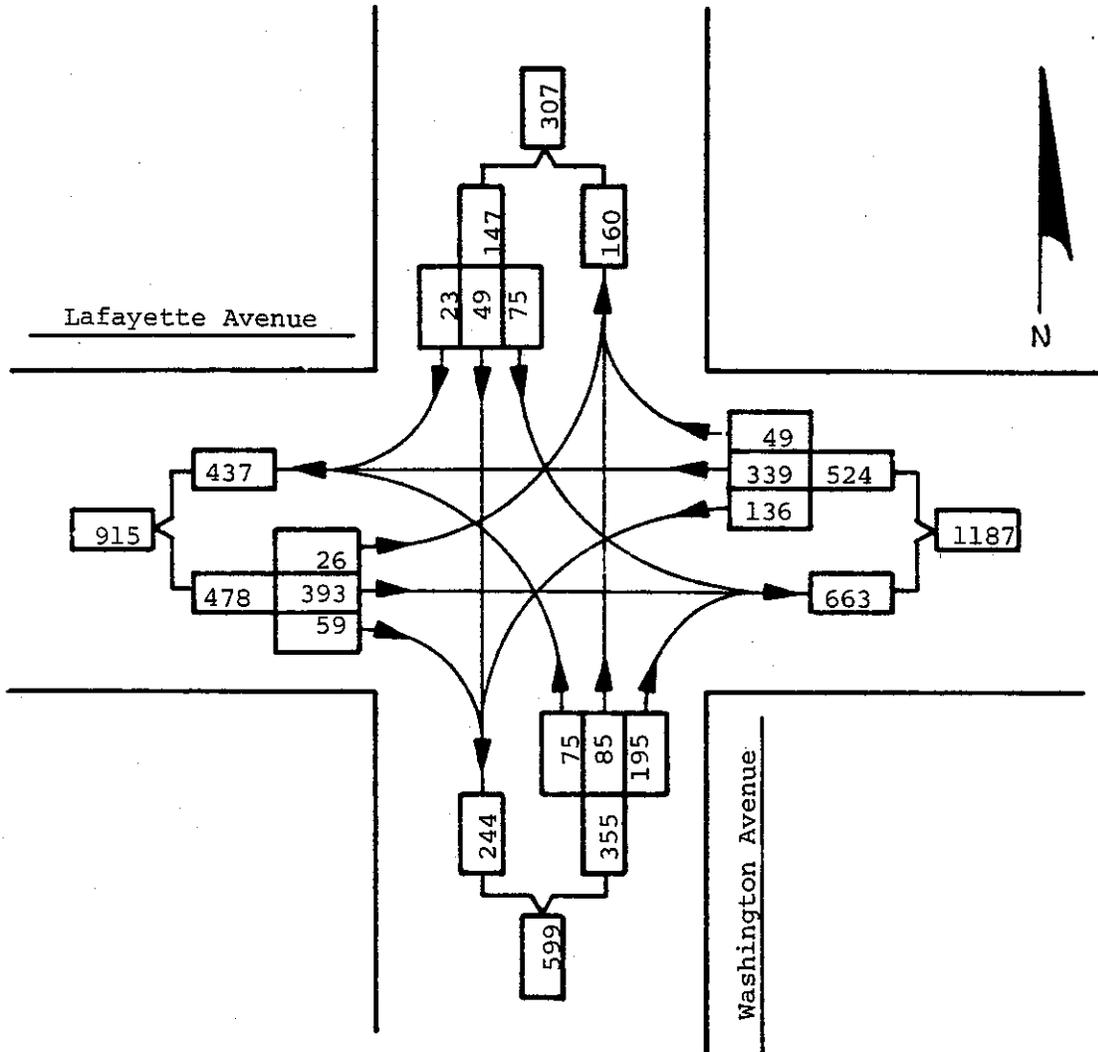
Weather: Cloudy, Hot Surveyor: RTH

TURNING MOVEMENT SUMMARY



Time Interval: 4:30 PM to 5:30 PM
Day of Week: Thursday **Date:** June 16, 1983
Location: Suffern
Weather: Cloudy, Hot **Surveyor:** PV

TURNING MOVEMENT SUMMARY



Time Interval: 11:45 AM to 12:45 PM
Day of Week: Saturday **Date:** June 18, 1983
Location: Suffern
Weather: Cloudy, Hot **Surveyor:** PV

for horizontal and vertical alignment, number of lanes, parking, percentage of turning movements, trucks, and type of traffic control.

The calculated ratio is based on a range of values that represent six levels of service from Level of Service "A" through "F". Level of Service "A" represents ideal conditions with low volumes. Levels of Service "C" through "D" are generally accepted for peak hour traffic conditions. Levels of Service "E" and "F" are theoretical capacity when forced flow occurs.

In order to evaluate existing capacity in the study area, an analysis was conducted at the Lafayette Avenue/Orange Avenue and Lafayette Avenue/Washington Avenue intersections for both the weekday and Saturday peak hours. Presently, the Lafayette Avenue/Orange Avenue intersection is operating at a Level of Service "A-B" during both peak hours on all approaches.⁽¹⁾ The Lafayette Avenue/Washington Avenue intersection is operating at a Level of Service "E-F" on three of four approaches during the weekday peak hour. On Saturday, during the midday peak hour, the intersection is operating at a Level of Service "E-F" at two approaches. The two other approaches are operating at Level of Service "A-B". Tables 3 through 6 show in detail the capacity analysis.

2. Interstate 287

A Draft Environmental Impact Statement (DEIS) and Final Environmental Impact Statement (FEIS) were prepared by the U.S. Department of Transportation Federal Highway Administration and the New Jersey Department of Transportation for the completion of I-287. The final section of this highway would be from U.S. Route 202 in Montville, New Jersey to the New York State Thruway (I-87) in Suffern. This 20.6 mile section would complete the last gap remaining in the 87 mile circumferential route serving the New York City Metropolitan Area.

In the vicinity of Suffern and the interchange with I-87 the new road would provide two lanes in each direction separated by a variable width median and be built to Interstate design standards. Regardless of which alternative alignment is selected in New Jersey, I-287 will intersect Route 17 in Mahwah and continue in a northerly direction within the existing Route 17 right-of-way into New York. I-287 will intersect I-87 at the existing Route 17/I-87 interchange.

¹Level of Service definitions are described in the Appendix.

INTERSECTION CAPACITY WORKSHEET

Project Village of Suffern Date 8/9/83 Table 3
 Intersection Lafayette (Route 59) at Orange Ave. By MAG Count Date June 16, 1983
 Design Year Existing
 Time Period 4:30-5:30 PM

General Description

Street	Orange	Orange	Lafayette	
Direction	NB	SB	WB	
Movements	L(S)R	L(S)R	L(S)R	L S R
Phase				

Physical Conditions

WA - Width of Approach	22'	20'	22'	
Parking - Within 250 feet	YES/NO	YES/NO	YES/NO	YES/NO
Operation - One-way or two-way	1(2)	1(2)	1(2)	1/2
LF - Load Factor	/	/	/	/
BSV - Base Service Volume				
for LOS	A 1050	A 1225	A 1050	

Environmental Conditions

Area	Location (CBD, F, ODB, R)	CBD	CBD	CBD
fA	Area Factor	1.00	1.00	1.00
P	Metro Area Pop. (in 1,000's)	250	250	250
PHF	Peak Hour Factor	0.96	0.96	0.96
fA PHF	Comb. Area and Peak Hr. Fctr.	1.11	1.08	1.11
fec	Combined Factors	1.11	1.08	1.11

Traffic Characteristics

T	Percent Trucks	5%	5%	5%
fT	Truck Factor	1.00	1.00	1.00
R	Percent Right Turns	24%	0%	0%
fR	Right Turn Factor	0.93	1.05	1.20
L	Percent Left Turns	0%	46%	21%
fL	Left Turn Factor	1.10	0.85	0.94
B	Type Bus Stop & Number/Hr.	-%	-%	-%
fLB	Local Bus Factor	1.00	1.00	1.00
fTF	Combined Traffic Adjustment Factor	1.023	0.8925	1.128
SV	Service Volume per Hour of Green	1192	1181	1315

Control Measures

G	Green Interval (Sec)			
C	Signal Cycle (Sec)			
G/C	Actual/Assumed Ratio	0.45	0.45	0.45

Calculations

ASV	Actual Service Volume	536	531	592
DHV	Design Hour Volume	455	358	332
V/C	Volume/Capacity Ratio	0.85	0.66	0.56
LTC	Left Turn Check			
ASV	Actual Service Volume	-	335	-
DHV	Design Hour Volume	-	163	-
V/C	DHV ÷ ASV	-	0.49	-

Remarks:

Frederick P. Clark Associates
 Transportation Planning Division

INTERSECTION CAPACITY WORKSHEET

Project Village of Suffern Date 8/9/83 Table 4
 Intersection Lafayette (Route 59) at Orange Ave. By MAG Count Date June 18, 1983
 Design Year Existing
 Time Period 12:00-1:00 PM

General Description

Street	Orange	Orange	Lafayette	
Direction	NB	SB	WB	
Movements	L(S)R	L(S)R	L(S)R	L S R
Phase				

Physical Conditions

WA - Width of Approach	22'	20'	22'	
Parking - Within 250 feet	YES/NO	YES/NO	YES/NO	YES/NO
Operation - One-way or two-way	1/2	1/2	1/2	1/2
LF - Load Factor	/	/	/	/
BSV - Base Service Volume				
for LOS	A 1050	A 1225	A 1050	

Environmental Conditions

Area	Location (CBD, F, ODB, R)	CBD	CBD	CBD	
fA	Area Factor	1.00	1.00	1.00	
P	Metro Area Pop. (in 1,000's)	250	250	250	
PHF	Peak Hour Factor	0.93	0.93	0.93	
fA PHF	Comb. Area and Peak Hr. Fctr.	1.07	1.05	1.07	
feC	Combined Factors	1.07	1.05	1.07	

Traffic Characteristics

T	Percent Trucks	5 %	5 %	5 %	%
fT	Truck Factor	1.00	1.00	1.00	
R	Percent Right Turns	36 %	0 %	0 %	%
fR	Right Turn Factor	0.90	1.05	1.20	
L	Percent Left Turns	0 %	53 %	31 %	%
fL	Left Turn Factor	1.10	0.85	0.90	
B	Type Bus Stop & Number/Hr.	- %	- %	- %	%
fLB	Local Bus Factor	1.00	1.00	1.00	
fTF	Combined Traffic Adjustment Factor	0.9900	0.8925	1.0800	
SV	Service Volume per Hour of Green	1112	1148	1213	

Control Measures

G	Green Interval (Sec)				
C	Signal Cycle (Sec)				
G/C	Actual/Assumed Ratio	0.45	0.45	0.45	

Calculations

ASV	Actual Service Volume	501	517	546	
DHV	Design Hour Volume	342	344	279	
V/C	Volume/Capacity Ratio	0.68	0.67	0.51	
LTC	Left Turn Check				
ASV	Actual Service Volume	-	386	-	
DHV	Design Hour Volume	-	182	-	
V/C	DHV ÷ ASV	-	0.47	-	

Remarks:

Frederick P. Clark Associates
 Transportation Planning Division

INTERSECTION CAPACITY WORKSHEET

Project Village of Suffern Date 8/9/83 Table 5
 Intersection Lafayette Ave. (Route 59) at By MAG Count Date June 16, 1983
Washington Avenue Design Year Existing
 Time Period 4:30-5:30 PM

General Description

Street	Washington	Washington	Lafayette	Lafayette
Direction	NB	SB	EB	WB
Movements	(L)SR	(L)SR	(L)SR	(L)SR
Phase				

Physical Conditions

WA - Width of Approach	23'	15'	21'	18'
Parking - Within 250 feet	YES/NO	YES/NO	YES/NO	YES/NO
Operation - One-way or two-way	1(2)	1(2)	1(2)	1(2)
LF - Load Factor	/	/	/	/
BSV - Base Service Volume				
for LOS	D 1275	E 875	A 1315	E 1000

Environmental Conditions

Area	Location (CBD, F, ODB, R)	CBD	CBD	CBD	CBD
fA	Area Factor	1.00	1.00	1.00	1.00
P	Metro Area Pop. (in 1,000's)	250	250	250	250
PHF	Peak Hour Factor	0.96	0.96	0.96	0.96
fA PHF	Comb. Area and Peak Hr. Fctr.	1.11	1.11	1.08	1.11
feC	Combined Factors	1.11	1.11	1.08	1.11

Traffic Characteristics

T	Percent Trucks	5 %	5 %	5 %	5 %
fT	Truck Factor	1.00	1.00	1.00	1.00
R	Percent Right Turns	51 %	23 %	13 %	11 %
fR	Right Turn Factor	0.90	0.88	0.985	0.99
L	Percent Left Turns	16 %	38 %	6 %	23 %
fL	Left Turn Factor	0.94	0.80	1.04	0.83
B	Type Bus Stop & Number/Hr.	- %	- %	- %	- %
fLB	Local Bus Factor	1.00	1.00	1.00	1.00
fTF	Combined Traffic Adjustment Factor	0.8460	0.7040	1.0244	0.8217
SV	Service Volume per Hour of Green	1197	684	1455	912

Control Measures

G	Green Interval (Sec)				
C	Signal Cycle (Sec)				
G/C	Actual/Assumed Ratio	0.32	0.32	0.58	0.58

Calculations

ASV	Actual Service Volume	383	219	844	529
DHV	Design Hour Volume	374	217	444	568
V/C	Volume/Capacity Ratio	0.98	0.99	0.53	1.07
LTC	Left Turn Check				
ASV	Actual Service Volume	341	283	442	454
DHV	Design Hour Volume	59	83	26	130
V/C	DHV ÷ ASV	0.17	0.29	0.06	0.29

Remarks: Intersection operates at LOS "F" or better

Frederick P. Clark Associates
 Transportation Planning Division

INTERSECTION CAPACITY WORKSHEET

Project Village of Suffern Date 8/9/83 Table 6
 Intersection Lafayette Ave. (Route 59) at By MAG Count Date June 18, 1983
Washington Avenue Design Year Existing
 Time Period 11:45 AM - 12:45 PM
Saturday

General Description

Street	Washington	Washington	Lafayette	Lafayette
Direction	NB	SB	EB	WB
Movements	(L)S(R)	(L)S(R)	(L)S(R)	(L)S(R)
Phase				

Physical Conditions

WA - Width of Approach	23'	15'	21'	18'
Parking - Within 250 feet	YES/NO	YES/NO	YES/NO	YES/NO
Operation - One-way or two-way	1(2)	1(2)	1(2)	1(2)
LF - Load Factor	/	/	/	/
BSV - Base Service Volume	D 1275	B 700	A 1315	E 7000

Environmental Conditions

Area	Location (CBD, F, ODB, R)	CBD	CBD	CBD	CBD
fA	Area Factor	1.00	1.00	1.00	1.00
P	Metro Area Pop. (in 1,000's)	250	250	250	250
PHF	Peak Hour Factor	0.93	0.93	0.93	0.93
fA PHF	Comb. Area and Peak Hr. Fctr.	1.07	1.07	1.05	1.07
feC	Combined Factors	1.07	1.07	1.05	1.07

Traffic Characteristics

T	Percent Trucks	5 %	5 %	5 %	5 %
fT	Truck Factor	1.00	1.00	1.00	1.00
R	Percent Right Turns	55 %	16 %	12 %	9 %
fR	Right Turn Factor	0.90	0.94	0.99	1.02
L	Percent Left Turns	21 %	51 %	5 %	26 %
fL	Left Turn Factor	0.89	0.80	1.05	0.83
B	Type Bus Stop & Number/Hr.	- %	- %	- %	- %
fLB	Local Bus Factor	1.00	1.00	1.00	1.00
fTF	Combined Traffic Adjustment Factor	0.8010	0.7520	1.0395	0.8466
SV	Service Volume per Hour of Green	1093	563	1435	906

Control Measures

G	Green Interval (Sec)				
C	Signal Cycle (Sec)				
G/C	Actual/Assumed Ratio	0.33	0.33	0.57	0.57

Calculations

ASV	Actual Service Volume	361	186	818	516
DHV	Design Hour Volume	355	147	478	524
V/C	Volume/Capacity Ratio	0.98	0.79	0.58	1.01
LTC	Left Turn Check				
ASV	Actual Service Volume	372	304	463	426
DHV	Design Hour Volume	75	75	26	136
V/C	DHV ÷ ASV	0.20	0.25	0.06	.33

Remarks: Intersection is operating at LOS "F" or better

Frederick P. Clark Associates
 Transportation Planning Division

The FEIS states that the existing interchange will be rebuilt to improve ramp geometrics. The New York State Department of Transportation (NYSDOT) is currently developing conceptual plans of the Route 17/I-87/I-287 interchange which may provide improved "local" access. To provide improved local access, it may be necessary to construct an additional interchange. NYSDOT plans are only in the preliminary stages; therefore, no plans are available. Figure 7 shows the interchange improvements as described in the New Jersey FEIS for I-287.

Traffic volumes for the completed I-287 corridor as well as for other area roadways have been projected to 1995 in the FEIS. Presently, Route 17 has a daily volume of 33,700 vehicles. It is estimated that if I-287 is not built, Route 17 (at the State line) will have a daily volume of 53,000 vehicles by 1995. If I-287 is completed and combined with Route 17, at the State line daily traffic volumes would increase by 23 percent to 65,000 vehicles. Also, it is estimated that daily traffic volumes would increase on I-87, east of the Route 17 interchange, by 18 percent, from 55,900 to 65,900 vehicles daily by 1995 if I-287 is completed.

On local roadways, such as Lafayette Avenue in the study area, it is estimated that daily volumes will remain the same with or without the completion of I-287. Table 7 summarizes traffic volume data from the FEIS on roadways near the study area.

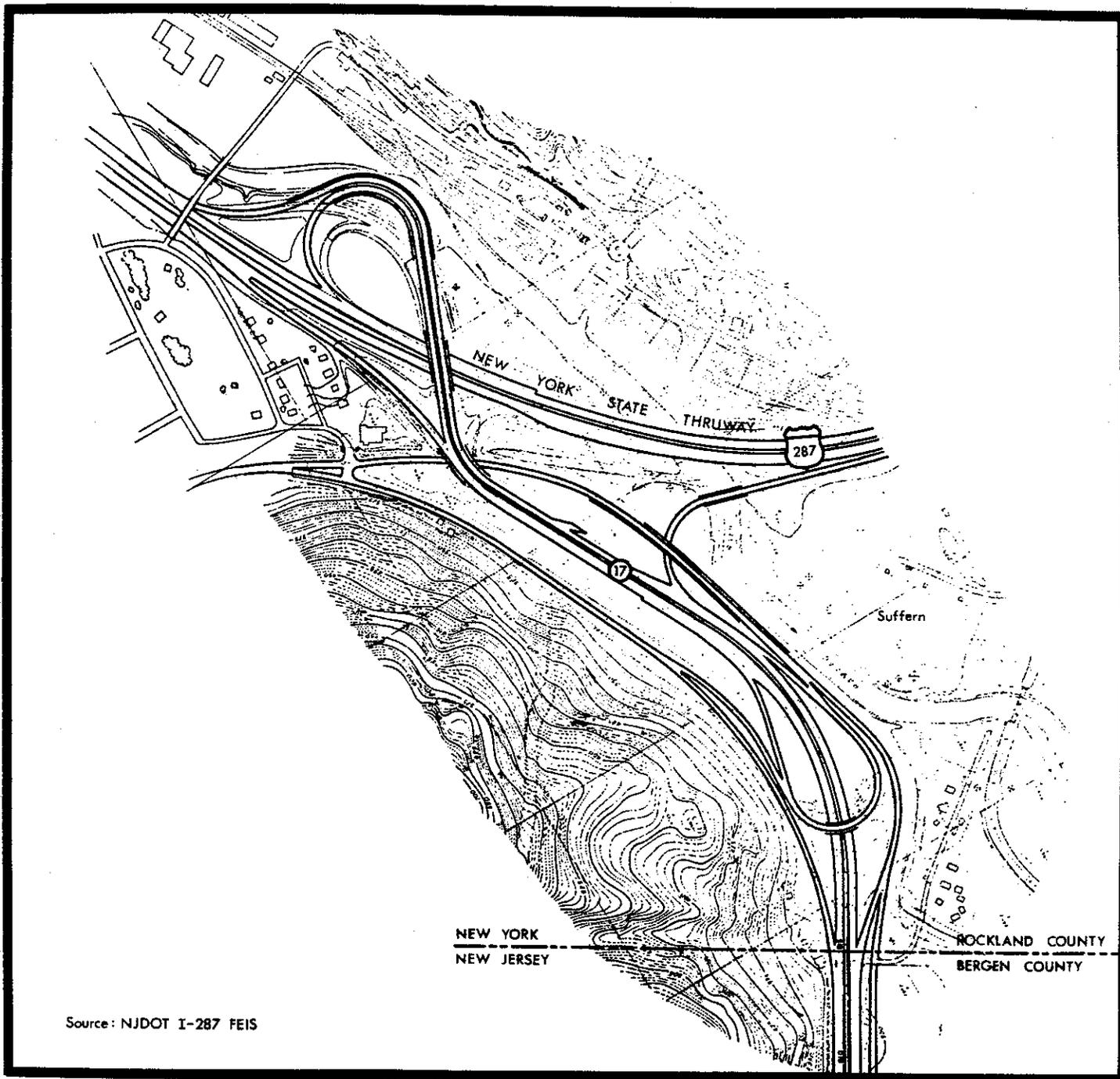
3. Erie Lackawanna Railroad

The Piermont Branch of the Erie Lackawanna Railroad runs in an east-west direction through the study area. This branch is a minor freight route serving central and eastern Rockland County.

According to Metro-North, it does not appear feasible to carry passengers on the Piermont Branch, and consequently, such service is only a remote possibility at present.

BUSINESS CENTER STUDY Village of Suffern, NY

SCALE IN FEET
0 200 400
N
FREDERICK P. CLARK ASSOCIATES



IMPROVEMENTS PROPOSED BY FEDERAL HIGHWAY ADMINISTRATION AND NEW JERSEY DEPARTMENT OF TRANSPORTATION - I-287 AT I-87

Table 7
 DAILY TRAFFIC VOLUMES
 EXISTING ROADWAYS AND WITH I-287
 Suffern, New York

ROADWAY SECTION	1982 VOLUMES ⁽¹⁾	1995 PROJECTED VOLUMES ⁽²⁾		
		No Build	Build	Percent Change
I-87, East of Route 17 Interchange	33,600	55,900	65,900	+18.0
Lafayette Avenue (Route 59) Central Business District	20,000 (estimate)	24,100	24,000	- 0.5
Route 202, North of I-87	8,150 (estimate)	19,000	18,200	- 4.0
Route 202, Near State Line	7,500	16,500	16,500	0
Route 17, West of I-87 Interchange	21,000 (estimate)	22,000	22,000	0
Route 17 at State Line	33,700	53,000	-	+23.0
Route 17/I-287 at State Line	-	-	65,000	

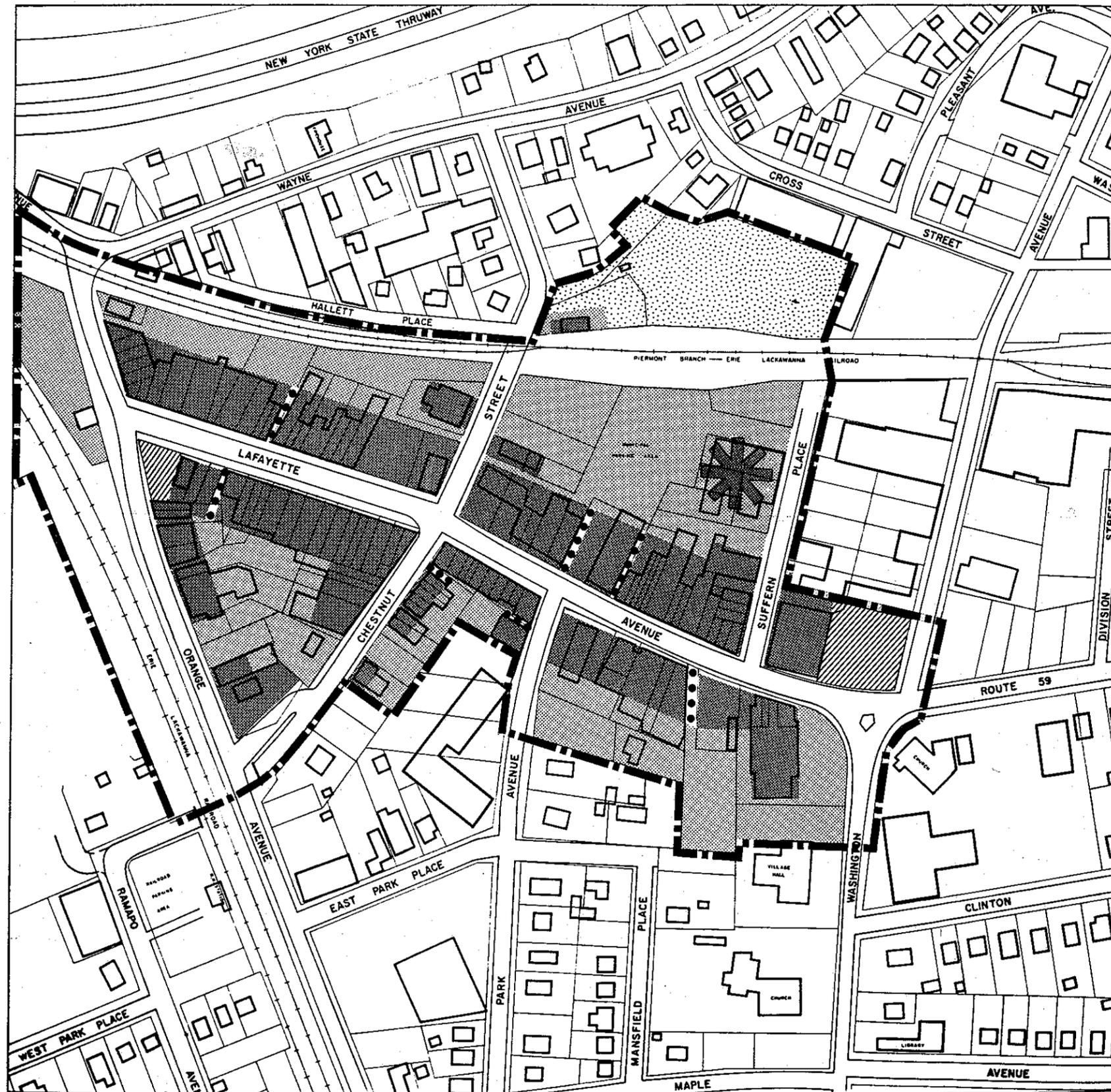
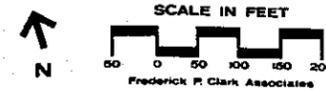
Frederick P. Clark Associates

(1) 1982 Traffic Volume Report, New York State Department of Transportation.

(2) I-287 FEIS, U.S. Department of Transportation Federal Highway Administration and New Jersey Department of Transportation.

BUSINESS CENTER STUDY

Village of Suffern, NY



BUSINESS CENTER PLAN

-  Commercial
-  Parking and Loading
-  Multi-Family Residential
-  Park
-  Transportation
-  Commercial and Parking
-  Pedestrian Access
-  Business Center Boundary

FIGURE 8

B. Parking and Loading

The Plan recommends that areas generally located to the rear of the above mentioned building envelopes be reserved for parking and loading use. These areas, supplemented by on-street parking, should be adequate to accommodate the parking and loading requirements of the Business Center as it develops and redevelops over time. The total number of spaces is considerably less than would be required on an individual, site-by-site basis but is dependent for its success on the far greater efficiency which can be achieved by a well-designed, joint facility serving a wide variety of uses with different peak hour demand characteristics.

Certain properties presently containing private parking areas and/or buildings (or portions of buildings) are encompassed within the areas designated Parking and Loading. The Business Center and the Village might best be served by the eventual conversion of these areas to public parking and loading. This conversion could take place as the uses in these buildings change or expansions are proposed over time by enabling the owners of these areas to dedicate them to the Village, either in fee or by easement, in lieu of providing the otherwise required parking spaces or paying a parking fee.

These public parking/loading areas would not only maximize the amount of parking and loading available to the public, but would also minimize the number of curb cuts into individual properties, and would provide for alternative traffic flow routings within the downtown area. Transferring vehicular traffic from Lafayette Avenue in this way will allow for a more pedestrian-oriented environment for shoppers as well as reduce future traffic congestion there.

It is further recommended that the appearance of the rear facades adjoining these parking areas be improved and that additional rear entrances be created, in order to best take advantage of and encourage the use of these parking areas.

Existing and proposed pedestrian access from the parking areas to Lafayette Avenue and other streets is also shown on the Plan. Pedestrian walkways should be attractive, well-lit and of suitable width so as to encourage their use and the use of the parking areas to which they provide access. Combination walkway/mall concepts should be encouraged with direct shop entrances and display windows on the walkways where these areas are sufficiently wide, as for example opposite the northerly end of Park Avenue.

A Conceptual Sketch Layout of the parking area to the rear of the stores on Lafayette Avenue in the northwest portion of the study area is contained in Section IV.C. of this report.

C. Multi-Family Residential Development

The Plan shows a sizable undeveloped site in the northerly portion of the study area as being appropriate for multi-family residential development. Development of this site as such would provide shopping support for the downtown area and make attractive use of this property. It would also help to bring a 24-hour population into the downtown area for improved security. Section IV.B. of this report contains a Conceptual Sketch Layout of the possible development of this site.

Parks

Two existing parks are designated as such on the Plan. One is owned by the Village and is located at the westerly end of Lafayette Avenue. The other site is owned by Avon Products and is located at the northwesterly corner of the Lafayette Avenue/Washington Avenue intersection. Neither site is presently used actively, but both contribute to the development of attractive easterly and westerly entrances to the downtown. In order to permanently assure the use of the latter site for such purpose in the future, it would have to be acquired (by purchase or gift) from Avon Products.

IV. SPECIFIC LAND USE AND TRAFFIC RECOMMENDATIONS

A. Municipal Parking Area/Ernst Property

Figures 9 and 10 show Conceptual Sketch Layouts of the municipal parking area and Ernst Moving and Storage Warehouse property to the north of Lafayette Avenue in the easterly portion of the study area. These sketches are intended as examples of what might be done with this area. It is assumed for the purposes of these layouts that the Ernst property would be acquired and the Ernst building removed.

Alternative A

Alternative A (Figure 9) shows a multi-story building located over one story of parking. This building might contain commercial uses and each floor would contain approximately 20,000 square feet of gross floor area.

Access to the first floor of the building would be via Suffern Place, with parking located between the building and Suffern Place on this level. The parking below the building would be at-grade with the existing municipal parking lot and would extend to Suffern Place.

The subject area presently parks approximately 209 vehicles. After restriping the municipal parking area and constructing the above mentioned additional parking, this area would park approximately 335 vehicles (126 additional vehicles).

The cost of the parking construction specified above is estimated to be on the order of \$1 million, or approximately \$8,000 per additional space.

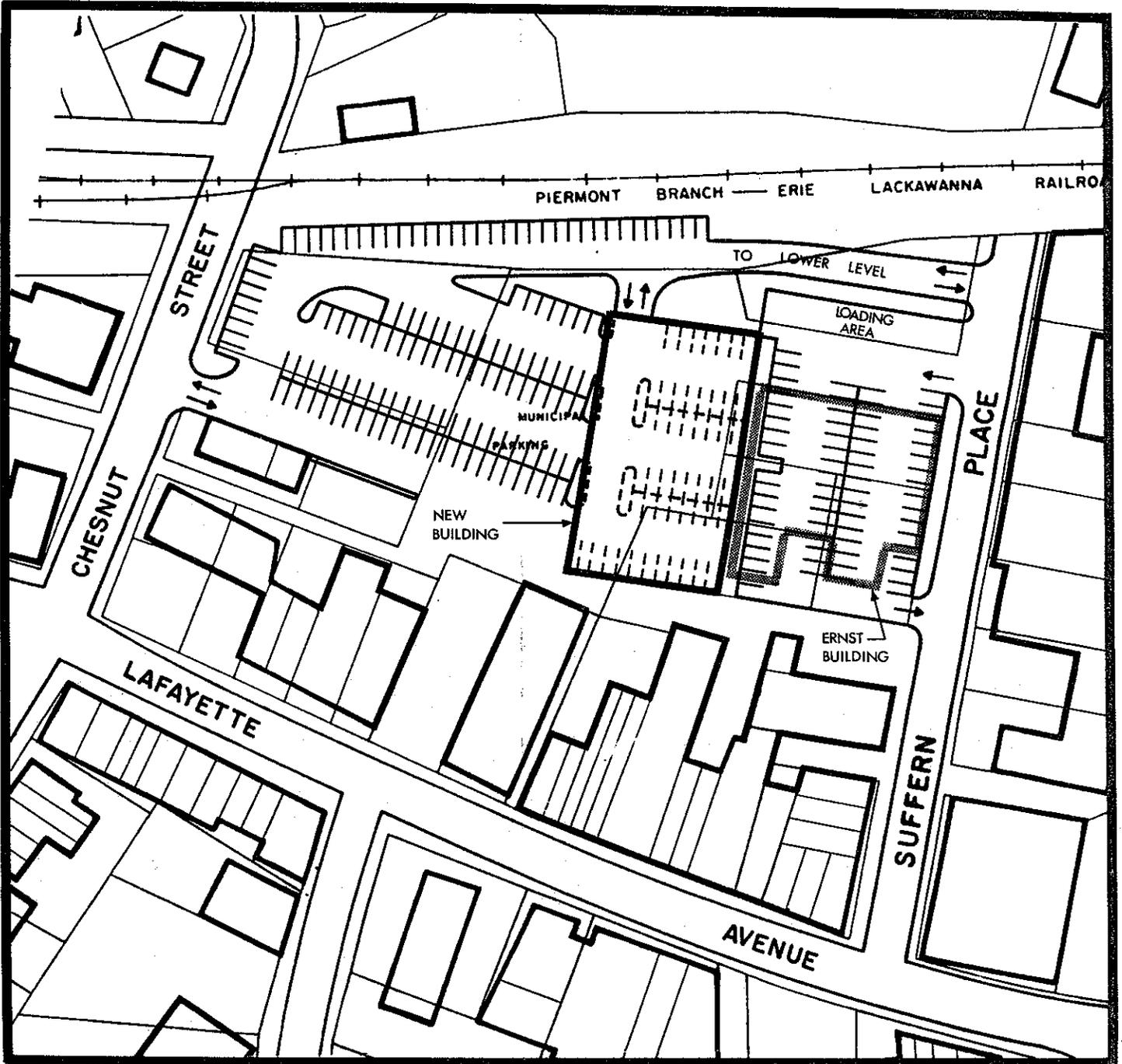
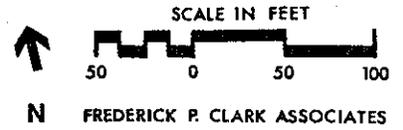
Alternative B

Alternative B (Figure 10) shows a one-story building of approximately 50,000 square feet at-grade with Suffern Place. This building might contain commercial uses and is shown located over two levels of parking. After restriping the municipal parking area, regrading it to ramp to the lower level of parking below the building, and construction of a second level of parking above the lower level, the area within Alternative B would park approximately 400 vehicles (191 additional vehicles).

The cost of the parking construction specified above is estimated to be on the order of \$1.5 million, or approximately \$8,000 per additional space.

BUSINESS CENTER STUDY

Village of Suffern, NY

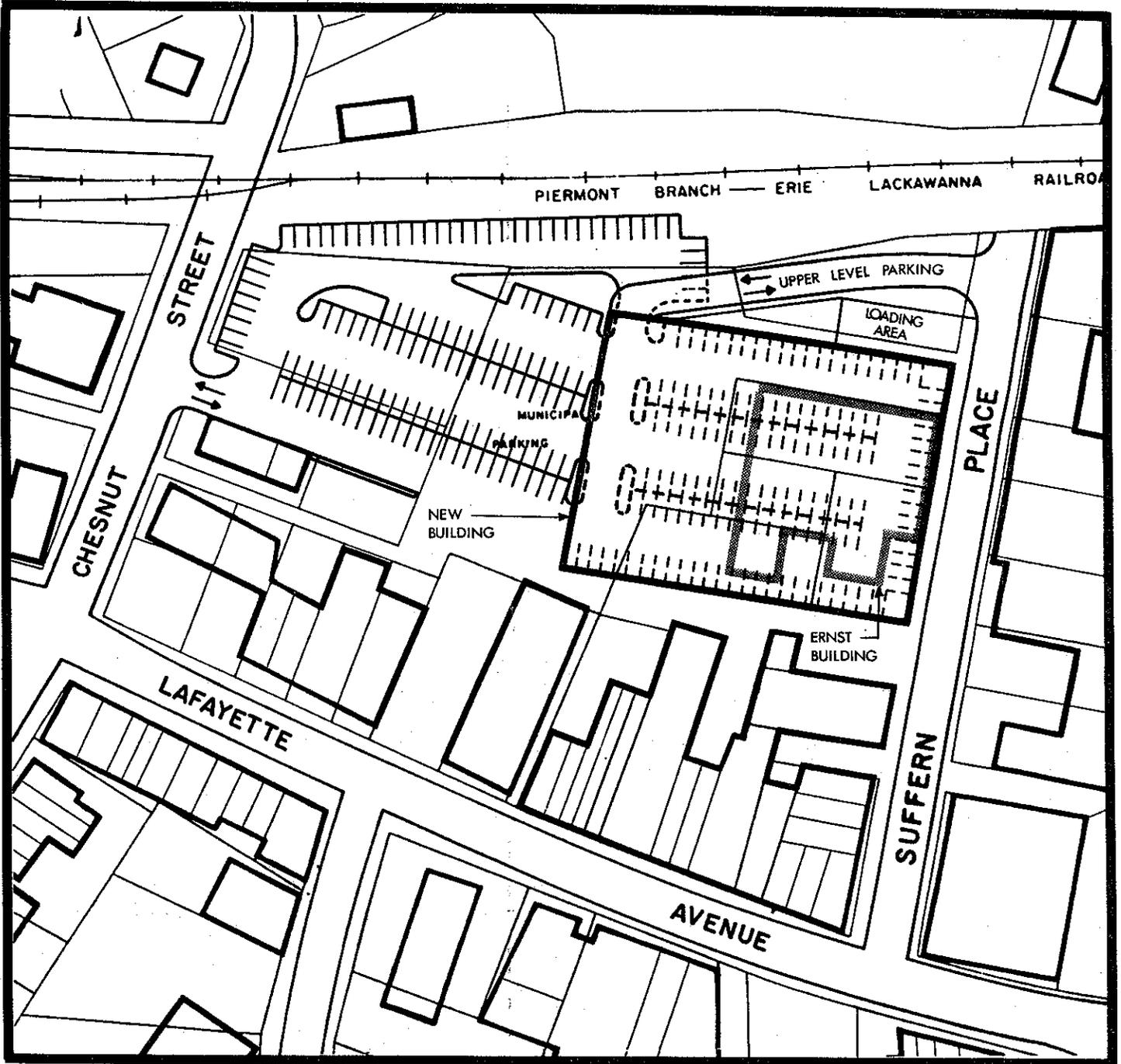
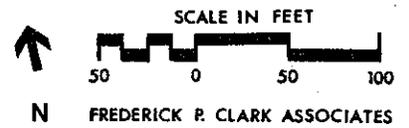


MUNICIPAL PARKING AREA / ERNST PROPERTY

Conceptual Sketch Layout - Alternative A

Multi-Story Commercial Building
(Approximately 20,000 sq. ft. per Floor)
355 Parking Spaces
(126 Additional Spaces)

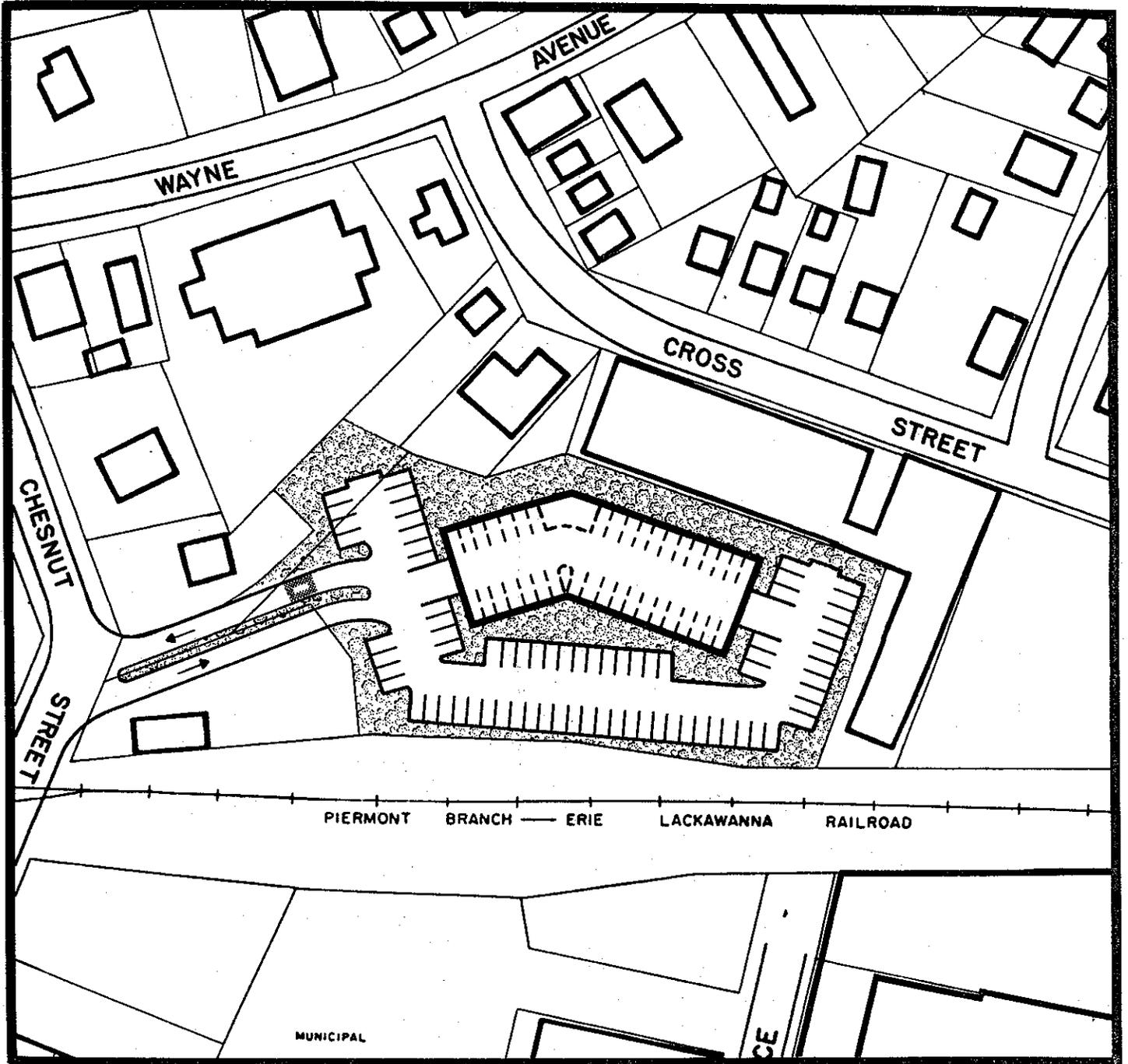
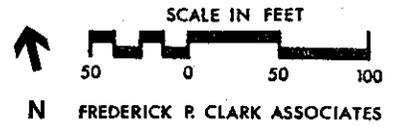
BUSINESS CENTER STUDY Village of Suffern, NY



MUNICIPAL PARKING AREA/ ERNST PROPERTY Conceptual Sketch Layout - Alternative B

One Story Commercial Building
(Approximately 50,000 sq. ft.)
400 Parking Spaces
(191 Additional Spaces)

BUSINESS CENTER STUDY Village of Suffern, NY



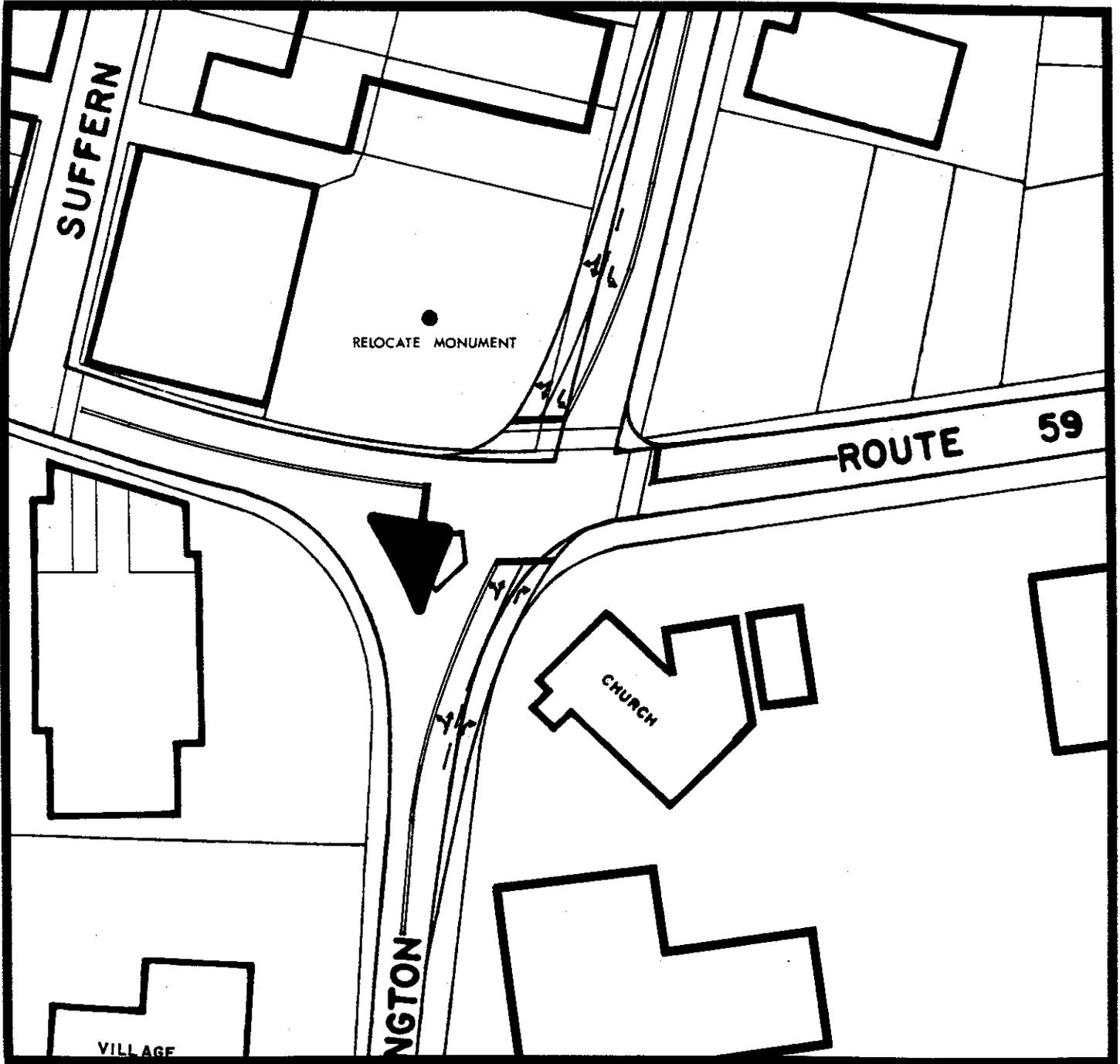
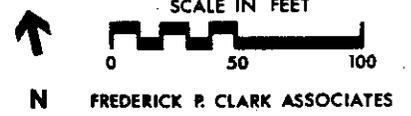
MULTI-FAMILY RESIDENTIAL DEVELOPMENT Conceptual Sketch Layout

Approximately 80 Dwelling Units
6 Stories of Building Over Parking
117 Parking Spaces

Figure 11

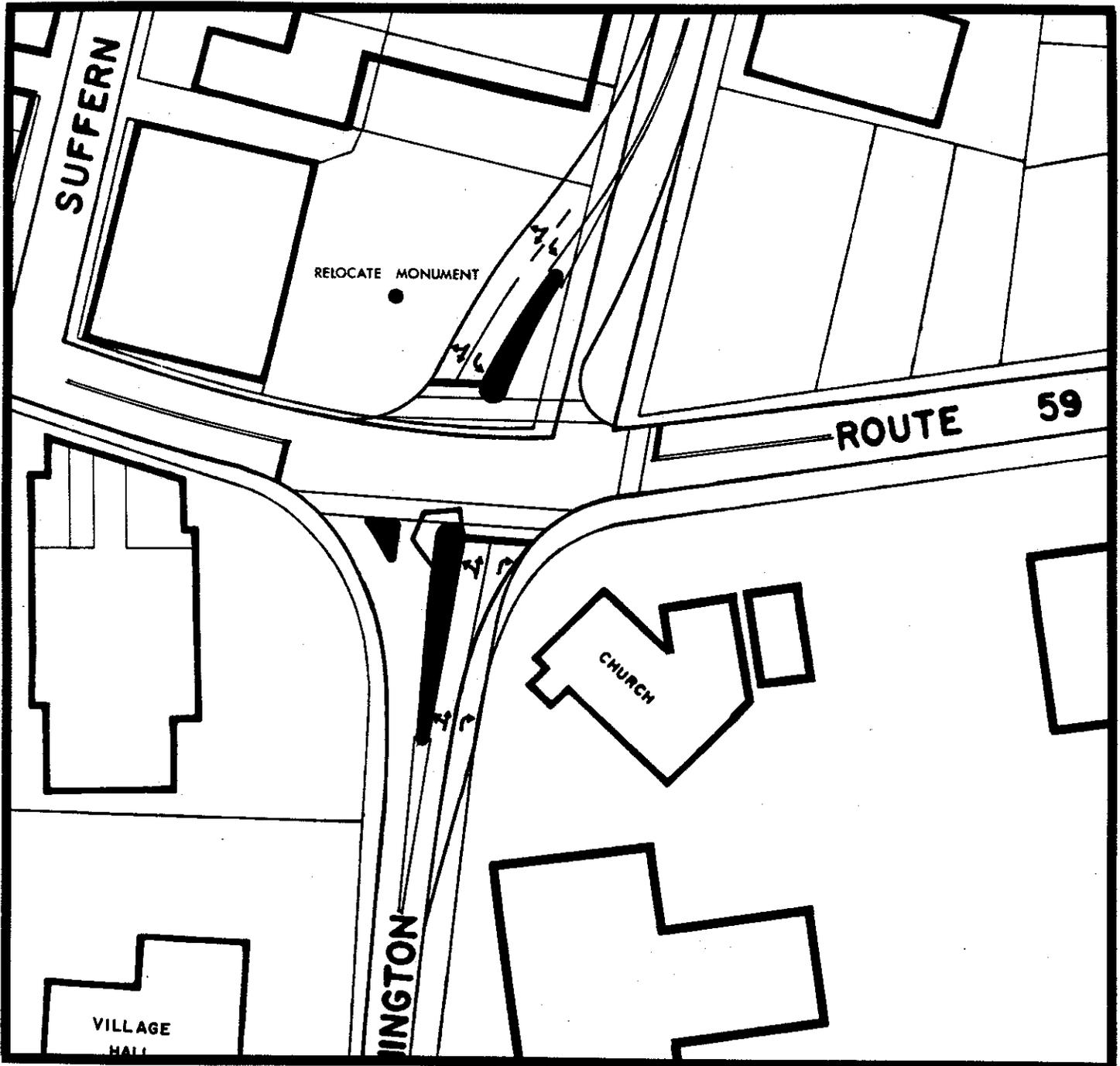
BUSINESS CENTER STUDY

Village of Suffern, NY



LAFAYETTE AVENUE AT WASHINGTON AVENUE
Conceptual Sketch Layout - Alternative B

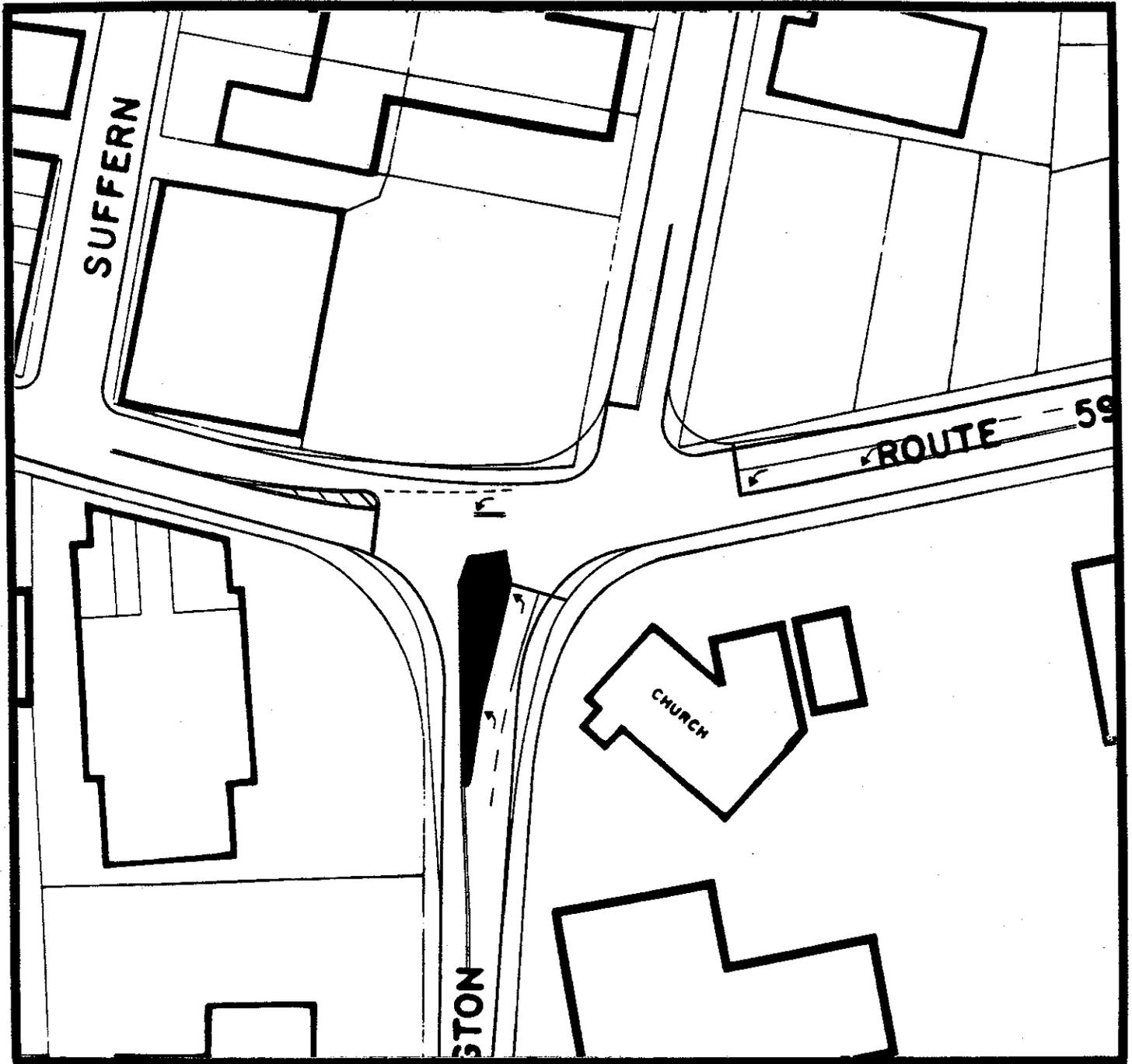
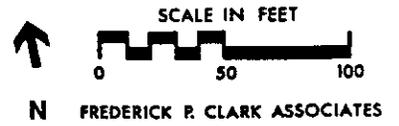
BUSINESS CENTER STUDY Village of Suffern, NY



**LAFAYETTE AVENUE AT WASHINGTON AVENUE
Conceptual Sketch Layout - Alternative C**

BUSINESS CENTER STUDY

Village of Suffern, NY

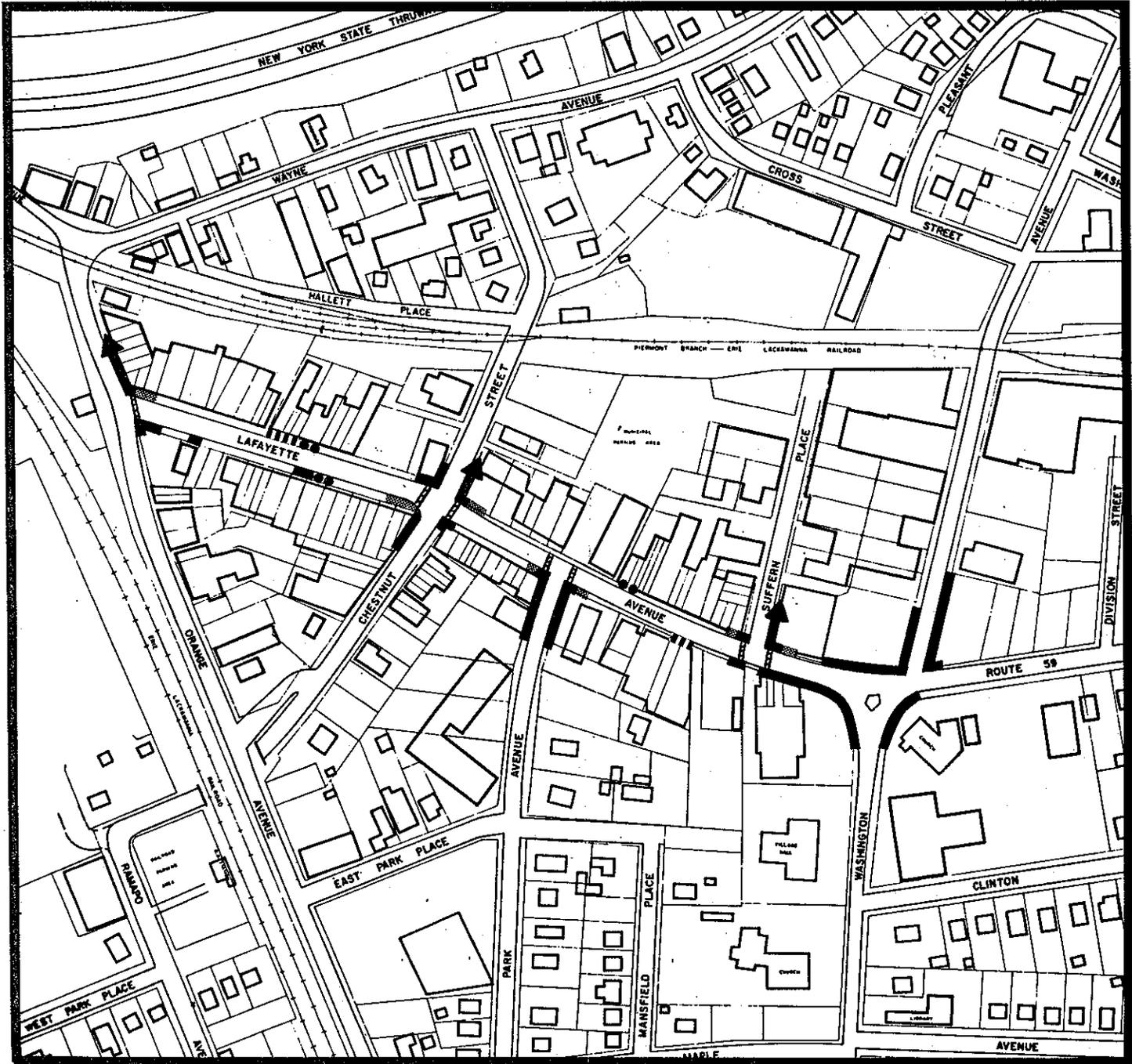


LAFAYETTE AVENUE AT WASHINGTON AVENUE
Conceptual Sketch Layout - Alternative D

BUSINESS CENTER STUDY

Village of Suffern, NY

SCALE IN FEET
 0 50 100 150 200 250
 N
 FREDERICK P. CLARK ASSOCIATES



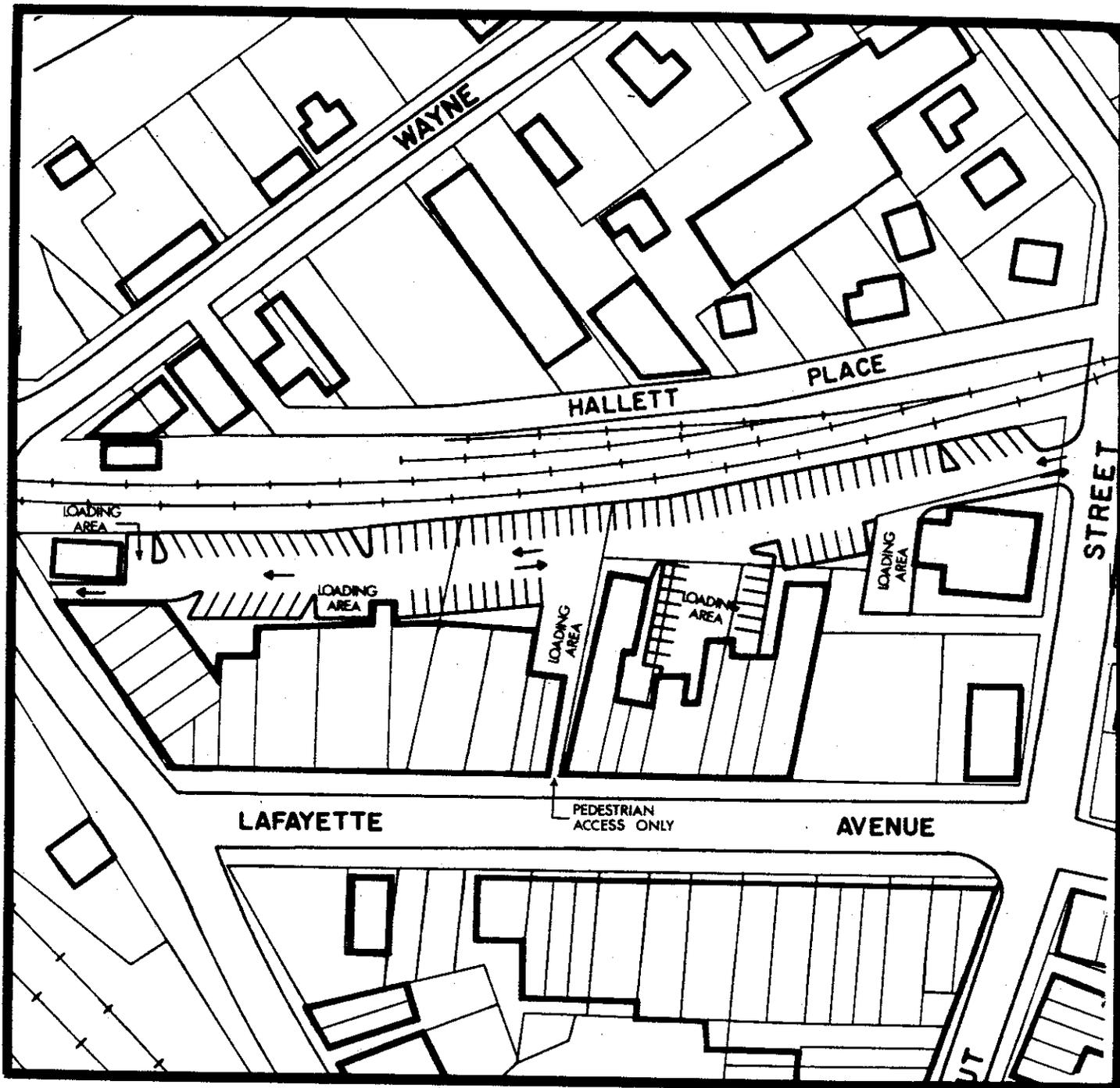
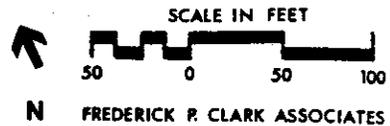
LAFAYETTE AVENUE PARKING AND LOADING AREAS; CROSSWALKS

- | | | | | | |
|--|--|--|-------------------------------------|--|------------|
| | Existing No-Parking Zone | | Existing Loading Zone | | Crosswalks |
| | Recommended Additional No-Parking Zone | | Recommended Additional Loading Zone | | |

Figure 16

BUSINESS CENTER STUDY

Village of Suffern, NY



NORTHWEST PARKING AREA

Conceptual Sketch Layout

93 Parking Spaces
(55 Additional Spaces)
5 Loading Zones

Appendix: Level of Service Definitions

LEVELS OF SERVICE At-Grade Intersections

At Level of Service "A" there are no loaded cycles (i.e., the load factor is 0.0) and few are even close to loaded. No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Typically the approach appears quite open, turning movements are easily made, and nearly all drivers find freedom of operation, their only concern being the chance that the light will be red, or turn red, when they approach.

Level of Service "B" represents stable operation, with a load factor of not over 0.1; an occasional approach phase is fully utilized and a substantial number are approaching full use. Many drivers begin to feel somewhat restricted within platoons of vehicles. Under typical rural conditions this frequently will be suitable operation for rural design purposes.

In Level of Service "C" stable operation continues. Loading is still intermittent, but more frequent, with the load factor ranging from 0.1 to 0.3. Occasionally drivers may have to wait through more than one red signal indication, and back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. In the absence of local conditions dictating otherwise, this is the level typically associated with urban design practice.

Level of Service "D" encompasses a zone of increasing restriction approaching instability in the limit when the load factor reaches 0.70. Delays to approaching vehicles may be substantial during short peaks within the peak period, but enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive back-ups.

Capacity occurs at Level of Service "E". It represents the most vehicles that any particular intersection approach can accommodate. Although theoretically a load factor of 1.0 would represent capacity, in practice full utilization of every cycle is seldom attained, no matter how great the demand, unless the street is highly friction-free. A load factor range of 0.7 to 1.0 is more realistic. In the absence of a local determination, use of 0.85 is recommended for isolated intersections. For interconnected signals a higher factor may be appropriate, as discussed in Chapter Ten. At capacity there may be long queues of vehicles waiting upstream of the intersection and delays may be great (up to several signal cycles).

Level of Service "F" represents jammed conditions. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration; hence, volumes carried are not predictable. No load factor can be established, because full utilization of the approach is prevented by outside conditions.

SOURCE: "Highway Capacity Manual", Highway Research Board, 1965