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The thoroughfares and traffic at Paterson

Herbert Siegfried
Swan, Paterson
(N.J.). City Plan ...



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The Thoroughfares and Traffic of Paterson

A REPORT
OF THE
CITY PLAN COMMISSION
PATERSON, NEW JERSEY

HOUSING STUDY GUILD,
151 East 50th St.,
New York City.

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PREPARED BY
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Report Approved by City Plan Commission,
JANUARY 20, 1922.

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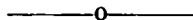
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PATERSON, NEW JERSEY

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FIGURE 1.—The Falls.

CHAPTER I.

CAUSES OF STREET CONGESTION IN PATERSON.

Defects in the Street Plan.

Street congestion in Paterson is due more to innate defects in the street plan than to the volume of traffic. The number of vehicles, though large at many intersections, is not so large as in itself to congest the streets were it not for the fact that the streets themselves are ill-designed to meet traffic needs.

The difficulty can be traced back directly to the original fathers of the city. Though the men responsible for laying the foundations of Paterson at first keenly felt the need of a plan, and through the efforts of Alexander Hamilton, at that time Secretary of the Treasury, took steps to secure the services of Major L'Enfant—who had just prepared plans for what was to become the capital city of the new country—to formulate plans for the industrial center projected at the falls of the Passaic, they felt that these plans when submitted to them were entirely too ambitious. And so it came about that though Paterson might at the very start have commenced to direct its growth under a plan evolved by America's first great city planner, decided to do nothing. Thenceforth for the next eighty years, the plan of the city was left entirely in the hands of individual land owners—whatever their whims or caprice dictated determined the character of the street plan for them, and they alone, assumed all of the responsibility of subdividing the vacant farmlands into city streets and building lots.

It was a most unfortunate circumstance that all direction guiding the development of the plan should have been removed at the very infancy of the city for the areas laid out in the early years were destined to become the downtown business section of the city as we know it today. The streets laid out then are as a rule all too narrow; wide

streets feed into narrow ones; there are frequent offsets and gaps without any streets at all; it is not uncommon for streets to change their direction without any apparent reason.

Main Street, having a maximum width of 77 feet at Market Street, tapers until it has a width of only 43 feet beyond Broadway. North of Market Street, the east and west streets are sufficiently frequent and direct to care for traffic, but south of Market Street there is no continuous, unbroken crosstown street uninterrupted by the railroad or Sandy Hill Park until Cedar Street is reached. Main Street is the only through north and south street in the entire business district. Washington, Church, Bridge and Paterson Streets, though narrow, would be admirable through streets paralleling Main if they were only through streets, but at the critical points, they either break into offsets or come to a dead stop. The result is that the through traffic utilizing these north and south streets is forced to utilize the east and west streets to continue on its way through the city. This, of course, unnecessarily congests the traffic on the cross streets. Some of these north and south streets, or rather pieces of streets, change their direction six or seven times, making awkward bends or coming to an abrupt stop. The consequence of this situation is that Main Street is overtaxed — being the only continuous through north and south street, it has to serve a disproportionate amount of the downtown traffic.

These earlier mistakes in street planning were, to a large extent, avoided in the street plan laid down for the outlying districts by the Board of Aldermen, in 1870, upon what is known as the "Goetschius Map", a map which established streets and blocks for all the then unsubdivided areas within the city. ✓



FIGURE 2.—Map of Paterson 1820. The earliest street map now extant. This is the plan Paterson deliberately adopted in lieu of the comprehensive plan prepared by L'Enfant in 1792.

But here a new difficulty developed—that of too much standardization. All streets were run in the same direction irrespective of topography, they were laid out of the same width without reference to the needs of different localities and the blocks were all made the same width.

The aggregate street area of the city, if consistently arranged along systematic lines would more than suffice for all its traffic requirements—future no less than present. In the downtown section, where wide streets are essential, only narrow ones have been provided; in the newer residence districts where narrower streets would be adequate, comparatively wide ones—that is streets 60 and 70 feet wide—come pretty near to being the rule.

Such wide streets as the city has have never been laid out with any all embracing vision of the city's needs as a whole. Here and there may be an isolated wide street or an isolated portion of a street that is wide, but there is no system of wide streets. Each wide street or portion of a wide street stands by itself, un-related and unco-ordinated with other wide streets with the consequence that the usefulness of the increased width of such wide streets as exist is greatly lost.

Broadway and Market Streets afford excellent illustrations of these anomalous conditions. Broadway, with a width of 80 feet east of East 18th Street narrows down to 66 feet between East 18th Street and Main Street. For a distance west of Main Street it is 60 feet wide but it ends with an outlet of only 38 feet into Prospect Street. Market Street with a width of 70 feet east of Madison Avenue, is only 50 feet wide between Madison Avenue and the Main Line of the Erie. Then it suddenly widens out to 90 feet, a width it maintains until Washington Street is reached where it shrinks to 60 feet. Beyond Mill Street, however, it again returns to a width of 50 feet.

Circumferential streets, the city has practically none at all. To go from any point on

the circumference of the city to any other point on the circumference, it is necessary to go through the center and then on out again. The downtown section is not only the distributing center for all the crosstown traffic no matter where it originates or where it goes, but it is also the distributing center for a large portion of the interurban traffic. Traffic from Little Falls to Ridgewood must go through the downtown congested district, congesting it still more, wasting its own time as well as the time of other traffic because there are no well established detours around the business district. The same is true of traffic originating in Pompton and destined for Hackensack or of traffic going from Clifton and Montclair to Suffern or from Hoboken to Singac—all of it must penetrate into the inner congested ring of the city to find a road that will lead to its destination.

Railroad Grade Crossings.

Quite aside from their danger to life and limb, the railroad grade crossings constitute one of the greatest obstructions to the free movement of traffic.

The railroads divide the city into six distinct sections. Traffic cannot, as a rule, go from one section to another without passing over at least one grade crossing and sometimes two or three—yes, even four or five. The grade crossings are 53 in number. How the free movement of traffic is interfered with by the railroad crossings is well illustrated by the conditions at Market Street and the Erie Station, one of the busiest traffic points in the city.

On June 14, 1921, the gates at this crossing were down 78 times for an aggregate period of 71 minutes between the hours of 8:00 a. m. and 6:00 p. m. This is at the rate of one gate between every seven and eight minutes. It is the exceptional fifteen-minute period that does not have at least one gate. During some hours, the gates are down nine, ten and even twelve times. No gate is down less than thirty seconds; an exceptional one may



FIGURE 3.—Map of Paterson 1835. The streets in Paterson were laid out as and when the farmers who owned the land wished to dispose of their property for building lots.

be down a hundred seconds. The great bulk of the traffic delayed is held up between 40 and 70 seconds. The average gate is down 55 seconds. More than 13% of the total traffic using the street during the day is retarded. The per cent. of the hourly traffic interrupted ranges all the way from 8.2% in the hour between 3 and 4 to 18.8% in the hour between 5 and 6. Considered by fifteen-minute periods instead of by hours, the proportion of traffic obstructed within the period reaches a maximum of 38%. In some fifteen-minute periods, the gates are closed more than a fourth of the time. On the average, at least twenty vehicles are obstructed every fifteen minutes. Often the number reaches thirty and forty. On occasions it even passes sixty.

The burden imposed upon traffic by the grade crossings is considerably greater than that indicated by any traffic counts. Quite irrespective of whether the gates are up or down, the very presence of the grade crossings retards all traffic using the streets. Every vehicle upon approaching a crossing usually slows down and many--street cars

for instance, invariably stop.

When much traffic collects behind a closed gate, it is not uncommon for the vehicles on either side to occupy more than the half of the roadway width to which they are entitled. Impatient to make a quick getaway, the traffic marshalls itself upon a broad front, sometimes the entire roadway width, only to find its progress blocked upon the opening of the gates by a like solid phalanx of vehicles opposing it on the other side. Then another wait ensues until the snarl in the traffic straightens itself out.

Every grade crossing disorganizes the separation so desirable between fast and slow vehicles. In moving through the streets, slow vehicles have their place next to the curb, fast vehicles next to the center of the street. But upon approaching a closed gate, each vehicle takes its place in line without reference to its speed. Several minutes may elapse after the gates are lifted before traffic can resume its normal flow.

Many vehicles upon nearing a crossing will race for it to anticipate the closing of the gates and thus obviate the wait incident to a

TABLE I—TOTAL HOURLY TRAFFIC BY KIND.
Market Street and Erie Railroad.
8:00 A. M. to 6:00 P. M., June 14, 1921.

	HOURLY											
	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	Total	
A—TOTAL TRAFFIC												
Autos -----	289	348	357	376	393	352	290	323	424	482	3634	
Trucks -----	143	171	160	132	102	106	109	142	135	116	1316	
Jitneys -----	57	20	20	37	51	42	29	43	51	48	398	
Trolleys -----	36	26	29	32	35	26	27	34	38	39	322	
Wagons -----	10	11	19	11	19	13	27	19	16	10	155	
Total -----	535	576	585	588	600	539	482	561	664	695	5825	
											% of Total Traffic	
B—TRAFFIC DELAYED BY RAILROAD GATES.												
Autos -----	28	50	39	39	45	47	50	22	82	88	490	64.4
Trucks -----	18	24	11	13	9	11	15	10	15	28	154	20.2
Jitneys -----	10	1	3	6	8	6	4	6	9	6	59	7.7
Trolleys -----	4	4	1	2	8	1	2	6	7	9	44	5.8
Wagons -----	4	1	1	--	3	--	2	2	1	--	14	1.9
Total Delayed -----	64	80	55	60	73	65	73	46	114	131	761	100.0
Per Cent. of Total Traffic	11.9	13.9	9.4	10.2	12.1	12.0	15.1	8.2	17.1	18.1	13.0	

TRAFFIC DELAYED BY RAILROAD GATES MARKET STREET AND ERIE RAILROAD 8 A.M. 6 P.M. JUNE 14, 1921

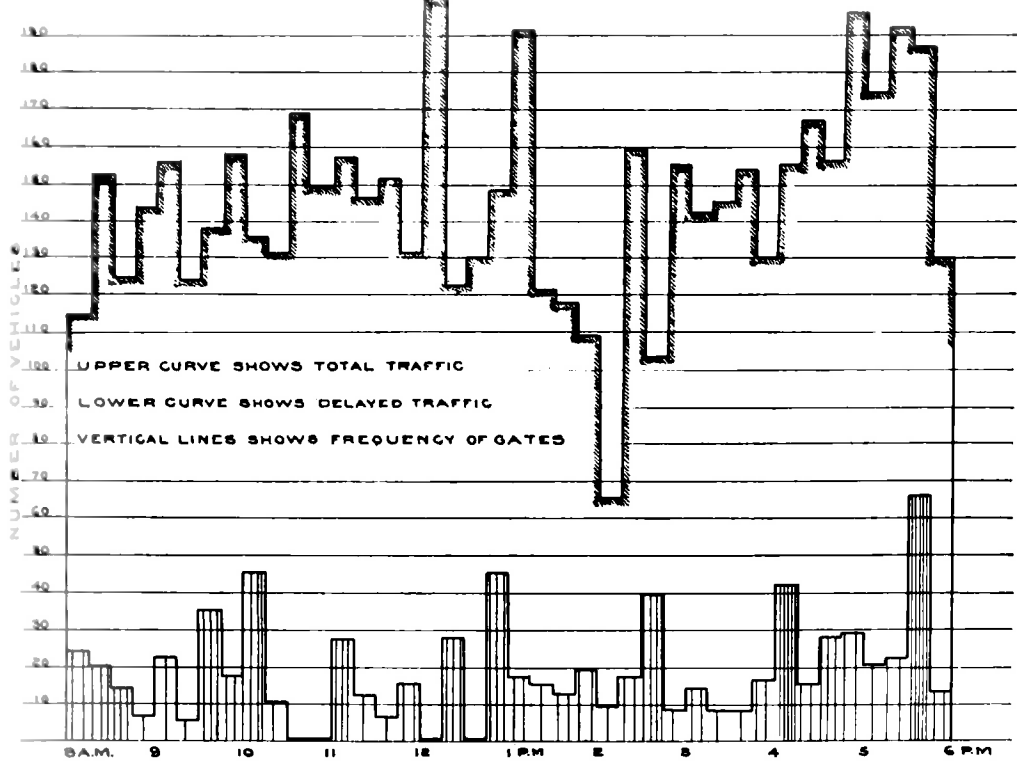


FIG. 4. TOTAL AND DELAYED TRAFFIC

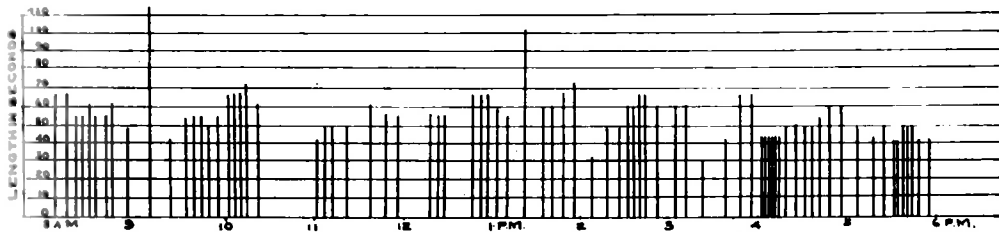


FIG. 5. LENGTH OF TRAFFIC DELAYS

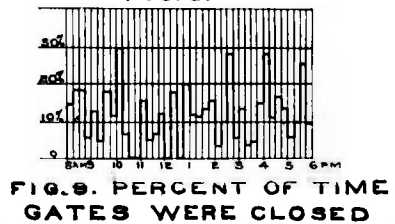
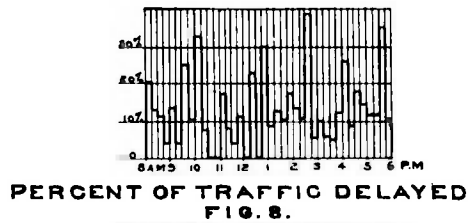
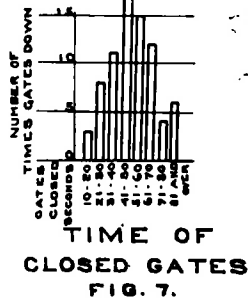
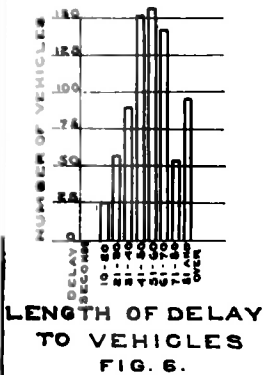




FIGURE 10.—The railroad gates on Market Street sometimes hold up as many as 60 vehicles in a fifteen minute period.



FIGURE 11.—Downtown Market Street has the generous width of 90 feet but at either end it is only 50 feet wide.

passing train. That the spectre of death sometimes plays with such dare-devil attempts is not enough to dissuade reckless drivers from taking the chance; they would risk life itself for the hilarious half mile they might ride while the train is going past.

The Trolleys.

The congestion of traffic in the downtown streets of Paterson, except in so far as it owes its existence to innate shortcomings of the street plan itself—such as too narrow streets, the lack of sufficient through streets, the absence of traffic circuits around the heart of the city and the presence of railroad crossings—finds its chief source not so much in the large number of vehicles using the streets as in the improper routing of jitneys and trolleys through the business district and the utilization of all streets for the parking of cars.

Four-fifths of the street mileage used by trolleys is so narrow that it accommodates but a single traffic unit on either side of the car tracks. The result is that where vehicles are parked alongside the curb, the traffic

must utilize the trolley space or stop. When the cars slow down, the traffic must slow down; when the cars stop, the traffic must stop—the streets are too narrow to permit the two kinds of traffic to proceed independently of each other.

The linear length of the trolley lines on streets of different widths is shown in Table II.

Everyone of the twelve trolleys in the city either uses or bisects the business portion of Main Street. Two of the lines, the Broadway and Park Avenue lines, operate as belt lines entering and leaving Main Street at Broadway and Market Streets respectively. The Haledon and Governor lines are through routes and also operate through the busiest section of Main Street. The four chief inter-urban lines, Hudson River, Passaic, Paterson and Main, all use the Broadway loop. The remaining four lines, Hawthorne, Riverside, Singac and Totowa, use the City Hall loop.

The distance on Main Street from Broadway to Market is only three blocks. There are but four intersecting streets in this stretch—Broadway, Van Houten, Ellison and Market. The trolleys stop at each of these

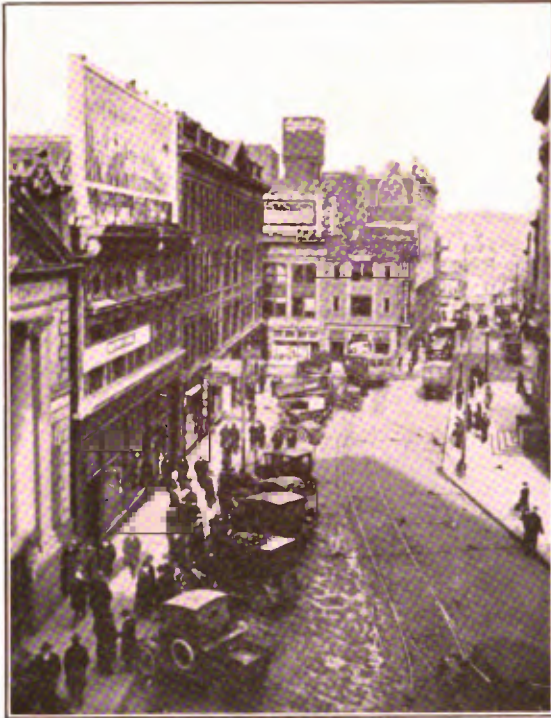


FIGURE 12.—A prohibited parking zone, but the cars don't know it.



FIGURE 13.—While the railroad gates are down, all traffic waits.

four intersections. Turns in and out of Main Street are made at all four of these streets and at three the trolleys not only turn on, but cross Main Street. At two intersections, Van Houten and Broadway, the trolleys turn in two different directions.

The result of this incessant stopping, turning off and on, crossing over and looping

around Main Street, of course, results in congestion. While the cars turn or cross Main Street, all traffic waits; when the cars stop, all traffic stops; and between the waits and stops, all movement of traffic is slowed down to a point where it barely crawls.

The fastest cars on Main Street sometimes attain a speed of eleven miles an hour but

TABLE II. TROLLEY ROUTES ON STREETS OF DIFFERENT WIDTHS.

	WIDTH OF STREET IN FEET									
	40	50	55	60	66	70	75	80	90	
	LENGTH OF TROLLEY ROUTES IN FEET									
Single Track	2,075	25,325		6,425		13,050		2,900		49,775
Double Track		4,100	2,600	10,825	31,900	2,550	5,575	6,800	1,450	65,800
Total	2,075	29,425	2,600	17,250	31,900	15,600	5,575	9,700	1,450	115,575
Per cent.	1.8	25.5	2.2	14.9	27.6	13.5	4.8	8.4	1.3	100.44

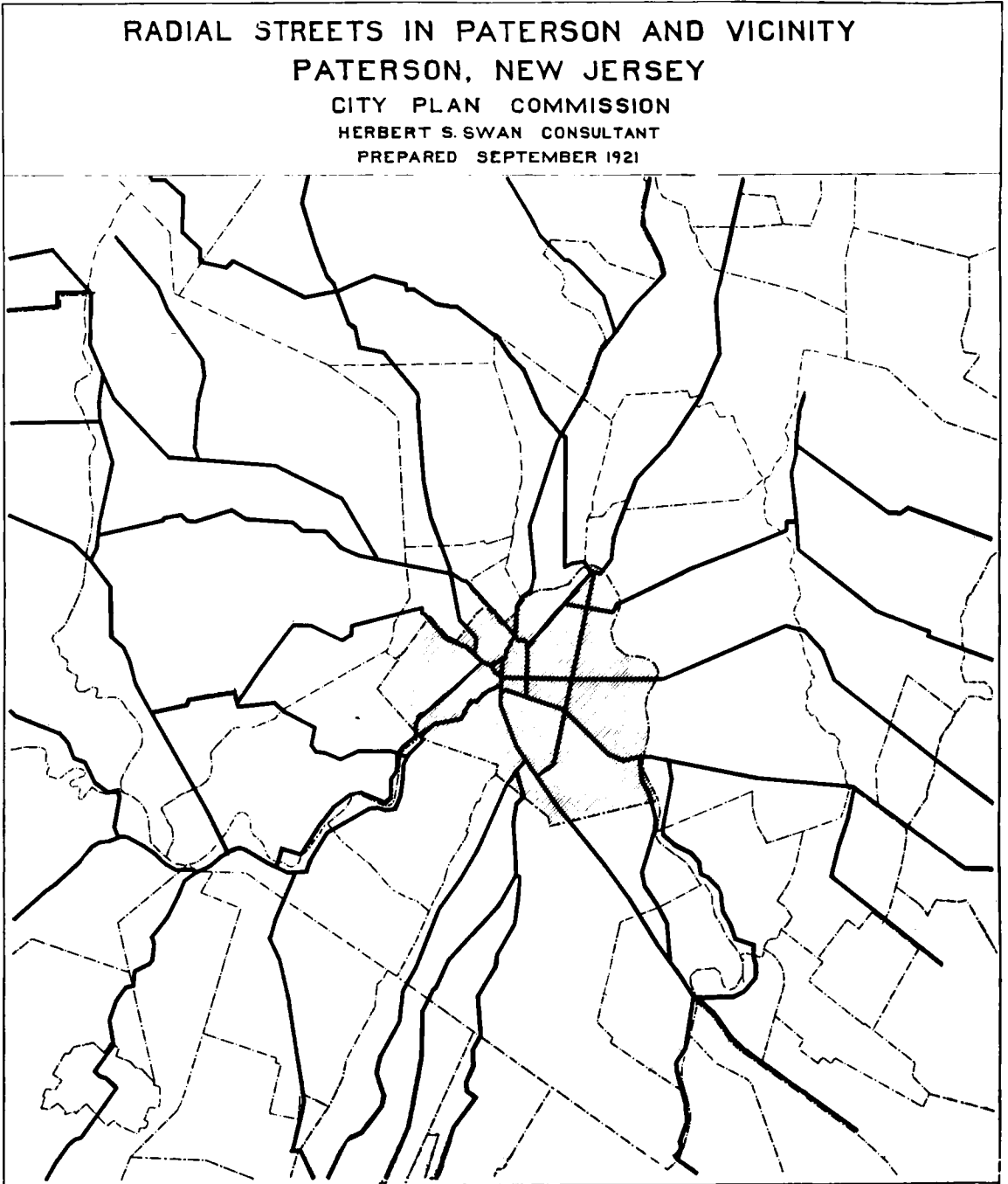


FIGURE 15.—Paterson would have an excellent system of radial streets if they were only sufficiently wide.

urban lines. The local lines transport about one-half as many passengers as the trolleys. In August, 1921, the traffic for the local lines totaled 1,303,576 passengers. This is the equivalent of a daily average of 600 passengers per bus for each of the seventy-two jitneys operating on the several lines. How many passengers the suburban lines carried is not ascertainable.

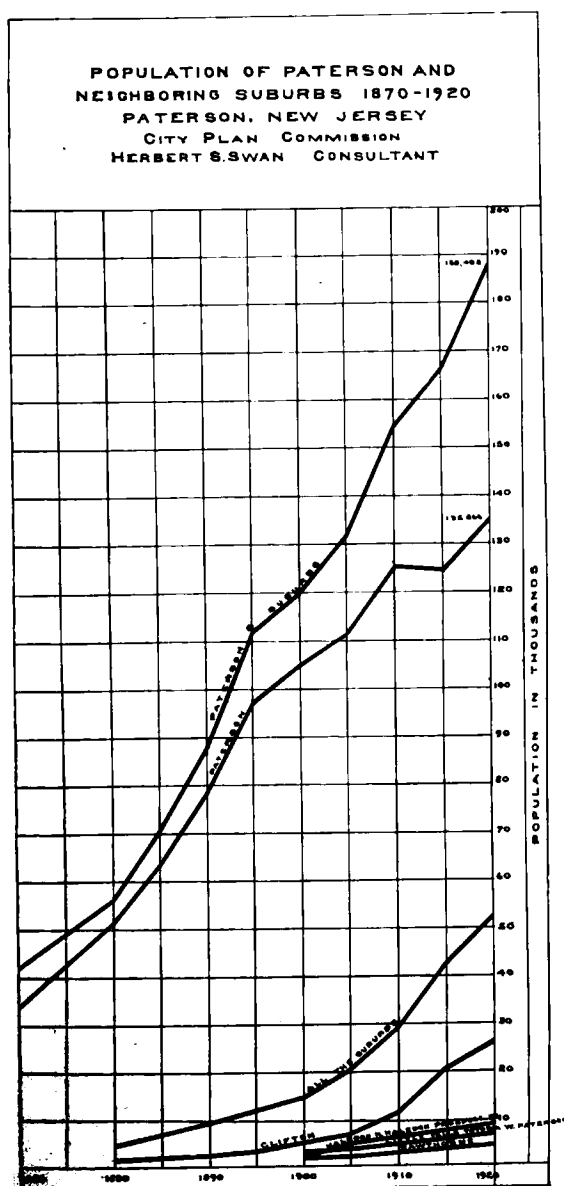


FIGURE 16.—The suburbs on the city's fringe are growing more rapidly than the city itself.

The schedules of the local lines call for 1894 single trips daily between the hours of 8:00 a. m. and 6:00 p. m. The schedules for the thirty-one interurban buses call for 194 single trips during the same ten-hour period.

The main difficulty with the jitneys, from a traffic point of view, is that there has been no plan in laying out the different routes. Each route appears to have been laid out with sole reference to the wishes of the original applicant for the route privilege. That each local line has done its best to penetrate into the congested district is evidenced by the fact that every one of them either uses or crosses that part of Main Street between Broadway and Market.

Two of the local lines use stub end terminals; the other nine local lines come into the downtown section, loop and go out again. Each of these lines makes its own loop. The interurban lines use four more loops so that in all there are no less than thirteen separate and distinct different jitney loops in the business district. The result of all these loops is that the jitneys turn at practically every street intersection. At some of the downtown intersections, as at Ellison and Washington, the jitneys turn in four different directions.

There are sixteen street intersections in the area bounded by Main, Market, Church and Broadway. At present every one of these intersections, except the one at Church and Broadway is used for a jitney turn. Altogether, the jitneys make thirty different turns at these fifteen street intersections, a single turn being made at five intersections, two turns at seven intersections, three turns at one intersection and four turns at two intersections.

The result of this chaotic arrangement of the jitney routes is needless congestion and nobody suffers more from it than the patrons of the jitneys and the jitneys themselves.

Parking.

The parking question has become, within



FIGURE 17.—Madison Avenue, one of the city's most important thoroughfares is cut in two at Ellison Street.



FIGURE 18.—These cheap wooden buildings are the only obstruction preventing Madison Avenue from becoming a continuous crosstown street.

the last few years, one of the most aggravated traffic problems. Cars must be parked, and parked conveniently to the destination of the people using them but where to park them except in the streets where they deprive other vehicles of the facility of using the streets is a problem which no city has solved satisfactorily.

Whether a particular space in the roadway shall be occupied by a standing or by a moving vehicle is not the question. Nor is it a question of whether a given vehicle shall be allowed to stand or be forced to move. It is much broader than either of these alternatives for in the more acute cases it squarely presents the issue whether standing vehicles shall be permitted to drive moving vehicles entirely off the streets.

A vehicle has as much right to stop as it has to move but its right to stand in the streets is not equal to its right to circulate. The purpose of a street is to serve as a highway, not as a storage yard. To permit vehicles to stand in the streets as long as they might choose results, where there is a considerable amount of traffic, in barricading the streets to all traffic. To make parking spaces of streets none too wide to care for circulating traffic must inevitably result in diverting traffic to other streets where it can

move more freely.

The maximum number of cars parked in the business district at one time during the day is ordinarily between 12.00 p. m. and 1.00 p. m. when it sometimes is as high as 700 cars. Many cars are parked in the streets the entire day. On secondary streets, this is of minor importance but when cars park on Main Street for five and six hours, the consequences are too serious to ignore.

Main Street is THE retail street and is dependent as no other downtown street for its business upon the volume of traffic. Anything that detracts from Main Street's accessibility to the buying public is a direct stab at its business prestige; anything that increases the number of people frequenting the street tends to enhance its potential opportunities for business.

Out of the 235 cars parked on the single block on Main Street between Ellison and Van Houten Streets during the ten hours from 8:00 a. m. to 6:00 p. m., on June 20, 1921, ten cars stood at the curb for periods varying from over two hours to six hours and five minutes. The total parked car hours for the 235 cars was one hundred thirty hours and forty-five minutes; that for the ten cars parked more than two hours, thirty-three hours and twenty-seven minutes. The aver-

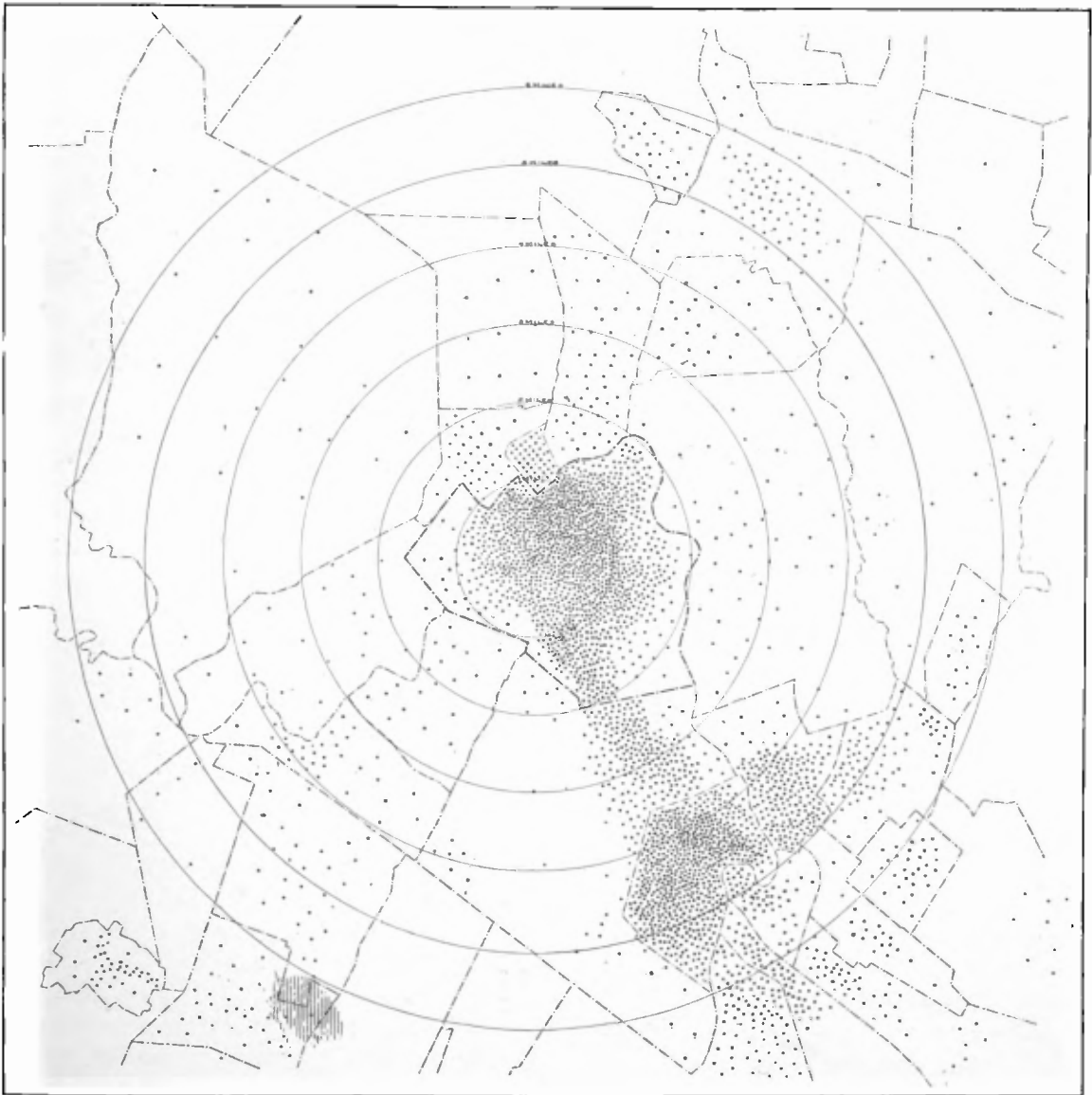


FIGURE 19.—Distribution of population, Paterson and vicinity 1920. Each dot represents 100 people.

age parked time for all cars was thirty-three minutes per car; for cars parked over two hours, three hours and twenty minutes per car. The cars parked over two hours, though they constituted only 4.2 per cent. of the total cars parked in the block, consumed 28.7 per cent. of the total vehicle hours parked by all the cars.

More than half of the machines parked were parked for less than fifteen minutes. Seven-tenths were parked for less than half an hour. Only one machine in seven parked longer than one hour. Yet the machines parked more than an hour consumed 55 per cent. of the total time parked by all the machines.



FIGURE 20.—Some cars park on the busiest streets all day long.



FIGURE 21.—The railroad gates at Market Street are down once every seven minutes during the day.

TABLE III.

PARKED CARS

Main Street Between Ellison and Van Houten Streets
8:00 a. m. to 6:00 p. m., June 20, 1921.

Time Parked (Minutes)	Machines Number	Per Cent.	Parked Time Minutes	Per Cent.
1— 5	26	11.1	106	1.4
6— 10	94	35.8	792	10.1
11— 15	17	7.2	229	2.9
16— 20	21	8.9	402	5.1
21— 25	2	.8	42	.5
26— 30	17	7.2	503	6.5
31— 40	19	8.2	687	8.7
41— 50	12	5.1	566	7.2
51— 60	4	1.7	235	3.0
61— 90	14	6.0	1064	13.5
91—120	9	3.8	972	12.4
121 plus	10	4.2	2247	28.7
Total	235	100.0	7845	100.0

At its busiest point, between Ellison and Van Houten Streets, Main Street passes an average of 2.25 vehicles per minute per traffic unit of roadway width during the maximum traffic hour. With a double track trolley in the center, its roadway width, if free of all obstructions at the curb, readily passes one traffic unit on either side of the

car tracks, but with vehicles parked at the side, all traffic is forced onto the tracks. Every machine parked for an hour elbows 135 vehicles out of their alignment, but the annoyance suffered by traffic exceeds the embarrassment to the machines hourly thrown upon the trolley tracks by the parked cars. One-half of the roadway width, and that the

most effective half so far as ordinary vehicular traffic is concerned, is completely paralyzed so that traffic requiring two roadway units for its free movement is forced into one where it must fall into an agonizing goose-step behind trolleys which, through a series of jerks and starts sometimes manage

to cover only two or three miles an hour. The combined result of these different factors operating together is that the traffic along Main Street often backs up and fills the street not only to the first but even the second and third cross street to the rear.

TABLE IV.

TYPICAL SAMPLES OF "PARKING HOGS"
Main Street Between Ellison and Van Houten Streets
8:00 a. m. to 6:00 p. m., June 20, 1921

Time of Arrival	Time of Departure	Parked Time	
		Hours	Minutes
9:15	11:35	2	20
9:40	11:55	2	15
10:30	12:56	2	26
11:35	2:05	2	30
11:45	5:50	6	5
12:25	5:45	5	25
12:30	4:00	3	30
1:35	5:05	3	30
2:15	5:00	2	45
3:15	5:56	2	41
Total Parking Time for Above 10 Cars -----		33	27
Average Parking Time Per Car -----		3	20



CHAPTER II.

REGULATING TRAFFIC TO RELIEVE STREET CONGESTION.

I.—Changing Character of Traffic.

Very few traffic counts are available to enable one to compare present day congestion in Paterson with that of past years. The only clockings in existence are those made in connection with the grade crossing case before the Supreme Court in 1913. Although these counts were all made at points where streets cross the Main Line of the Erie Railroad, they are indicative of the general traffic condition existing throughout the city at that time.

Fig. 22 is a comparative study of the hourly traffic at Market Street and the Erie Railroad in 1913 and 1921.

This diagram shows that the total traffic during the eight years has more than doubled. In 1913, the horse-drawn vehicles still exceeded the automobiles in number. Today the automobile traffic alone is greater than the street traffic in 1913. The motor truck entirely unknown in 1913 is now more numerous than was the automobile eight years ago. The number of trolleys has remained about constant, the increase in traffic being taken up by the jitneys, a means of transportation that has been entirely developed during the past eight years. The jitney traffic on Market Street today, in fact, exceeds the trolley traffic. The only kind of traffic that has diminished is the horse-drawn traffic, the number of wagons and carriages being today less than one-half as numerous as the street cars of 1913.

One minute a street may be jammed with vehicles; the next comparatively bare of traffic. Traffic seems to come in waves—it is seldom uniformly even in its flow. The traffic of one fifteen-minute period as contrasted with a succeeding one frequently varies twenty or thirty per cent., sometimes a hundred per cent., and occasionally even

two or three hundred per cent.

The volume of traffic is constantly fluctuating; it varies every minute of the day. And yet the flow of traffic in different streets taken by hours is surprisingly constant between the hours of 8:00 a. m. and 6:00 p. m. As a rule, during this period, the traffic volume of the maximum hour exceeds the flow of the average hour by approximately the same amount that the traffic volume of the average hour exceeds the flow of the minimum hour. In either case, the plus or minus above or below the average traffic hour is about 16 per cent. In other words, the total spread between the busiest and quietest hour is equal to about 32 per cent. of the volume of the average traffic hour. The total

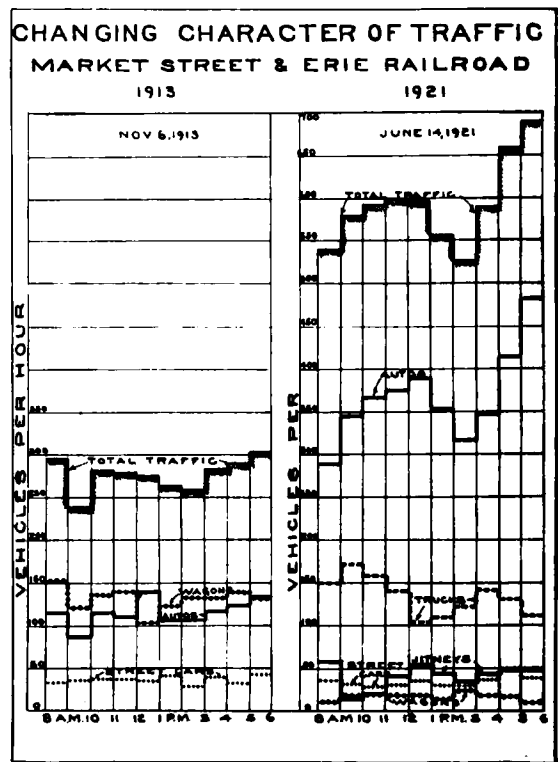


FIGURE 22.—The automobile truck and jitney were both unknown in 1913.

TABLE V.

HOURLY NUMBER OF VEHICLES AT DIFFERENT INTERSECTIONS.

1921	HOUR										Total Vehicles
	A. M.					P. M.					
	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	
Market and Main, Aug. 15-----	471	536	584	585	543	593	639	573	554	556	5634
Van Houten and Main, June 23	494	550	559	576	530	440	473	426	455	481	4984
Main, B'way and West, Aug. 6	434	482	516	549	486	606	595	595	594	616	5473
Paterson and B'way, Aug. 11	501	587	564	610	520	647	597	506	588	571	5691
Bridge, Church and Broad- way, June 13 -----	482	589	576	623	573	611	578	611	583	657	5883
B'way and Erie R. R., June 13	331	348	336	319	334	424	352	305	279	346	3374
Market and Erie R. R., June 14	535	576	585	588	600	539	482	561	664	695	5825

hourly number of all kinds of vehicles at typical street intersections is shown in Table V.

The proportion of through traffic to cross traffic differs at every intersection. As through traffic is defined as the traffic on the street utilized by the larger number of vehicles, it is, of course, always greater than the cross traffic. In extreme cases, as at Van Houten and Main Streets, this disproportion between through and cross traffic may be as high as twelve to one. At the ordinary downtown intersection on Broadway and Main Streets, about one-half of the total traffic is through traffic; one-seventh cross traffic;

one-sixth traffic turning to the right, and one-sixth traffic turning to the left. The per cent. of traffic taking different directions at typical intersections is shown in Table VI.

The relative congestion at different street intersections is exceedingly difficult to appraise not only for the reason that different vehicles obstruct traffic in varying degrees but because their obstructiveness varies within a wide range under different conditions. Were the size, speed and flexibility of vehicles the only factors entering into their obstructiveness to traffic, then each type of vehicle, whether it were an automobile, a truck, a trolley car or a wagon, could be

TABLE VI.

PER CENT OF TRAFFIC TAKING DIFFERENT DIRECTIONS.

	Through	Cross	Right Turn	Left Turn
Main and Market -----	34	17	23	26
Main and Van Houten -----	71	6	13	10
Main and Ellison -----	64	13	15	8
Broadway and Paterson -----	48	25	15	12
Broadway, Bridge and Church	38	12	23	27

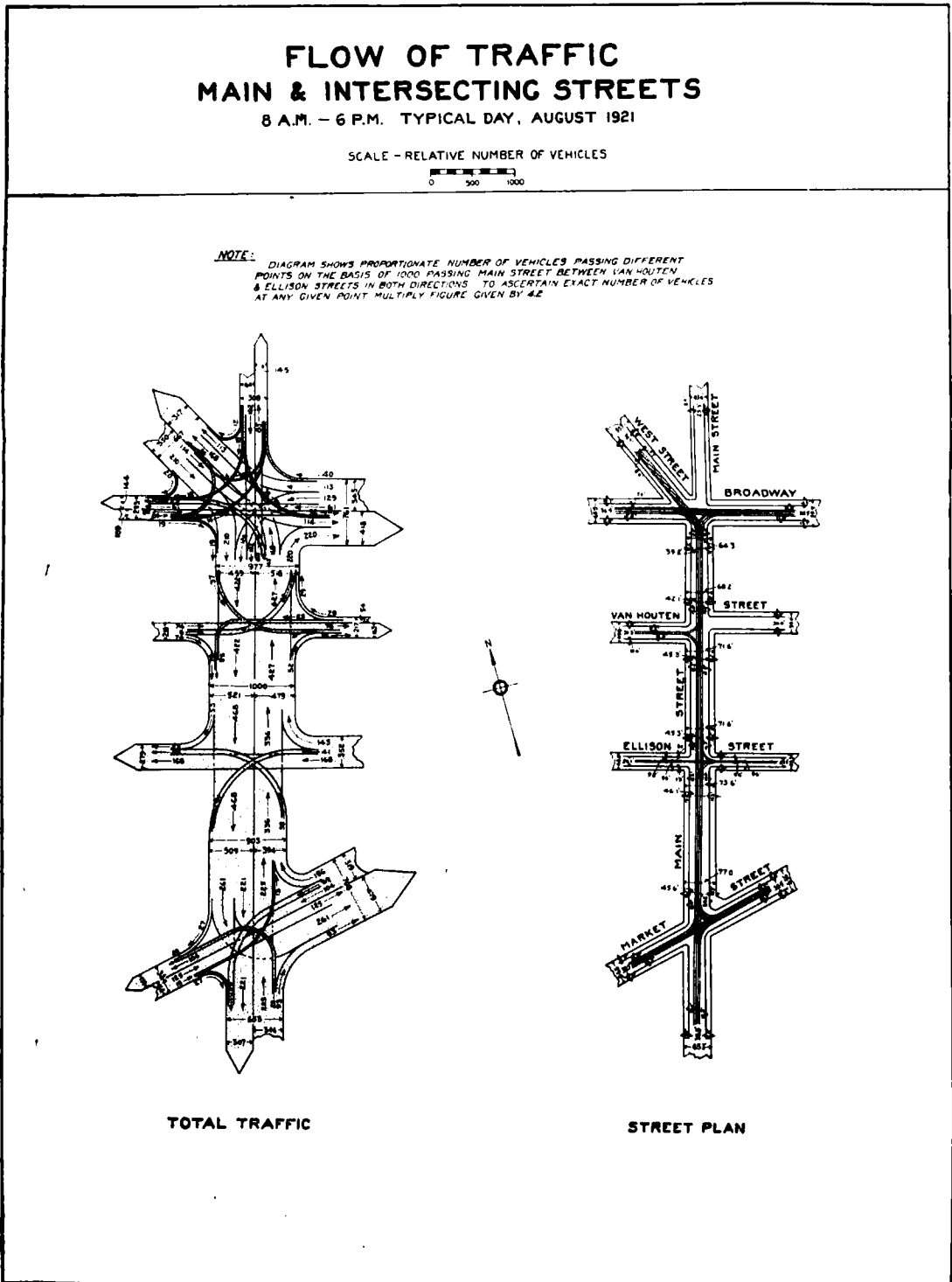


FIGURE 23.—Note that more traffic turns east from Main Street into Market than continues south on Main Street. Compare the relative complexity of the traffic movement at different intersections and the effect of one-way traffic.

given a weight in proportion to its obstructing character. This would enable one to compute the volume of traffic in terms of obstructing units, thus reducing traffic conditions at different street intersections to the same common denominator each comparable with the other.

But the subject is far too complex to admit of any such ready solution. The very same vehicle moving in a different direction or over different terrain may increase or decrease its obstructive character. Obviously a vehicle paralleling the main line of travel obstructs traffic less than one cutting across it at right angles; a vehicle turning to the right retards movement less than one turning to the left; a vehicle negotiating an obtuse angle holds back traffic less than one negotiating an acute angle; a vehicle crossing a narrow street occupies the space within the intersection a shorter time than one crossing a wide street; a vehicle traveling over level ground demands less headway than one descending a steep hill.

II.—The Separation of Fast and Slow Traffic.

There is probably nothing that retards the free movement of traffic more than an intermingling of fast and slow vehicles. The speed of the slowest vehicle tends to become the speed of all the vehicles using a street. The twenty-mile-an-hour vehicle cannot travel faster than the five-mile-an-hour vehicle in front of it. Promiscuously mixed traffic invariably results in street congestion.

With the advent of the automobile, the variation in speed has spread over a wide range. For horse-drawn vehicles, it ranges from 3 to 9 miles an hour; for motor vehicles up to 50 miles an hour. The fastest horse-drawn vehicle travels about three times as fast as the slowest. The fastest automobile, on the other hand, travels about twenty times as fast as the slowest horse-drawn vehicle. The intermixture of fast and slow vehicles causes congestion—the slow vehicles prevent

the fast ones from clearing off freely. Each possible opening in the jam invites the faster vehicles to attempt dangerous passages in and out among the slow ones.

Even though a commercial vehicle may not obstruct pleasure traffic on account of its speed, it may do so on account of its size. Many of the motor trucks manufactured to-day have an excessive width. They are so wide that instead of occupying six or seven feet of roadway width, they occupy eight or nine. Such a vehicle, in other words, monopolizes a space equal to that used by two normal traffic units. The disastrous effect of these vehicles on the free movement of traffic in a street used primarily by fast traffic is obvious. The presence of even a few such vehicles has the same effect as a narrowing of the roadway width.

If these wide vehicles are also slow vehicles, and this is generally the case, their effect upon street congestion is doubly bad; they not only reduce the effective width of roadway but they also reduce the speed of all traffic. All vehicles in passing such a truck are obliged to go out of their alignment. If the street has a traffic capacity of three units in either direction, and the truck itself consumes two of the three, there will be a space between the truck and the center of the street for but one traffic unit. With two or three lines of fast traffic eager to get through a space having a width adequate for but one line of traffic, the effect is not only fatal to all speed in movement but actually dangerous to life and limb.

No attempt is made in the downtown section of Paterson to separate the slow from the fast traffic. This is responsible, to no small degree, for many of the traffic jams afflicting the downtown streets. The number and per cent. of different kinds of vehicles making up the traffic at different points is shown in Table VII.

Segregating different kinds of traffic on different streets makes them safer for both pedestrians and vehicles. The mingling of

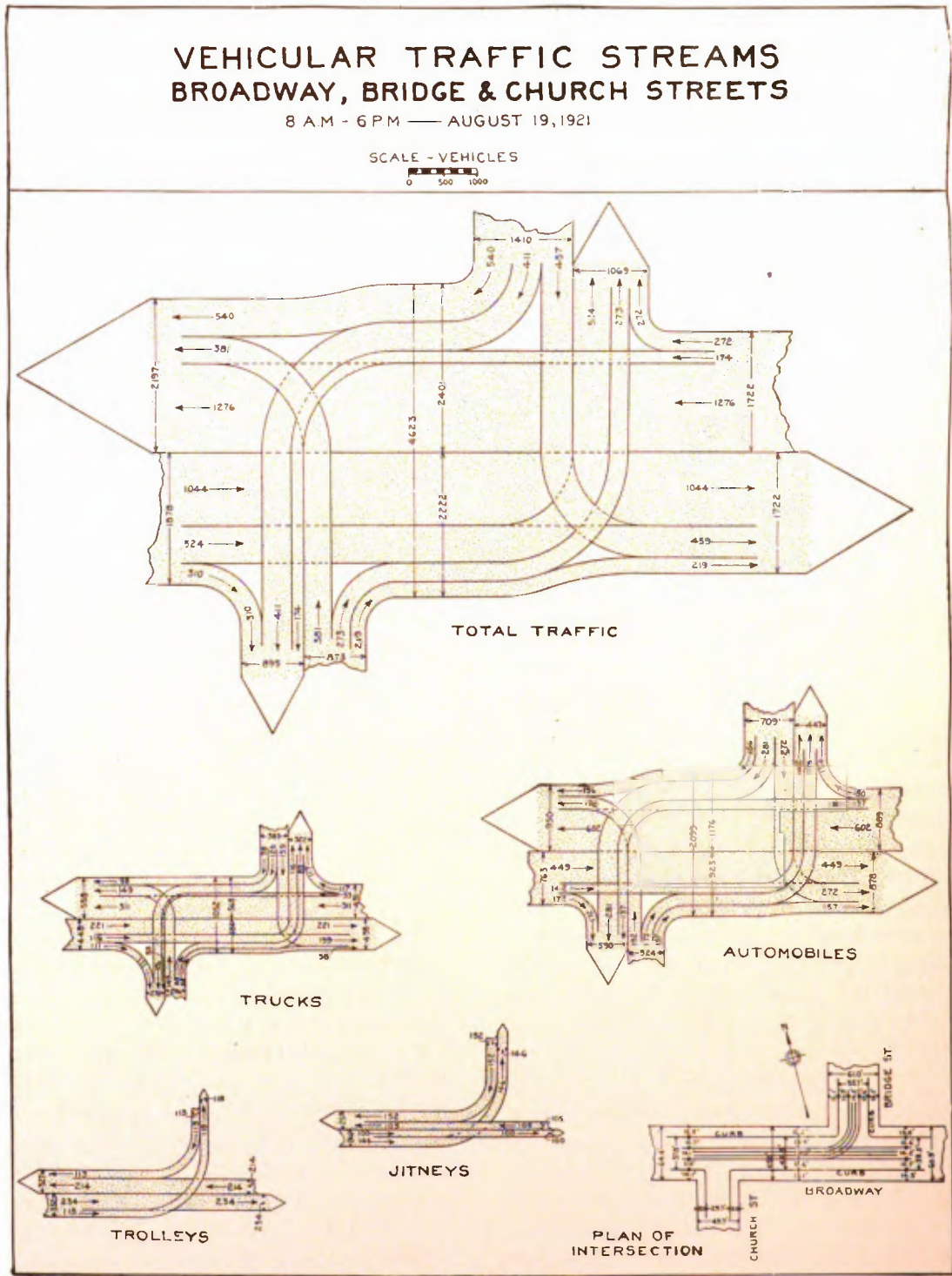


FIGURE 24.—An offset intersection of streets reduces the traffic capacity of both streets: first, by necessitating a longer path through the intersection; and second, by requiring all cross traffic to make two turns within the intersection.

TABLE VII.

KINDS OF VEHICLES AT DIFFERENT INTERSECTIONS.

	Autos	Trucks	Jitneys	Trolleys	Wagons	Total
			Number			
Market and Main -----	2594	1124	660	1103	153	5634
Van Houten and Main -----	1955	1182	647	1131	67	4982
Ellison and Main (half day)---	945	447	379	667	60	2498
Main, Broadway and West ---	2243	1369	566	1077	218	5473
Paterson and Broadway -----	2882	1838	160	470	341	5691
Bridge, Church and Broadway--	2885	1588	503	679	228	5883
Broadway and Erie R. R. ----	1906	681	182	490	115	3374
Market and Erie R. R. -----	3634	1316	398	322	155	5825
			Per cent.			
Market and Main -----	46.1	20.0	11.8	19.6	2.5	100.0
Van Houten and Main -----	39.2	23.8	13.0	22.7	1.3	100.0
Ellison and Main (half day)---	37.6	17.8	15.4	26.8	2.4	100.0
Main, Broadway and West ---	40.0	25.5	10.4	20.0	4.1	100.0
Paterson and Broadway -----	50.7	32.3	2.8	8.2	6.0	100.0
Bridge, Church and Broadway--	49.0	27.0	8.6	11.6	3.8	100.0
Broadway and Erie R. R. ----	56.5	20.2	5.4	14.5	3.4	100.0
Market and Erie R. R. -----	62.5	22.6	6.8	5.5	2.6	100.0

different kinds of traffic on the same street confuses both the driver and the man on foot. Pedestrians crossing a roadway can allow for a steady stream of vehicles passing at an even speed. They can allow for slow traffic when all the vehicles are slow. They can allow for fast traffic when all the vehicles are fast. But traffic of an intermittent type catches the pedestrian off his guard. This is clearly demonstrated by the large number of persons struck down by fast vehicles when passing behind of or in front of a slow vehicle. When crossing the roadway behind a standing or slow moving vehicle, the pedestrian is knocked down by a fast vehicle coming in the opposite direction. When crossing the roadway in front of a stationary or slow moving vehicle, he is trapped by a fast vehicle traveling in the same direction.

III.—Parking.

In approaching the subject of parking, it is well to remember that people must park their cars; that they must park them as conveniently to their destination as possible; and that the length of time they may park must

be as variable as the length of time it takes them to perform their several errands. Many people will wish to park a few minutes; some several hours; others all day; but whether the time is short or long, they must be enabled to park somewhere not too far from their destination.

It is not to be assumed, however, that everybody has a right to park wherever he chooses or for as long a time as he pleases. When the public is embarrassed more than the individual is inconvenienced, then the privilege must be curtailed. On some streets, it may have to be limited to a short period; on others entirely prohibited. As the population and business in a community increase, its parking regulations will have to be revised—the parking time limits reduced, and the prohibited zones enlarged until finally machines will, in a large portion of the downtown business area, be allowed to stop merely for a sufficient time to pick up and discharge passengers.

When that time arrives, parking spaces must be provided off the public streets. To a degree the need may be met by commercial garages; private parking spaces; or perhaps

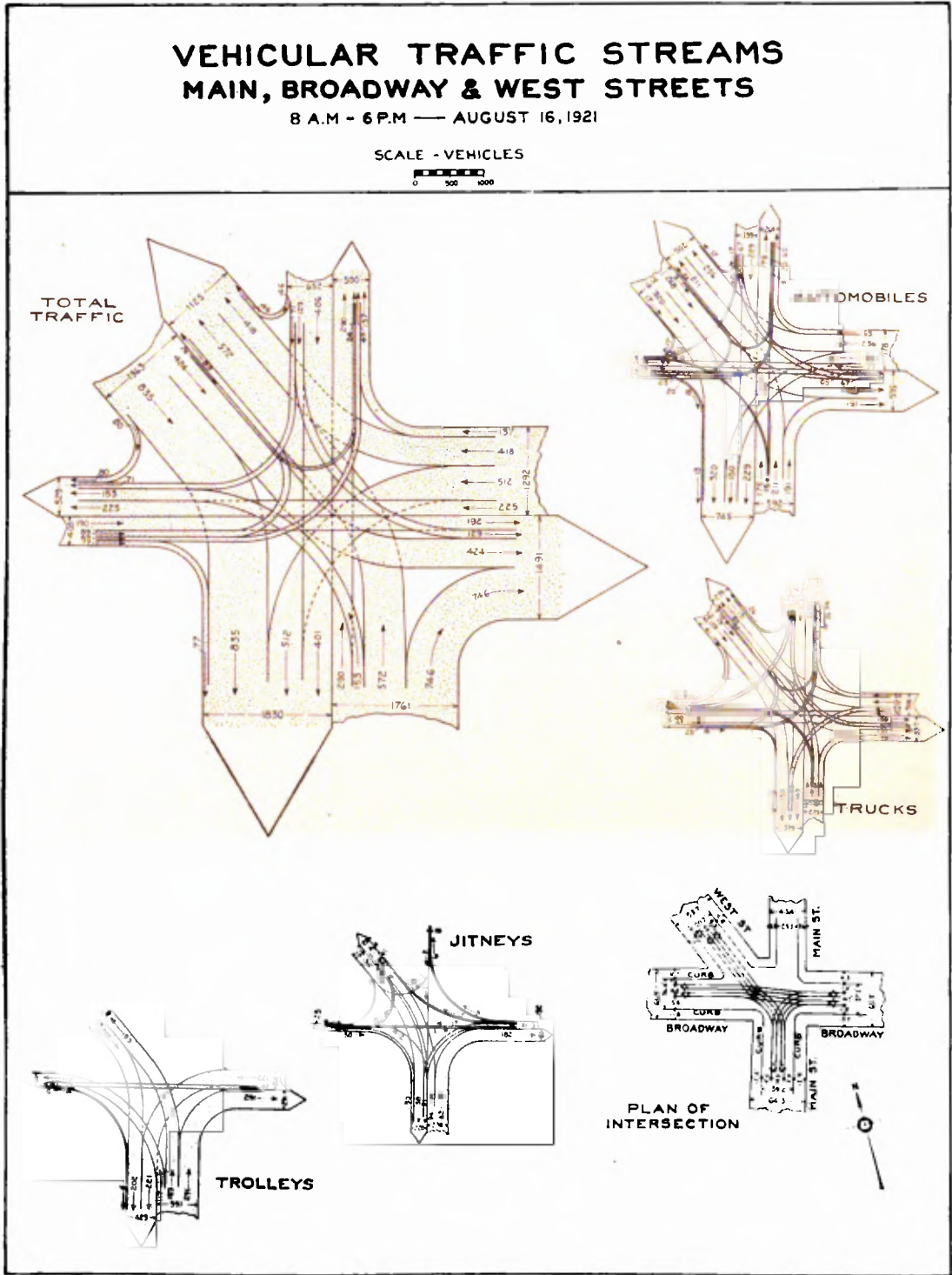


FIGURE 25.—A five street intersection greatly complicates the movement of traffic. Where four streets intersect, twelve directions are open to traffic; where five streets intersect, this number is increased to twenty.

by department stores and other large owners of delivery trucks placing their private garages at the service of their customers. Although these efforts are all very laudatory and in some instances appreciably help to fill the need, they do not fill the whole need. Many persons cannot afford to store their cars in commercial garages, even though they pay only one fee per day for the privilege. Others, able to pay a single fee per day are in and out of their shops and offices so many times a day, that were they to pay a fee each time that they withdraw their car, the cost would amount to a very pretty penny each year. Garages owned by department stores and placed during the day at the disposal of customers do not, of course, reach that large part of the public which does not shop every day.

Viewed solely from the interests of moving traffic, all parking should be prohibited on Main Street. Such a rule would, however, at the present time appear to be needlessly drastic. It would unquestionably increase the traffic capacity of Main Street. But in depriving all vehicles of the right to stand at the curbs, even for short periods of time, it would prove a serious blow to retail business.

The real parking problem on Main Street is how to confine the parking privilege to shoppers while excluding non-shoppers. How to allow those who are especially inconvenienced by parking on Main Street to park there while prohibiting those who are not particularly inconvenienced by parking elsewhere from parking there is an object which can probably be best achieved by limiting the parking privilege on Main Street. A one-half hour time limit on Main Street, with longer or no time limits on other streets, would at one stroke remedy one of the worst abuses of the parking privilege of this street—it would put an end to half day and all day parking. Limiting the parking privilege on Main Street to thirty minutes would almost quadruple the number of cars able to park on this street.

A large part of the downtown congestion in Paterson is due to machines cruising around in search of a place to park. Every day many people wishing to stop on Main Street are forced to park their cars several blocks away because the space that should be reserved for them is monopolized for hours at a time by the cars of non-shoppers. In some cases, these cars are owned by shop keepers who are so thoughtless as not to realize that by parking in front of their premises, they barricade their stores to prospective customers.

The distance an owner may reasonably be expected to walk to his destination after parking his car varies more or less in the same ratio as the time it takes to perform his errand. If his errand is quickly performed, he will wish to park immediately in front of the premises; if his errand is a long one, he will still, of course, wish to park in front of the premises, but where this is impossible, he may be induced to park at a proportionately greater distance. This distance in a city like Paterson does not at the outside limit much exceed a quarter of a mile or the equivalent of a five-minute walk. If a parking space, either in the street or elsewhere, is not available within a five minute walk of one's destination, the advantage of proceeding thence in a car as against a trolley or jitney is largely lost.

Conditions have not, as yet, come to such a pass in Paterson that one cannot park within a five minutes' walk of his destination. Even when traffic is most congested, ample parking space is to be found south of Smith Street, west of Prospect Street, east of the Erie Railroad or north of Fair Street. But traffic is growing so fast that it seems wise for the city to acquire public parking spaces on the fringes of the business area while they are still obtainable at reasonable prices. To widen streets to provide additional space for parked cars is unthinkable. It is entirely too expensive. To buy exclusive parking spaces is much cheaper.

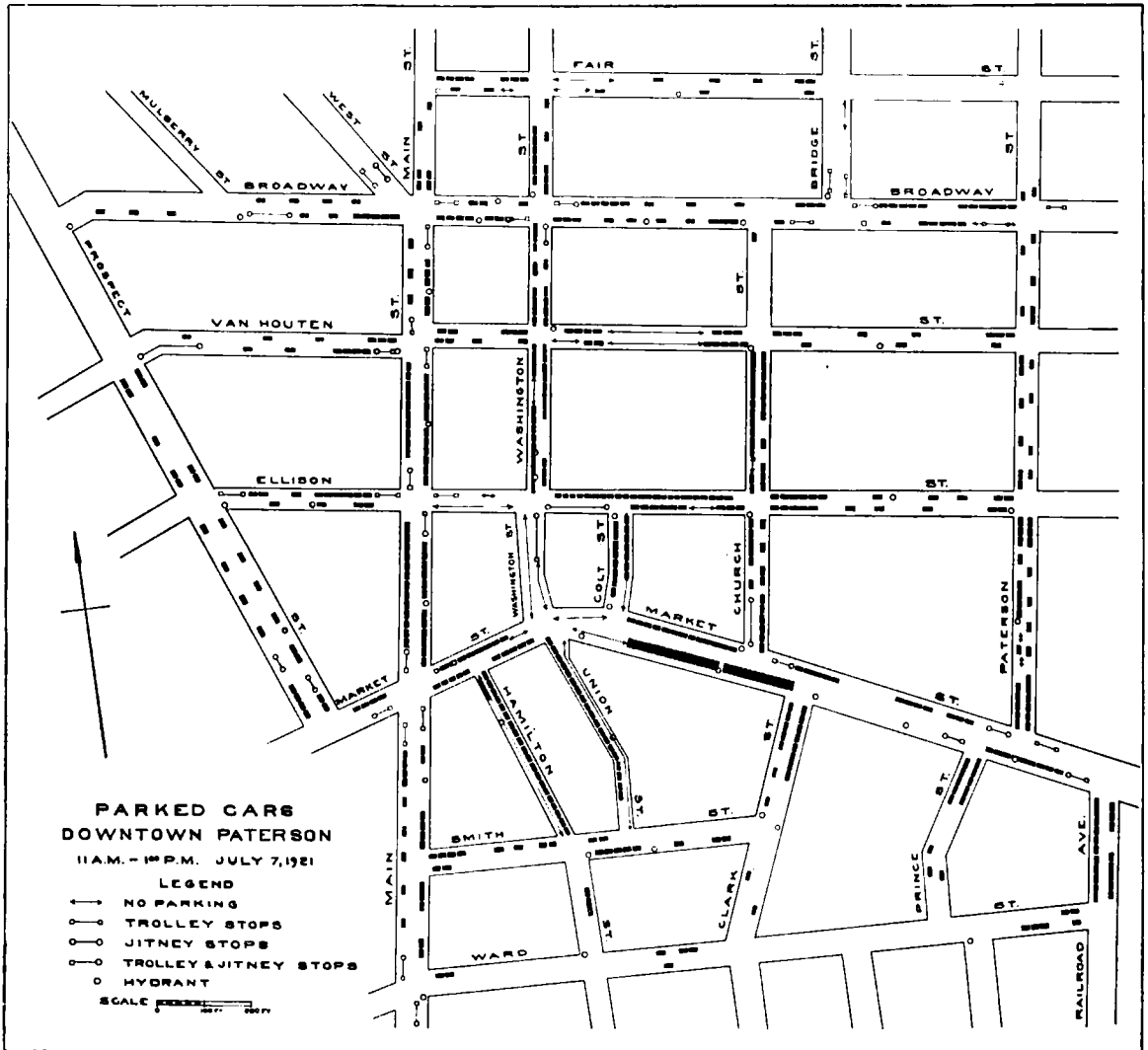


FIGURE 26.—Parked cars take up more roadway space in some streets than do moving cars. Note the congestion of parked cars on the busiest streets while the streets immediately to one side are comparatively unused.

These public parking spaces should be acquired at strategic points where the half day and all day cars could be parked without entering and congesting the business district. In other words, they should be purchased outside of the area bounded by Broadway, Main, Market and the Erie Railroad. The amount of land acquired should be determined with a view to accommodating all vehicles parked for more than an hour so that all the downtown streets, insofar as parking is permitted on them, can be reserved exclusively for the

use of shoppers.

Except on the south side of Market Street, cars are ranked in Paterson, that is, the length of the car parallels the curb. On Market Street, however, the width of the street admits of cars being parked on one side and ranked on the other; that is, on one side the length of the car is at right angles to the curb; on the other side, parallel to the curb. On the parked side, the cars are invariably backed into place. Parking has the very distinct advantage over ranking in that

the same street length accommodates approximately double the number of vehicles. At the rate at which traffic is increasing, it is only a question of time how soon the parking of cars on Market Street will have to be discontinued for ranking but as long as the cars are parked, they should be parked with the front rather than the rear next to the curb. It is much easier to drive into than to back into a space between two cars.

The present prohibited parking zones are very indifferently enforced. And yet these zones should be extended as soon as possible. Among the suggested additions are:

(1)—Main Street between Broadway and Van Houten, east side.

(2)—Market Street between Main and Union, both sides.

(3)—Broadway between Main and Washington, both sides.

(4)—Ellison Street between Main and Washington, both sides.

(5)—Van Houten Street between Main and Washington, both sides.

(6)—Park Avenue, between Main Line, Erie R. R. and Carroll Street, both sides.

Park Avenue, because of its narrowness and occupancy by a double track trolley presents a unique problem. Cars parked at a distance from the curb as well as wide trucks frequently create a condition that completely blocks all trolley traffic. Until the curbs are set back, as suggested elsewhere in this report, making the roadway 32 feet wide so that trolleys will be given an unobstructed right of way, whether cars are or are not parked at the curb, all parking on Park Avenue should be prohibited from the Main Line of the Erie Railroad to Carroll Street.

In some cases, the narrowness of the streets, in other cases, the amount of trolley traffic make these enlargements to the prohibited zones desirable.

IV.—Trolley Stops.

The northbound trolleys on Main Street average a stop every fifty-three seconds dur-

ing the day at Broadway. A few stops may last for several seconds, but some continue for thirty, forty or fifty seconds. Quite frequently a car does not make its getaway until the car following it has pulled up. Then one stop merges with another, sometimes with two, three or four others. In this way, traffic may be blocked at a single time for nearly a couple of minutes.

Some hours the trolley stops at Broadway and Main aggregate thirty minutes. This is fifty per cent. of the time. The average throughout the day is thirty per cent.

The trolley stops at Main and Broadway, though more frequent and prolonged in their duration than at other intersections, are illustrative of the effect of all trolley stops upon street traffic. The trolley stops in the downtown section are altogether too numerous—they are too numerous to permit the best operation of the trolleys; they are too numerous to give the public the best trolley service; they are so numerous as seriously to retard the movement of all street traffic. For these reasons, the relocation of all trolley stops in the congested district must be reviewed.

Fig. 30 presents a program for the elimination of all unnecessary stops and the establishment of such new ones as the convenience of the trolleys demand.

V.—Re-routing of Trolleys and Jitneys.

To relieve the congestion of street traffic caused by the trolleys and jitneys in the downtown section, it is necessary:

1.—To cut out all superfluous turning from one street into another.

2.—To make as many of the necessary turns as possible on streets other than Main Street.

3.—To curtail the number of stops to the minimum number that will adequately serve the passengers carried.

4.—To reduce the distance travelled by the several lines in the downtown section to the minimum requirements demanded by the

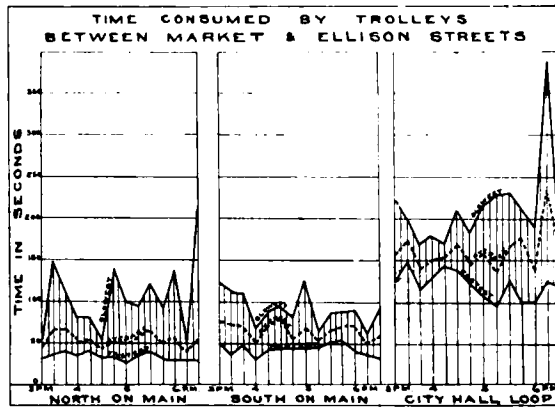


FIGURE 27.—Eliminating the superfluous loops and stops will reduce the time in passing through the business district.

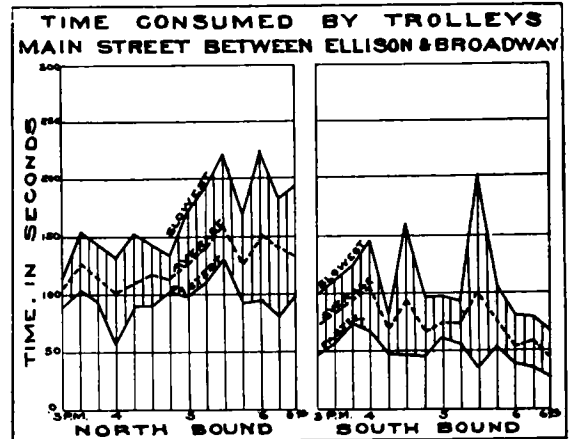


FIGURE 28.—Note the wide divergence in the time consumed by the trolleys on the two sides of the street.

several routes.

5.—To eliminate all unnecessary transfers by securing a better adaptation of routes to the service demanded; that is, by routing as many passengers as possible through, without change of car or jitney, from point of origin to point of destination.

The program deemed best suited to carry out these objects include:

- 1.—The through-routing of as many of the trolley and jitney lines as practicable;
- 2.—The abandonment of all looping, whether of trolleys or jitneys, in the area between Broadway, Main, Market and the Main Line of the Erie; and
- 3.—The establishment of loops outside the area bounded by Broadway, Main, Market and the Main Line of the Erie for such lines as it may prove impracticable to through-route.

At the very start, let it be said that routing the jitneys and trolleys through from one side of the city to another need not disturb the present arrangements regarding the fare charged. A second fare may be collected in either case after the business district has been passed through.

No suggestion is made in this report relative to a segregation of the jitney and trolley lines on separate streets in the residence districts. The only changes recommended as to routes are those which will

promote a better arrangement of traffic within the congested district.

Features of Proposed Plan.

The re-routing plans herewith suggested would entirely do away with the Broadway and City Hall trolley loops. The cars that cannot be routed through the city from one side to another, will be routed around the loop bounded by Market Street, Railroad Avenue, Grand Street and Main Street. This loop, which is hereafter referred to as the Grand Street loop, is considerably larger than either the Broadway or City Hall terminal loops. It is for that reason less susceptible of being congested. It is also off the most travelled portion of Main Street. The lines routed over this loop would be the Passaic, Paterson, Totowa and part of the Hawthorne.

The Singac trolley line would be joined with the Hawthorne line and made a through route. The Riverside and Main lines would also be joined and routed as a single line. The Hudson River line would be left undisturbed, except that after crossing Main Street at Broadway, it would not go around the loop but instead of this, it would switch back and go out over its route again. The Broadway, Park Avenue, Haledon and Governor lines would be left as at present.

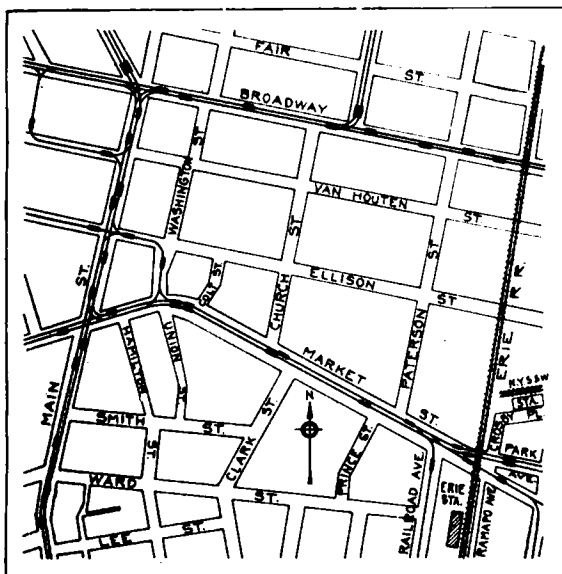


FIGURE 29.—Present trolley stops. Too frequent stops not only retard the speed of the trolleys but blockade traffic.

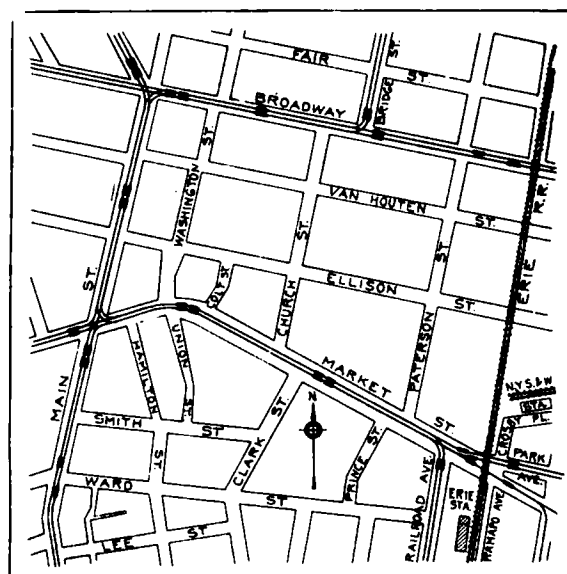


FIGURE 30.—Proposed trolley stops. An orderly and systematic arrangement of stops will improve the trolley service as well as relieve street congestion.

The local jitney lines would all be made into through lines with the exception of the Broadway line. The suburban lines would be

left substantially as at present with the exception of the Montclair-Newark line, which would not be allowed to cross Market Street.

PRESENT ROUTES AND PROPOSED RE-ROUTINGS.

1.—Trolley Lines.

Proposed:

Singac-Hawthorne Line.

Market, Main, Broadway, Bridge.

Hawthorne Line (short route.)

Broadway, Main, Market, Railroad, Grand Main.

Riverside-Main Line.

Bridge, Broadway, Main.

Present:

Singac Line.

Market, City Hall Loop, Ellison.

Hawthorne Line.

Broadway, Main, City Hall Loop.

Hawthorne Line.

(See above.)

Riverside Line.

Bridge, Broadway, Main, City Hall Loop, Main.

Main Line.

Main, Broadway Loop, Main.

Paterson Line.

Main, Market, Railroad, Grand, Main.

Passaic Line.

Grand, Main, Market, Railroad.

Totowa Line.

Main, Market, Railroad, Grand, Main.

Hudson River Line.

Broadway, switch back to Broadway.

Broadway Line.

No change.

Park Avenue Line.

No change.

Governor Line.

No change.

Paterson Line.

Main, Broadway Loop, Main.

Passaic Line.

Railroad, Market, Main, Grand.

Totowa Line.

Main, City Hall Loop, Main.

Hudson River Line.

Broadway, Broadway Loop, Main, Broadway.

2.—Jitneys.**Main-Riverside Line.**River, Bridge, Broadway, Church, Market,
Clark, Smith, Main.**Hawthorne-Beech and Clay Line.**Bridge, Broadway, Church, Ellison,
Straight.**Haledon-Governor Line.**West, Broadway, Washington, Ellison,
Straight, Van Houten, Carroll.**Totowa-Park Avenue Line.**West, Broadway, Washington, Market,
Park Avenue.**Main Line.**

Main, Van Houten, Prospect, Ellison, Main.

Riverside Line.River, Bridge, Broadway, Washington, Elli-
son, Main, Broadway.**Hawthorne Line.**Bridge, Broadway, Washington, Ellison,
Colt, Market, Washington, Ellison, Main,
Broadway.**Beech and Clay Line.**Straight, Park, Market, Washington,
Broadway, Main, Market.**Haledon Line.**West, Main, Van Houten, Church, Market,
Erie Station, out Market.**Governor Line.**Broadway, Washington, Ellison, Colt, Mar-
ket, Union, Smith, Hamilton, Ward, Main,
Grand, Main, Broadway.**Totowa Line.**West, Main, Market, Washington, Ellison,
Main.

Singac-Market Line.

Market from Spruce to Dundee Lake.

Broadway Line.

Broadway, Church, Ellison, Washington, Broadway.

Bloomfield Line.

Main, Smith, Clark, Ward, Main.

Montclair-Newark Line.

Main, Smith, Clark, Ward, Main.

Ridgewood Line.

Van Houten, Church, Ellison.

Butler Line.

No change.

Midvale Line.

No change.

Greenwood Lake Line.

No change.

Boonton Line.

No change.

Riverdale Line.

No change.

Oakland Line.

No change.

Advantages of the Proposed Plan.

Through-routing will enable people to travel from one side of the city to another without transferring to another bus or trolley. Through-routing will speed up the operation of both the jitneys and the trolleys. The jitneys, being removed from the trolley blockades on Main Street, will travel faster; and the trolleys, having Main Street to themselves, free from interference by the jitneys, will also travel faster. The elimination of

Park Avenue Line.

Park, Market, Washington, Broadway, Main, Market.

Singac Line.

Market, Washington, Ellison.

Market Street Line.

Straight, Park, Market to Prospect.

Broadway Line.

Broadway, Washington, Ellison, Colt, Market, Main, Broadway.

Bloomfield Line.

Main, Market to Clark, back by same route.

Montclair-Newark Line.

Main, Ward, Hamilton, Market, Washington, Ellison, Church, Market, Union, Smith, Ward, Main.

Ridgewood Line.

Van Houten, Washington, Ellison, Church, Van Houten.

numerous turns will accelerate the passage of both trolleys and jitneys through the congested business district.

Through-routing will reduce street congestion.

Under the proposed plan, only eight of the sixteen street intersections in the area bounded by Main, Market, Church and Broadway will be used for jitney turns, all turns being abandoned at the following intersections: Main and Van Houten, Main and Ellison, Main and Market, Hamilton and Market,

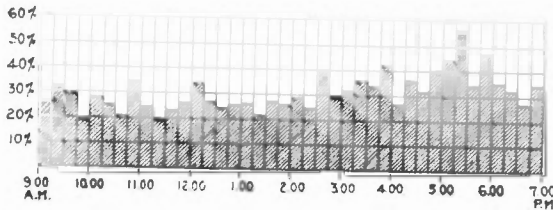


FIGURE 31.—Per cent. of traffic delayed by trolleys. Broadway and Main Streets, November 3, 1921.

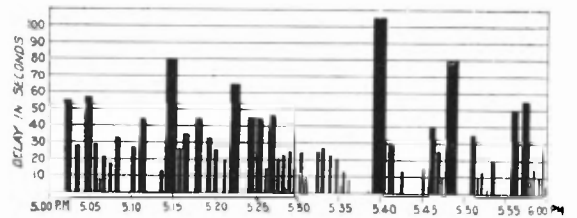


FIGURE 32.—Length of traffic delays caused by trolleys. Broadway and Main Streets, November 3, 1921.

Washington and Van Houten, Colt and Market, Colt and Ellison. But one new turn will be created, that at Church and Broadway. The present jitney schedule for a normal ten-

intersections be considered instead of merely the jitneys turning, a still more favorable result is obtained. Under the present jitney schedule 11,103 jitneys pass through these 16

TABLE VIII.

**Jitney Traffic at Different Street Intersections Downtown Paterson.
8:00 A. M. to 6:00 P. M. Typical Day, August, 1921.**

Intersections.	Jitney Turns.		Jitneys Passing.	
	Present Plan.	Proposed Plan.	Present Plan.	Proposed Plan.
Broadway and Main-----	895	371	891	371
Van Houten and Main-----	225	—	1039	—
Ellison and Main-----	458	—	1154	—
Market and Main-----	442	—	942	82
Hamilton and Market-----	40	—	608	82
Union, Market and Washington	515	196	943	278
Ellison and Washington-----	632	246	793	442
Washington and Van Houten--	14	—	628	442
Washington and Broadway----	539	442	917	442
Colt and Market-----	230	—	763	278
Colt and Ellison-----	230	—	284	246
Church and Market-----	115	298	603	576
Ellison and Church-----	54	234	129	682
Church and Van Houten-----	89	14	89	532
Clark and Market-----	5	298	568	576
Broadway and Church-----	—	518	768	614
Total-----	4483	2618	11,103	5643

hour day from 8:00 A. M. to 6:00 P. M. calls for 4483 jitney turns at these intersections. Six intersections will have but a single jitney turn and three, two jitney turns. The total number of turns will be but 12 as against 30 today.

If the aggregate traffic at the different

intersections every day. Under the proposed plan, this number is reduced to 5,643—almost fifty per cent. of the present traffic.

Table VIII shows in detail exactly what the proposed plan will do to relieve congestion at different street intersections.

The abandonment of the City Hall trolley

loop would make it possible to make the block on Washington Street between Market and Ellison Streets a two-way street and thus eliminate a considerable amount of the present congestion on Market Street due to the traffic from Union Street and Hamilton

Washington, as well as the crossings at Market and Ellison Streets would be completely abandoned. With these route changes, the number of cars turning at Market and Main would be increased from 640 to 714, but the number of left hand turns would be dimin-

TABLE IX.

Number of Trolley Cars Per Hour on Different Lines, November 3, 1921.

Line.	9-10	10-11	11-12	12-1	1-2	2-3	3-4	4-5	5-6	6-7	Total
Broadway -----	13	11	12	11	13	12	12	14	13	13	125
Governor -----	5	6	5	6	5	5	6	6	6	5	55
Haledon -----	8	8	9	9	9	9	9	9	11	8	89
Hawthorne -----	5	5	6	5	5	5	5	6	8	5	55
Hudson River -----	4	5	4	3	4	5	4	4	4	4	41
Main -----	5	7	7	6	4	7	6	6	5	9	62
Passaic -----	4	4	3	4	5	4	3	3	5	3	38
Paterson -----	5	6	7	6	7	5	6	6	5	7	60
Park Avenue -----	12	12	11	11	10	13	11	15	17	15	127
Riverside -----	6	6	6	5	6	6	6	7	8	7	63
Singac -----	4	4	3	4	3	4	3	3	7	4	39
Totowa -----	9	8	7	8	7	7	8	11	15	12	92
Total -----	80	82	80	78	78	82	80	90	104	92	846

Street, both one-way streets being obliged to join the traffic on Market Street in order to cross it. With Washington Street a two-way street, the traffic into Union Street could cross Market Street at Washington Street and thus obviate the offset now necessary on Market Street.

The jitney traffic, as considered in this and following tables, is based upon the operating schedules. Traffic counts, however, show that in many instances there is a considerable discrepancy between the actual and the scheduled service; the operating schedules call for more frequent service than is actually provided by the jitneys.

The plan proposed for the re-routing of the trolleys would reduce the number of turns on Main Street from 1888 to 1194. The turns at Van Houten and Main, Ellison and Main, Market and Washington, and Ellison and

Washington, as well as the crossings at Market and Ellison Streets would be completely abandoned. With these route changes, the number of cars turning at Market and Main would be increased from 640 to 714, but the number of left hand turns would be diminished from 425 to 362. The number of cars turning at Broadway and Main would be decreased from 899 to 598. The aggregate number of turns on Main and Washington Streets between Market and Broadway would practically be cut in two, being 1312 under the proposed plan as against the present number of 2462.

Table IX shows the number of trolley cars operated each hour from 9:00 A. M. to 7:00 P. M. on each line November 3, 1921.

Through-routing will enable the jitneys and trolleys to make the same number of trips per day as at present on a smaller mileage or an increased number of trips per day without any increase in mileage. In case of the jitneys, this advantage would be especially noteworthy, amounting to 8.2 per cent. of the aggregate mileage on the local lines.

At present, the local jitneys consume one-

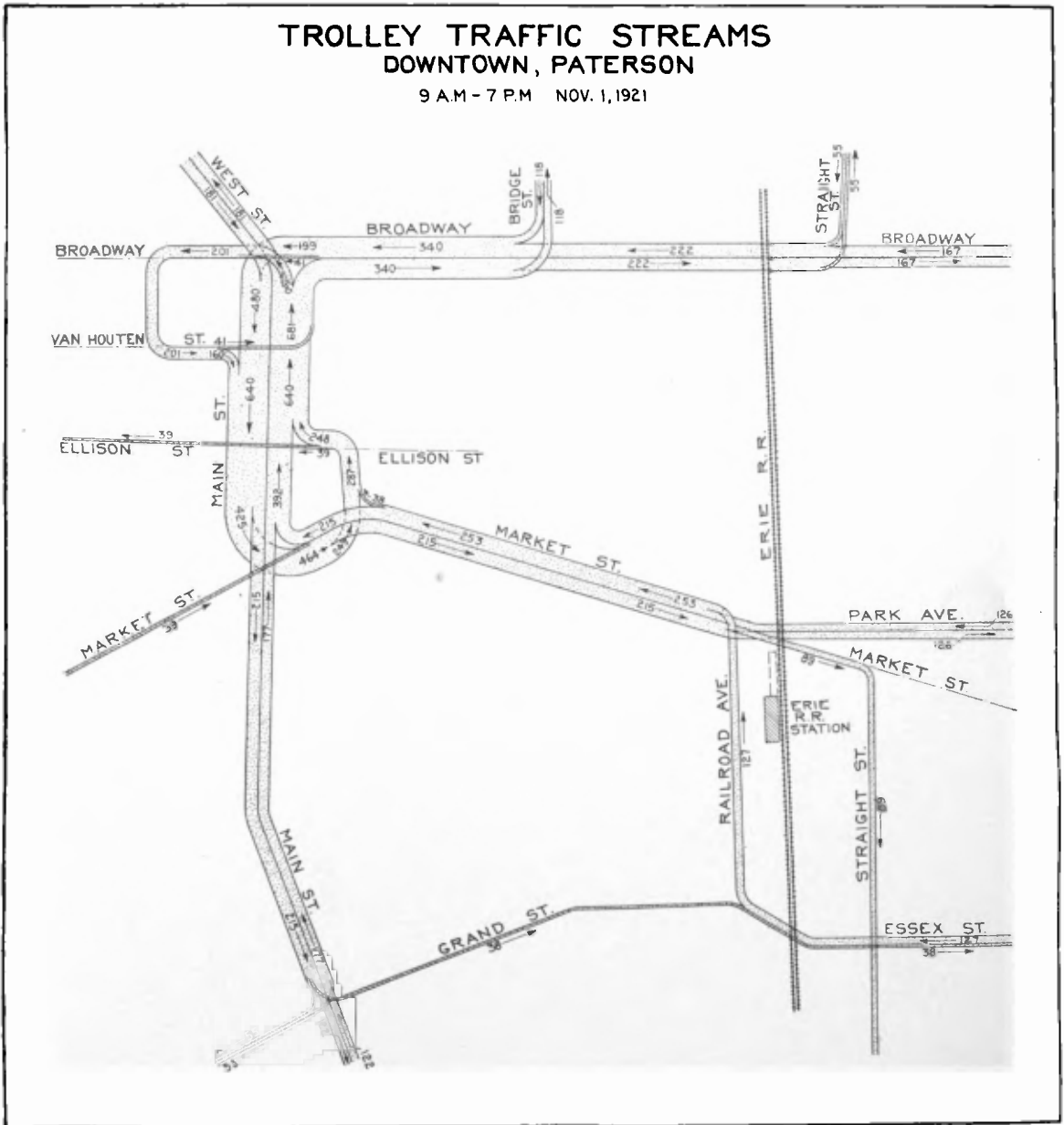


FIGURE 33.—The trolleys in crossing, turning on and off Main Street greatly aggravate the traffic problem. Some hours the northbound traffic on Main Street is blocked at Broadway for an aggregate of thirty minutes.

twelfth of their total mileage in turning around to go back over their respective routes. In through-routing, there will be no useless turning around—each jitney will discharge its inbound load while picking up its outbound load. Through-routing will save

the jitneys one-twelfth of their time, one-twelfth of their gas, one-twelfth of their repairs, one-twelfth of the wear and tear on their machines—all without any loss in revenue.

Table X shows the mileage that the several

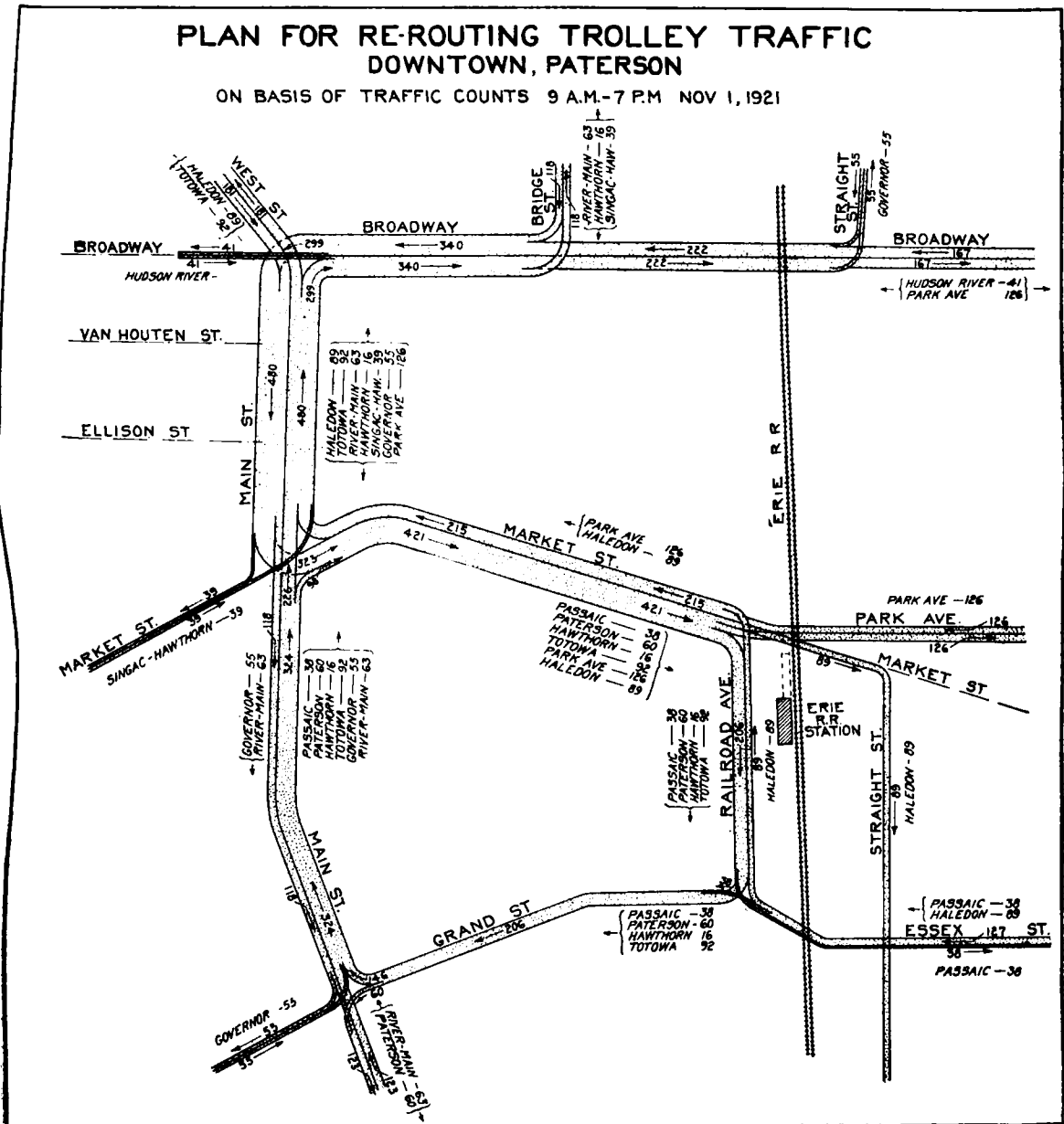


FIGURE 34.—Abandonment of the Broadway and City Hall Loops will permit all cars to run through from Broadway to Market Street. This will accelerate the speed of the trolleys as well as of all other traffic. Note the much larger number of trolleys passing the Erie Station.

jitney lines would save under the proposed re-routing scheme.

The commuting traffic is at present very inadequately served by both the jitneys and the trolleys. There appears to be no good reason why a larger number of either cannot

be brought nearer to the Erie Station.

Under the re-routing scheme suggested, all the trolleys that now pass the station would continue doing so. In addition, some of the cars on the Hawthorne Line and all of the cars on the Totowa and Paterson lines would

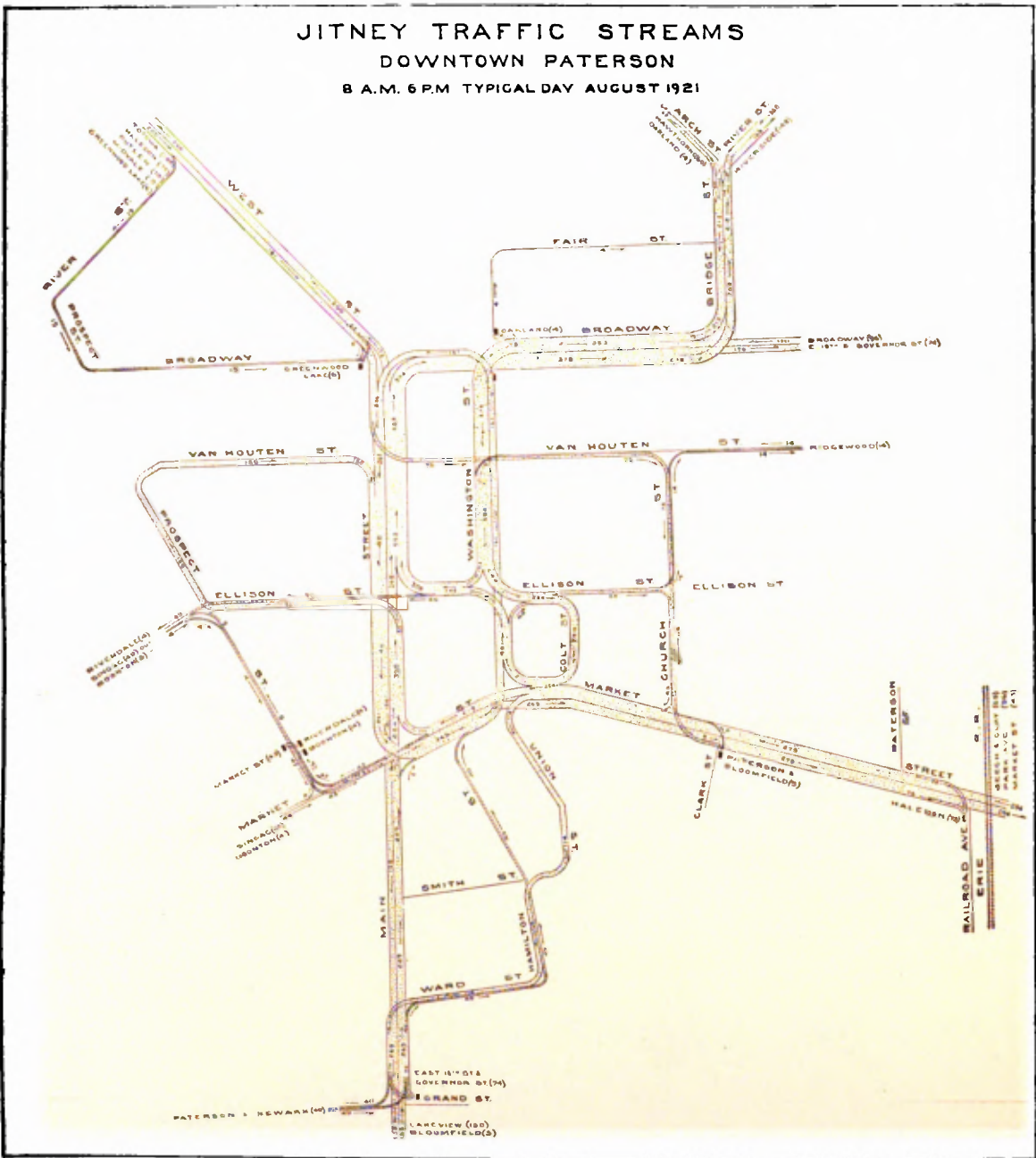


FIGURE 35.—The business section constitutes today one huge turning table for the different Jitney lines. There are no less than thirteen separate and distinct loops in all, the Jitneys turning at every street intersection but one.

be brought right past the station.
 A like improvement would be effected in the case of the jitney service.
 The per cent. of jitneys that would go with-

in different distances of the Erie Station under the proposed plan as contrasted with the present plan, is indicated in Table XI.

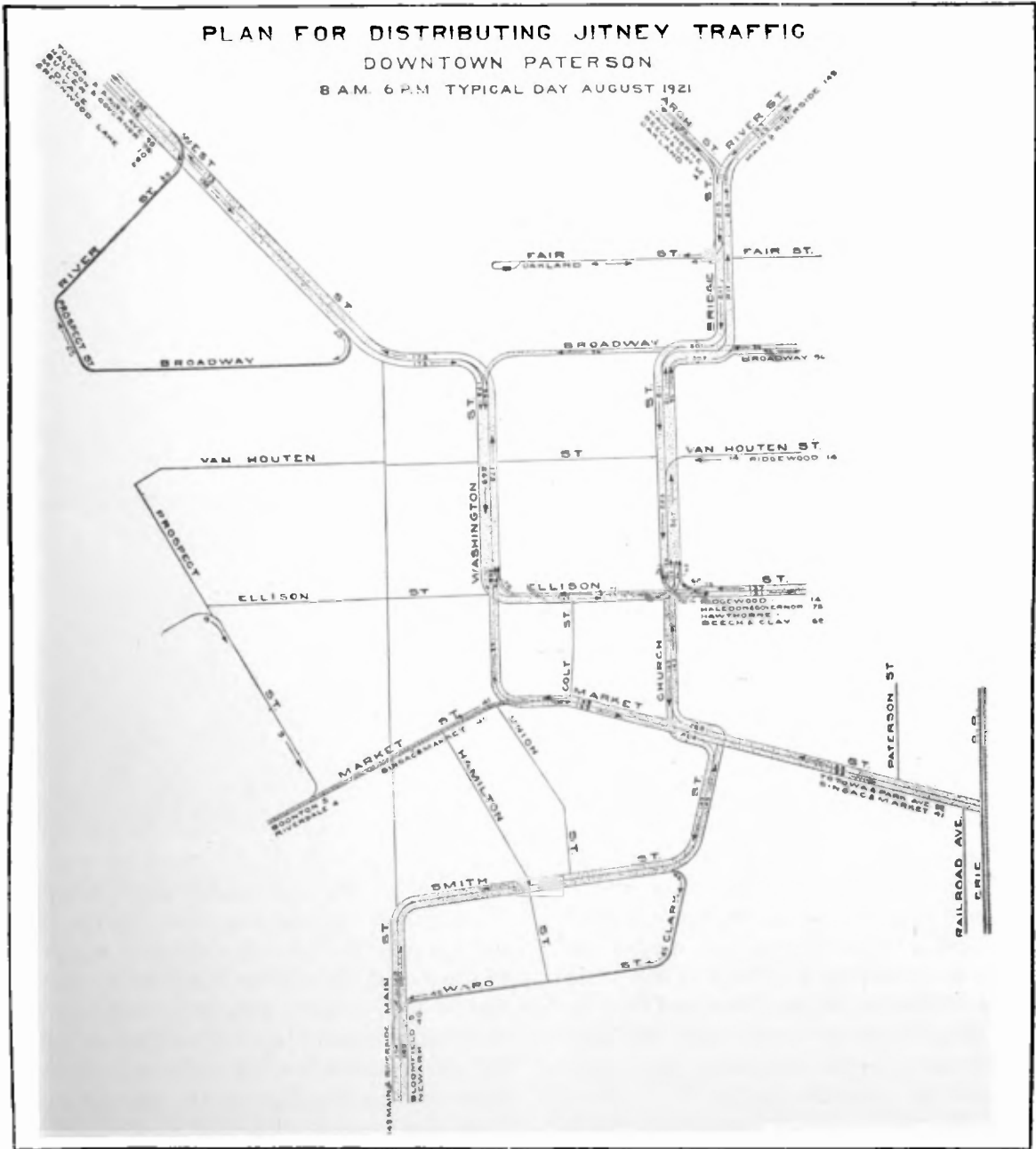


FIGURE 36.—All the jitneys are removed from Main Street thus relieving them from constant annoyance by slowly moving trolleys. Note how the jitneys are distributed on the several streets so as better to serve traffic as well as to avoid congestion.

TABLE X.

JITNEY MILES SAVED UNDER PROPOSED RE-ROUTING PLAN.

Line.	Present Jitney Mileage.	Proposed Jitney Mileage.	Jitney Miles Saved.	Per cent Jitney Miles Saved.
	560	444	116	20.8
Haledon-Governor -----	826	779	47	5.7
Singac-Market -----	204	193	11	5.6
Main-Riverside -----	1368	1313	55	4.0
Hawthorne-Beech and Clay-----	432	366	66	15.7
Broadway -----	337	326	11	3.2
Total-----	3727	3421	306	8.2

TABLE XI.

Per Cent. of Jitneys Going Within Different Distances of Erie Station Under Present and Proposed Plans of Re-Routing.

Distance from Station.	Present Plan Per Cent	Proposed Plan Per Cent.
Right past -----	29.4	26.6
1 block -----	—	55.0
2 blocks -----	—	18.4
3 blocks -----	20.4	—
4 blocks -----	14.8	—
5 blocks -----	35.4	—
	100.0	100.0

At present 71 per cent. of the jitneys that operate on the local lines do not come nearer than three blocks to the station. More than a third of the jitneys do not come nearer than Market and Main or Washington and Ellison. Nobody using a jitney would under the proposed plan have to walk more than two blocks to the station. All the jitneys that would not pass the station would pass either Clark and Market, Paterson and Ellison or Church and Ellison.

A proper re-routing of jitneys and trolleys will benefit the whole business district. Traffic at Broadway and Main is so congested and has been for so long that machines in passing in and out of the business district are

with increasing frequency short-circuiting Main Street and taking other routes. To some it may be as much a shock as a surprise to learn that even today there are more vehicles at half a dozen points in Paterson than at Broadway and Main. Though the trolleys are the greatest contributing cause to Main Street congestion, the jitneys also contribute their shares as is witnessed by the fact that when the present schedule is lived up to, 1154 jitneys pass the intersection of Ellison and Main Streets every day between 8:00 A. M. and 6:00 P. M. If Main Street is to retain its position as the city's principal shopping street, something must be done to relieve the congestion on it.

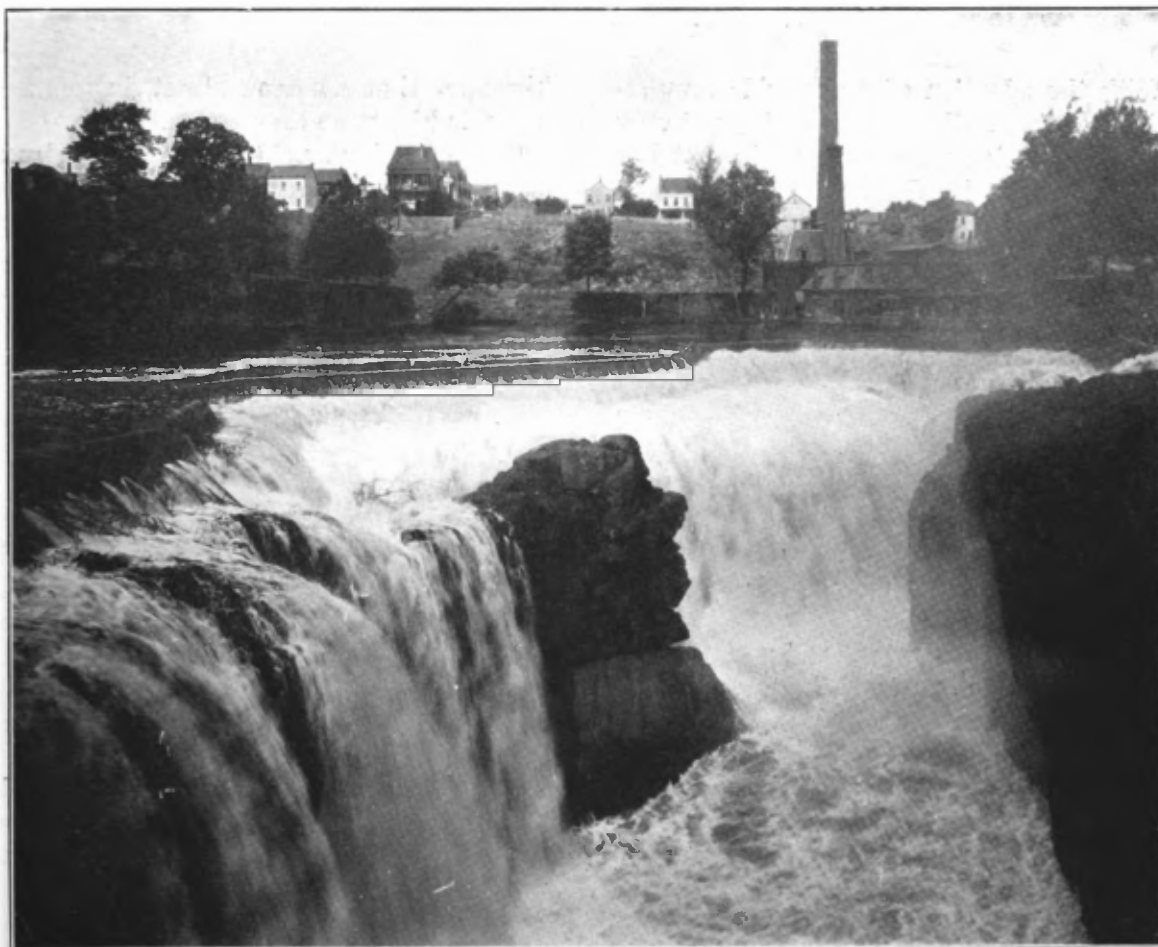


FIGURE 37.—The Falls in summer. This beautiful cataract, the greatest scenic asset of the entire State of New Jersey, is unapproached by a single thoroughfare, being situated in what practically amounts to the city's back-yard. The Fallsway Memorial would redeem our past indifference to this wonderful heritage.

Without boldly attacking the jitney, trolley and parking problems, congestion in the business district will go from bad to worse. To meet the issue now will cause less incon-

venience and embarrassment to business interests and the public generally than to postpone it for nothing is to be gained by delay.



CHAPTER III.

FUNCTIONAL STREET PLANNING.

With the adoption of a city-wide comprehensive zoning ordinance regulating not only the use to which property may be put but the intensity of its development both as to the height and size of buildings, Paterson is for the first time in its history in a position to adopt a functional street plan.

With zoning, each street may be designed to serve some specialized purpose. When the use to which buildings may be put is left unregulated all streets have to be planned alike. When it is not known where industry or business is to go, every street has to be designed in such a manner as to serve all uses of property equally well. The inevitable result is, of course, that no use is served to the best advantage.

Streets of a uniform type and pattern have to be laid out in all parts of the town, despite the fact that the street needs of the several parts are materially different.

Directness which is so desirable a quality in business streets is not a prerequisite for minor residential streets. In fact, it often robs such streets of their distinctive character. One of the chief charms of the many attractive suburban developments plotted in recent years, is the cosy domestic character of the local streets in which the monotony of endless straight wind-swept thoroughfares has given way to short streets of narrow width.

In a residential neighborhood the traffic being of a local character and consequently of no great moment, there is no imperative demand for wide roadways. Indeed, wide roadways are a liability in residence districts. Every additional foot of roadway space over the minimum necessary, increases the cost of his house to the home-owner and makes home-owning that much more difficult and rare, for the home-owner pays as truly for the land within the street lines as for the land within the lot lines. A wide street costs

him more than a narrow street, just as a big lot costs him more than a small one.

Our towns have paid dearly for parsimonious town planning. The price they have paid for street widenings during the last fifty years is enormous. But the cost of widening a few miles of streets which were originally laid out too narrow, fabulous as it is, would look small compared to the value of the land and pavements wasted in miles and miles of unnecessarily wide residential streets.

A Scientific Paving Policy.

Each street should obviously be paved with the kind of pavement not only best adapted to the kind of traffic served by the street, but also best suited to the needs of the adjoining property. A brick or granite pavement is not wanted on a residential street, neither is a bituminous pavement wanted on a heavy warehouse street. The noise of the first destroys the quiet of the neighborhood, while the wear on the second soon ruins the pavement.

It is most extravagant and wasteful to accommodate the strength of every pavement whether it be in a residence, business or industrial district to the weight of the heaviest vehicle in the city. And yet without zoning, that was the policy Paterson was practically forced to adopt. A proper zoning system in confining different districts to different uses, goes a long way in segregating different kinds of traffic by automatically tending to exclude heavy vehicles from residence districts, and to restrict them to business streets.

Residential streets should not be asked to provide pavements for vehicles which have assumed the weight and proportions of a freight car. The twelve, fifteen and twenty-ton truck not only injures the wearing surface of a light pavement, it also cracks and breaks the base of the pavement. A pave-



FIGURE 38.—During some hours the railroad gates at Market Street are down nine, ten and even twelve times.



FIGURE 39.—A thirty minute parking time limit would abolish all day parking on Main Street. This would quadruple the number of cars able to park near the stores.

ment with a base of six inches or even less in thickness, is adequate for all ordinary traffic in residential sections. For heavy trucks, a base eight, ten or twelve inches thick is required. There is only one alternative to increasing the thickness of the base, and that is to reinforce the concrete used in its construction. There are limits beyond which this method, however, cannot be exercised to afford additional strength, limits beyond which increased strength can only be obtained through increased thickness. Some towns are pursuing both methods, they are not only increasing the thickness of the pavement but also reinforcing the concrete used in its construction. But whether the pavement is strengthened in one way or another, it costs more to the taxpayer and the public, imposing a burden from which both might be relieved through the adoption of a farsighted policy of street planning.

The quality of pavement is only one side of the picture. The quantity of pavement required in a city must also be considered. The ordinary quiet residential street requires a roadway wide enough for only two vehicles to pass one another freely. Today many residential streets have a roadway width from 25 to 50 per cent. wider than that required. In other words, there are miles and miles of streets in Paterson which could be paved for from 60 to 80 per cent. of the cost of paving them to their present width. On such streets even if a pavement of the same character were laid, the cost could be cut from 20 to 40 per cent. But as we have seen, a much lighter pavement can be laid if heavy traffic is excluded from a street than if it is allowed. Taking this matter into consideration, the cost of paving residential streets can in many instances be reduced to less than one-half of the present cost.



FIGURE 40.—West Side Park and vicinity. This and the three succeeding pictures were taken from the flag-staff on Garret Rock. There are still large areas of vacant land to be developed in Paterson. Half of the city's area is still unbuilt upon.

Cross Sections of Residential Streets.

Proposed cross sections of typical residential and business streets are shown in Fig. 44.

The width of roadway in residential streets should be made the minimum consistent with satisfactory service to avoid unnecessary expense. Where only the normal residential traffic has to be provided for, a roadway width of 24 feet is ample. This roadway width is proposed for the streets 50 and 60 feet wide. This width will accommodate a parked vehicle at either curb and a rapidly moving vehicle in the center or a parked vehicle at one curb and two vehicles passing in the same or in opposite directions.

Streets 70 and 80 feet wide, on account of their width, are presumed to have more traffic than narrower residential streets. Even if they do not carry any through traffic, they serve as outlets for the traffic on the narrower residence streets. Their roadway width should, therefore, not be less than 32 feet. This width will accommodate a vehicle

parked on either side and a moving vehicle in each direction, or where vehicles are not parked, two lines of moving vehicles in each direction.

The setback of buildings or the depth of front yards is governed by the zoning ordinance and varies according to the zone in which the street is situated. In apartment house, business and industrial zones, no setbacks are required by the ordinance.

Good street trees add to the attractiveness of the community quite as much as good buildings. Trees should be as near the roadway as practicable. The best appearance of the street as well as the shade afforded by the trees make this desirable. Trees next to the curb shield the walk and adjacent property from the dust of the street. They also enable the walk to be located farther from the roadway and nearer the residences. This location makes the pleasantest walk and is most satisfactory to the pedestrian. Owners generally prefer to have the trees located at the curb for then they cannot cause injury

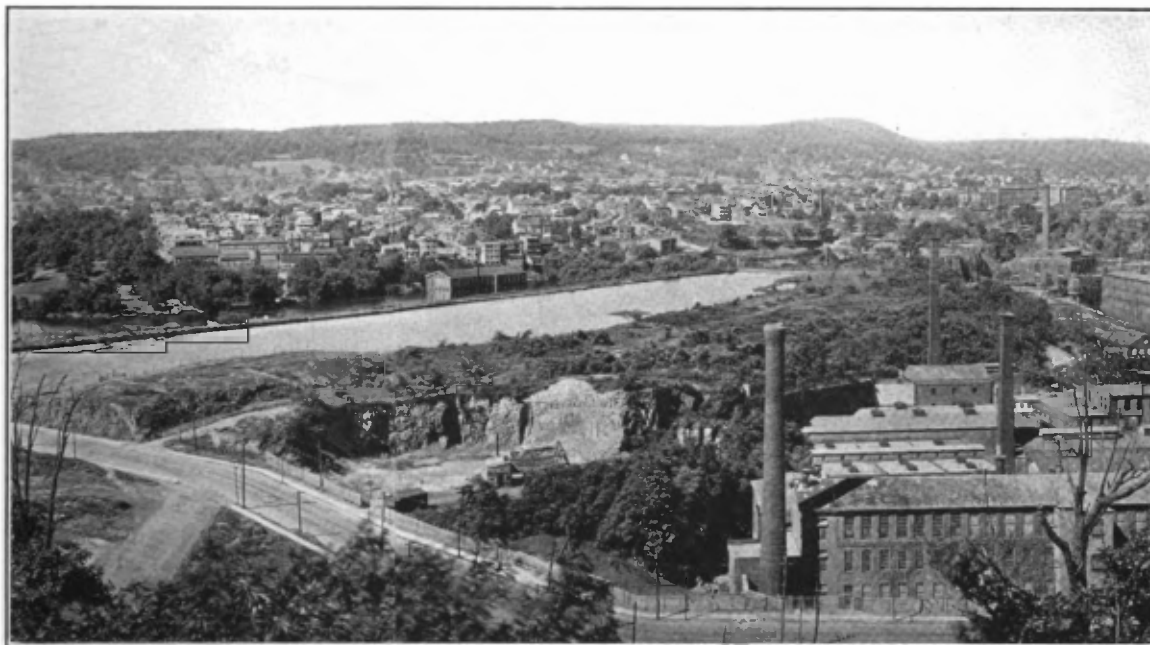


FIGURE 41.—The Haledon Section of Paterson. The reservoir is in the foreground and the Passaic River immediately back of it. The Falls are in the upper right. The Fallsway Memorial would run from West Side Park, which is shown in the upper left, parallel to the River past the Falls, and thence to the downtown section of the city.

to the adjacent lawns, nor grow objectionably close to dwellings. Street trees should be given sufficient room and soil in which to grow. They should, therefore, not even on the narrowest streets, be nearer than three feet to the curb line.

The sidewalk pavement is given a width of five feet for all streets except those 80 feet wide, where a width of six feet is planned.

Cross Sections of Business Streets.

Business streets have an entirely different function from residential streets and necessarily require different cross sections. Business depends on traffic — the greater the traffic, the more valuable is the street for business purposes. A business street should be designed, therefore, to take care of traffic up to the full limit of its width. Any parking, trees, etc., detract from its serviceability to business by interposing obstacles to trade. Storekeepers desire to get as near the traveling public as possible.

The problem with predetermined street widths is how to fix the relative proportion of space to be devoted to vehicular traffic and to pedestrians.

An entirely satisfactory business street, considered apart from its use as a thoroughfare, should admit of vehicles parking on both sides so that shoppers arriving in automobiles can visit stores with the least effort.

A street 50 feet wide with a roadway width of 32 feet will permit parked vehicles on either side with sufficient room in the center for a vehicle moving in each direction. This is considered the minimum width of roadway for a business street. With the present standard roadway width of 30 feet for a 50-foot street, when vehicles are parked on either side, there is not sufficient room for two moving vehicles in the center. The small increase in width proposed which permits two moving vehicles between the standing ones, practically doubles the capacity of the roadway. Pedestrian traffic is more flexible than vehicular traffic and can accommo-

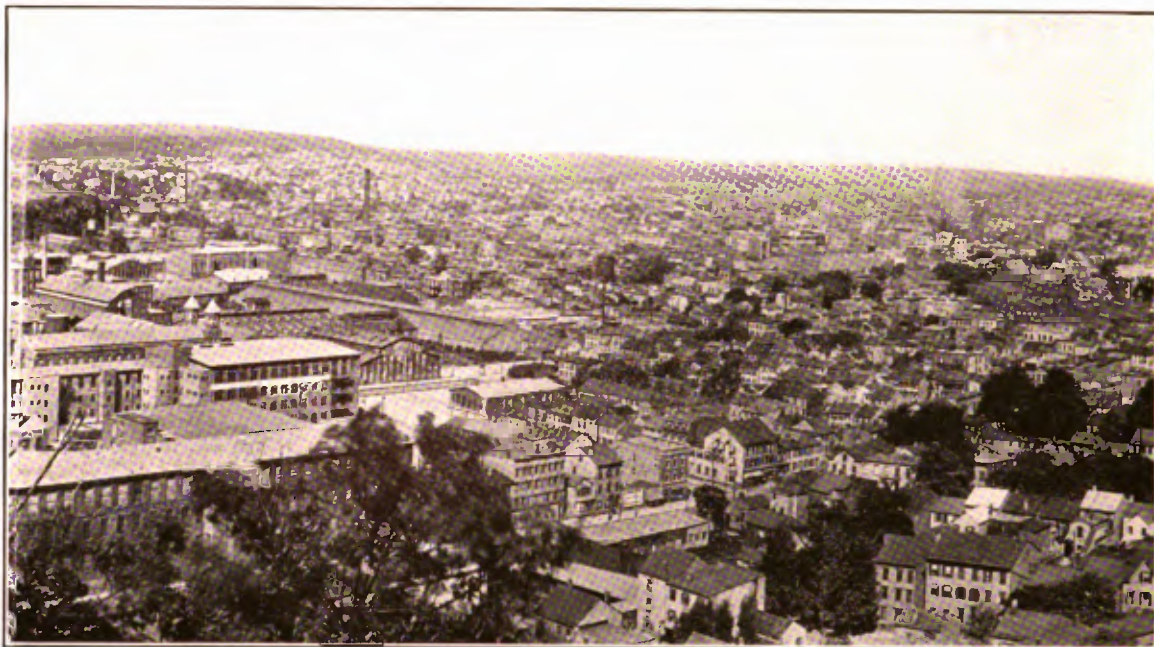


FIGURE 42.—Downtown Paterson. Paterson grew up around the Falls. The mills in the left are situated along the raceways. The residential area between these mills and the business section in the upper right is the most densely populated in the city.

date itself in a measure to the width allowed. A sidewalk width of 9 feet is contemplated on 50-foot streets.

For a business street, 60 feet wide, a roadway width of 40 feet instead of the present standard of 36 feet is suggested. This roadway width will provide for a parked vehicle at either curb and three lines of moving vehicles. The sidewalk width proposed is 10 feet.

A business street 70 feet in width would have a roadway width of 50 feet. With a double track trolley in the center and a standing vehicle at either curb, there would still be sufficient room left on either side of the trolley cars for a moving vehicle. Where there are no trolley tracks, four lines of moving vehicles can be accommodated between cars parked at either curb. Sidewalks 10 feet in width would be provided to accommodate pedestrian traffic.

An 80-foot wide business street would have a roadway width of 56 feet instead of 48 feet, the present standard. Generous width is given for one line of moving vehicles on either

side of a double trolley with parked vehicle at either curb, or two lines of moving vehicles on either side of the trolley where there is no parking. Sidewalks of 12 feet in width would take care of pedestrian traffic.

The sidewalk width provided may in exceptional cases prove inadequate for pedestrians. Then the walks must be widened at the expense of either private property or the capacity of the roadway.

These cross sections, it should be said, do not represent ideal conditions. They are designed on the basis of street widths already fixed with a view to obtaining the maximum room for vehicular traffic.

Street Intersections and Curb Corners.

The capacity of its street intersections limits the amount of vehicular traffic a street can carry. Traffic at the intersections is obviously greater than at other points on the street—the number of vehicles passing through the intersections is the sum of those arriving from all directions and is generally much greater than the number passing



FIGURE 43. Downtown Paterson. Paterson is peculiarly blest among American cities in not having any high skyscrapers. The zoning law, moreover, limits the height of buildings to one and one-half times the width of the street with a maximum of 125 feet in the downtown section.

through the block. In the case of a crossing of streets having equal traffic the number of vehicles passing through the intersection is twice that passing over any other portion of the streets. Cross traffic and turns from one street to another both require reduced speed or a stop and prolong the time that vehicles are in the intersection. This reduces the number of vehicles than can pass through an intersection. For these reasons, the capacity of a street crossing others at frequent intervals is much less, often a mere fraction of a highway with few crossings.

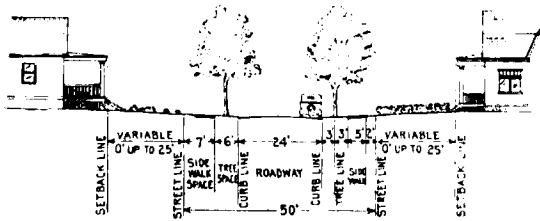
It is extremely important to utilize all possible means of passing traffic at busy intersections. The addition of vehicular space at and near such intersections is one of the means to effect improvements. In order to accommodate as many vehicles as possible abreast, the curb should be set back as far as pedestrian traffic will permit.

Another effective means of improving street intersections where the traffic into or out of cross streets is heavy, is by turning the curb at the corner with a larger radius.

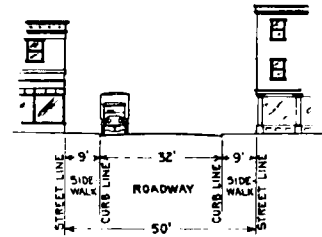
Many curb corners designed in the days of horse-drawn vehicles are rounded very little and an auto in turning the corner has to occupy a considerable part of both streets. Often the pole or fixture of some public service company or municipal department is located at the corner. These sharp corners are in a measure a safety device for pedestrians against reckless autoists, for the latter have to slow down, and cannot approach persons crossing the street from behind. Traffic is, however, greatly hindered by such obstructions.

In New York, right angle curb corners were formerly turned with a radius of six feet in most cases. Automobile traffic was so impeded at these intersections that the curb corners have since been reconstructed to a radius of 12 feet in large sections of the city at considerable expense. So far as the automobile is concerned, the curb should be turned with a turning radius of not less than that of the motor car. This varies from 20 to 45 feet. The average is about 30 feet. To employ such a large curb radius would require

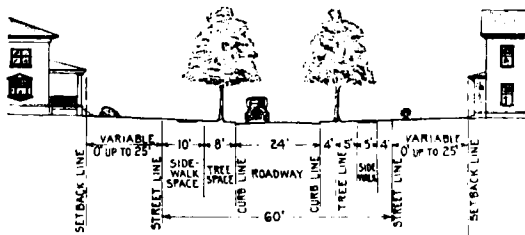
PROPOSED CROSS SECTIONS OF STREETS



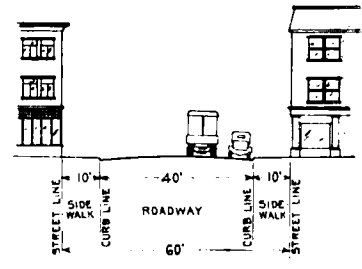
RESIDENTIAL STREET 50' WIDE



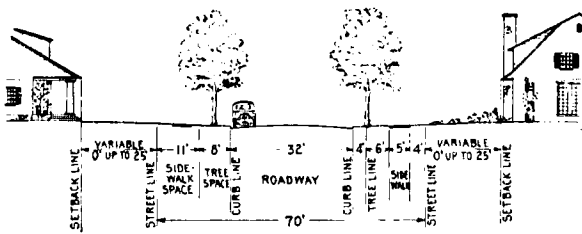
BUSINESS STREET 50' WIDE



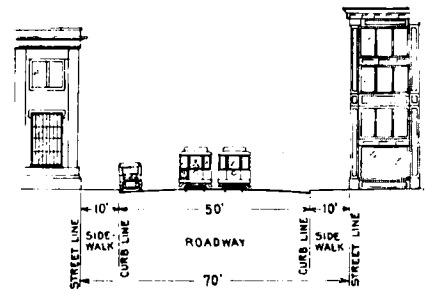
RESIDENTIAL STREET 60' WIDE



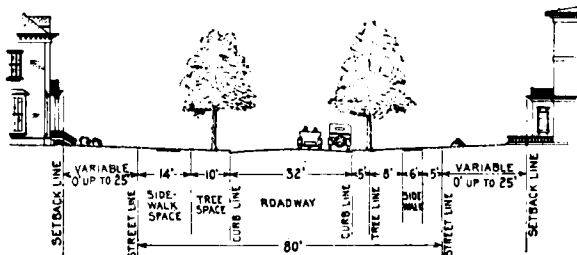
BUSINESS STREET 60' WIDE



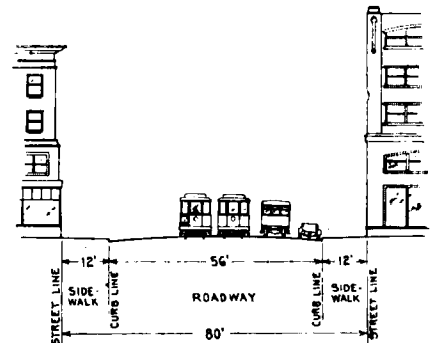
RESIDENTIAL STREET 70' WIDE



BUSINESS STREET 70' WIDE



RESIDENTIAL STREET 80' WIDE



BUSINESS STREET 80' WIDE

FIGURE 44.

the taking of considerable property at the street corner and would also add an element of danger to the crossing pedestrian. Such a corner would probably not be advisable in built-up sections except where the turns in a particular direction were unusually numerous.

Generally, the curb should be turned in the case of right angle crossings with a radius of the least sidewalk width at the intersection. This gives the largest curb radius compatible with retaining that sidewalk width around the corner which does not encroach upon private property. It greatly facilitates the turning of the corner by automobiles and is not so great as to be unsafe to pedestrians.

Some of the street intersections in Paterson where a large amount of traffic turns from one street to the other have the curb corners re-arranged substantially as above suggested. The Board of Public Works has adopted a far-sighted policy in this regard in the setting back of curb corners as and when the street is improved and thus avoiding all unnecessary expense. It is, therefore, only a question of time until the present bad conditions at the curb corners will be rectified.

The speed at which machines can turn corners depends upon several factors. The width of the intersecting streets; whether or not a corner is rounded off and the extent to which it is rounded off; whether the turn is to the right or to the left; and the distance the machine is travelling from the curb.

A car running near the curb in making a right angle turn into an intersecting street, will generally have to leave the curb and travel nearer the center of the roadway on entering the cross street as the turning radius of the car is usually considerably greater than that of the curb. It consequently follows that how closely a car can keep to the curb and avoid interference with other lines of traffic depends on its turning radius. Cars with a short turning radius obviously can keep nearer the curb and avoid interference with other traffic much better than those with a larger turning radius. The speed of

turning under these conditions, presuming a clear roadway, depends on the machine and not on the width of roadway. Increased street widths, however, permit increased speed of cars in making right-hand turns, when they travel near the center of the roadway and in the case of several traffic units abreast, a car making a right-hand turn and moving nearest the center line of the street would turn in the largest circle and safely move the fastest. It has a longer path to travel, however, and the increase in velocity will not entirely compensate for the greater length of the outside path.

Where the corners are cut off, the speed, due to the increased turning radius, may be considerably increased without any decrease in relative safety. As one would naturally expect, cutting off the corners is comparatively of much greater importance to intersecting streets of a narrow width than to streets of great width.

Many machines, especially the bigger ones with large turning radius, experience great difficulty in making right-hand turns without encroaching upon the left hand side of the roadway. Particularly on the narrower streets it is no uncommon occurrence for machines to swing almost over to the left hand side before turning to the right. Sometimes this swing to the left is carried out within the intersection itself in a manner to block the intersection from all directions. Right hand turns executed in this manner are more embarrassing to traffic than those to the left. The importance of not only wide streets but rounded corners to remedy this situation is apparent.

In the case of a left hand turn a car near the curb has the greatest turning radius and can consequently move with the greatest speed but the speed will not fully compensate for the length of its path. When a car making such a turn has to go around a central point, turning radii and safe speeds are the same as with right angle turns around a sharp corner, curb lines and center lines being



FIGURE 45.—The Falls in Winter. The preservation of the Falls for the public would constitute the noblest memorial Paterson could provide for her hero dead who fell in the World War.

transposed. The turning radius and speed increase with the width of the street when the car turns close to the curb.

Left hand turns where a central point has to be rounded will consequently be found to be shorter and more difficult to negotiate than right hand turns. Where there are many left hand turns, the movement of traffic will be greatly facilitated by requiring it to round markers immediately before and after the intersection is reached instead of at the center. This will permit the negotiation of the turn with a considerable greater radius and speed than would otherwise be possible. Left hand turns then have the advantage in these respects. Right hand turns can be made, however, by encroaching on the left hand side of the street in a circle equally

large.

Streets in closely built sections can never be made safe for high speeds for two reasons: (1) machines cannot turn sharp corners while travelling fast without danger of skidding or of running down pedestrians; and (2) corners cut off by a sufficient amount to enable drivers of fast machines to see traffic on intersecting streets and stop in time to avoid colliding with the cross traffic or to make a safe turn at high speed would require in business sections, too much valuable property, and would make the crossing less satisfactory for pedestrians.

Cutting off the street corners, instead of making the streets safe for fast vehicles, only renders them less dangerous for slow ones.

CHAPTER IV.

NEEDED IMPROVEMENT IN THE CITY'S STREET SYSTEM.

The business men of Paterson should very naturally desire to extend the commercial hinterland tributary to the city as far as possible. Only the blindest folly on the part of the city itself can rob it of supremacy to the west and north. Though growing rapidly, this is all virgin territory. As a competitor for the trade of this territory, Paterson stands alone—there are no rivals. The only way in which Paterson can possibly lose her natural ascendancy in this large area is by voluntary forfeiting it, that is by so failing to serve it that new business districts must be established to care for the trade.

To the east and south, however, the situation is quite different. Here strong and energetic competitors already exist, and in some respects they possess trade advantages that Paterson lacks. The natural movement of traffic in this vicinity is from west to east and from north to south, not the reverse. The main thoroughfares throughout the metropolitan area have been designed to facilitate movement not toward any particular suburban unit, but toward New York. That is one of the reasons why the suburbs are so small. Their existence has revolved about New York—they have never systematically attempted to develop an identity of their own.

The future city of Paterson should certainly extend to the Saddle River on the east and to the Great Notch on the southwest. But whether this territory is or is not incorporated as an integral part of the city, every effort should be exerted to establish superior means of communication with this large area so that if it is not in the city, it shall, at least, be suburban to the city.

To-day, this territory consists of vacant stretches of farm lands. For the most part, it is unsubdivided. With few exceptions, the future street system of the area can as easily

be planned as an harmonious part of the street plan of Paterson as of such neighboring communities as Hackensack, Passaic or Montclair. The co-operation of the neighboring communities, of course, must be secured in order that their street plans will harmonize with ours. But first of all, we must plan within our own limits the streets that will be required to serve this large area.

If Main Street is to remain the only through down-town street in the city, then the business growth of Paterson will have reached its maximum development when improved methods of regulating traffic have had their possibilities exhausted and refuse to pass an increased number of vehicles.

Much can be accomplished through the installation of more scientific methods of traffic control, especially through re-routing the jitneys and trolleys, the elimination of superfluous car stops, the enactment of effective parking ordinances, etc., but the relief afforded by all of these palliative measures will do little more than make present conditions tolerable. Even if they were to care for the normal increased growth in traffic during the next four or five years, at the end of that period, the traffic situation would be relatively the same as now, and additional new streets would have to be provided for further increased traffic.

Improved traffic regulations, therefore, will not permanently take the place of increased street facilities, nor can their provision be indefinitely postponed. If the opening or widening of necessary streets is delayed until traffic catches up with the present facilities, then street improvements now financially possible will have become, through the erection of expensive buildings, economically impossible.

The program of street widenings and extensions recommended in this report include:

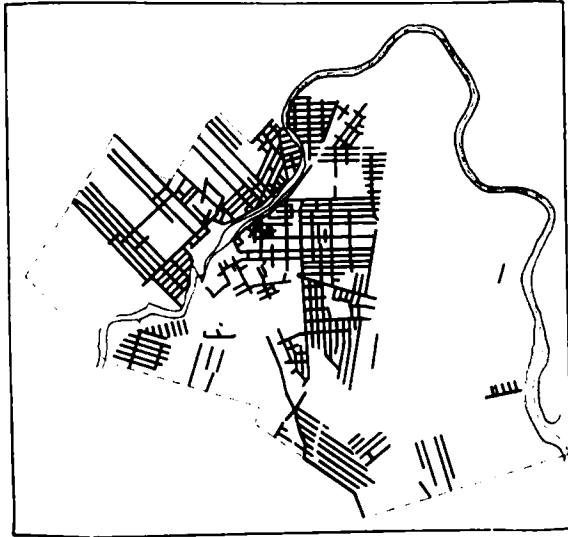


FIGURE 46.—Streets less than 60 feet wide. Narrow streets prevail in the business and industrial sections where they should be the widest.

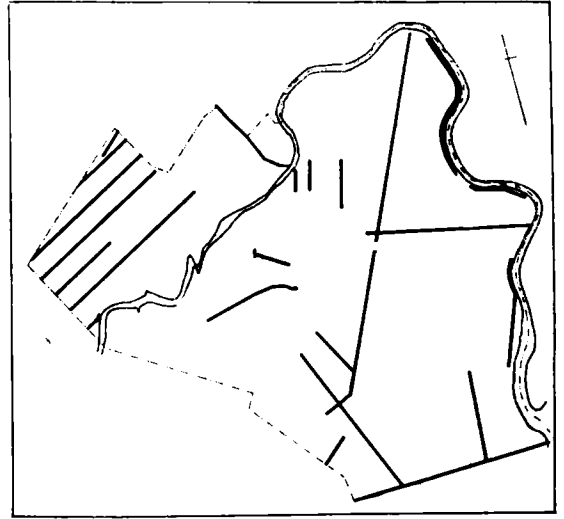


FIGURE 47.—Streets over 70 feet wide. There is no system of wide streets in Paterson. Such wide streets as exist must be connected to be fully utilized.

Bridge Street widening to 80 feet, Arch Street Bridge to Broadway.

Bridge Street opening 80 feet, Broadway to Ward Street.

Prince Street widening to 80 feet, Ward Street to Slater Street.

Spring Street widening to 80 feet, Slater Street to Peach Street.

Getty Avenue opening 80 feet, Straight Street to Peach Street.

Water Street widening to 100 feet, Arch Street Bridge to Haledon Avenue.

Water Street opening 100 feet, Haledon Avenue to city line.

Marshall Street opening 60 feet, Oliver Street to Prospect Street.

Prospect Street widening to 60 feet, Van Houten Street to River Street.

Prospect Street opening, 80 feet, River Street to Hamburg Avenue.

Broadway widening to 60 feet, Prospect Street to Mulberry Street.

Fallsway Memorial: Opening of new street past Falls, 100 feet, River Street and Prospect Street to West Side Park.

Straight Street widening to 80 feet, Main Street to Fulton Street.

Barclay Street widening to 80 feet, Hazel Street to Main Street.

Market Street widening to 70 feet, Erie Railroad to East 18th Street.

Lakeview Avenue extension 60 feet, Market Street to 21st Avenue.

Boulevard widening and relocation, irregular width, Crooks Avenue to 5th Avenue.

Morris and Essex Boulevard opening 66 feet, Morris and Essex Canal.

Newark Avenue widening and cut-off, 80 feet, Hazel Street to Main Street.

River Street widening to 60 feet, Main Line to Sparrow Street.

First Avenue cut-offs, River Street and Madison Avenue to River Street Bridge, Boulevard to Wagaraw Bridge.

York Avenue extension 60 feet, Warren Street to Lyon Street.

York Avenue widening to 60 feet, Godwin Street to Warren Street.

Madison Avenue opening 80 feet, Susquehanna Railroad to 14th Avenue.

16th Avenue, opening 70 feet, Main Line Erie Railroad to Market Street; 50 feet, East 18th Street to Madison Avenue.

Morton Street, opening 70 feet, Straight Street to Railroad Avenue; 50 feet, Market Street to Summer Street.

East 5th Street, opening 50 feet, River Street to Warren Street. Cut-off Branch Street.

Van Houten Street opening 60 feet, East 18th Street to Madison Avenue.

Hoxsey Street, widening 80 feet, Grand Street to McBride Avenue.

23rd Avenue cut-off to Madison Avenue.

Alabama Avenue opening 70 feet, Lakeview Avenue to Market Street.

Summer Street opening 80 feet, under proposed railroad viaduct from Keen Street to River Street.

Clark Street cut-off southwest corner Market and Clark Street.

BRIDGE STREET.

If Paterson is ever to have more than one continuous through street bisecting the heart of the business district from north to south, that street must be an extension and widening of Bridge Street. No other street opens up such great possibilities; no other street is so favorably located. Situated approximately half way between Main Street and Straight Street, tapping River Street, East Main Street and Haledon Avenue on the north, and running directly into Getty Avenue and Barclay Street on the south, it will afford direct access to the shopping district from all the suburban communities lying on both sides of the city—Ridgewood, Glen Rock, Hawthorne, Prospect Park, Haledon and Clifton.

To make Bridge Street what it really should be, it is necessary to extend it from its present terminus at Broadway to a point where it would enter Prince Street at Ward Street. Prince Street joins Ward Street south of Slater Street so that beyond this point the extension would utilize Spring Street. To connect Spring Street with Getty Avenue, a new street would have to be cut

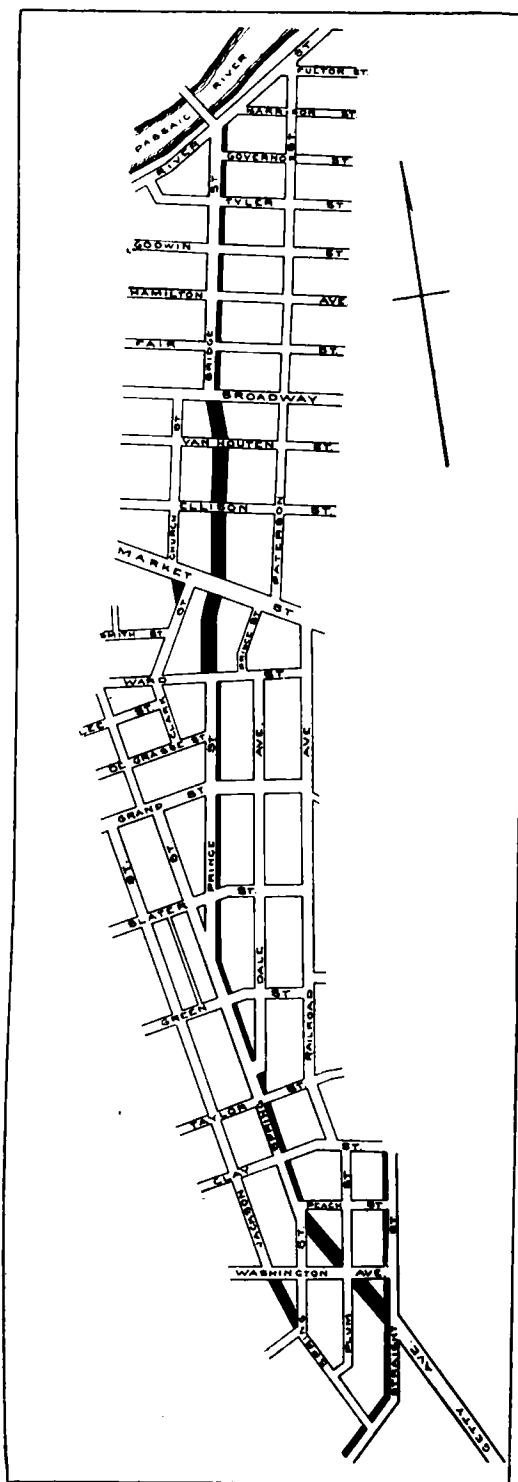


FIGURE 48.—Bridge Street extension and widening. Clark Street cutoff. Jackson Street extension.

through between Peach and Straight Streets. A uniform width of 80 feet is contemplated for the entire street, for the old portion as well as the new, all the way from Getty Avenue to the Arch Street Bridge over the Passaic River. On the west side of the river, north of Arch Street Bridge, the improvement would be continued by taking all the land between Water Street and the River as far as East Main Street. Beyond East Main Street to the city line, a new street skirting the bank of the river with a width of one hundred feet would be laid out to afford access to the rapidly growing communities on the north.

WATER STREET.

This street is designed to link up the several thoroughfares entering Paterson from the north and northwest, as well as the bridges in this section so that any of the bridge crossings may be used with equal facility. Traffic can then distribute itself over the bridges and into the streets as found most convenient.

The street will also provide a new thoroughfare of ample width by which traffic over Arch Street Bridge and others may proceed to the north over an ample thoroughfare instead of through the narrow streets now used. It will also give the City of Paterson control over a long section of its river front which is poorly developed at the present time.

This proposed improvement consists of widening Water Street on the east side between Arch Street and East Main Street to a width of 100 feet, while parking any remaining areas between the street and the river. The street would continue along the river bank at the width of 100 feet entering East Main Street just outside the limits of the city in Prospect Park and should continue by widening that thoroughfare from its present width of 50 feet to 100 feet.

With the exception of a factory building between East Main Street and Straight

Street, the proposed widening and extension traverses a section which is poorly developed, mostly with two story frame houses many of them quite old. East of Bergen Street, the proposed street traverses property mostly vacant.

The Arch Street bridge, Straight Street bridge, Hillman Street bridge and Sixth Avenue bridge enter directly into this proposed improvement, the latter at the line between the Boroughs of Prospect Park and Hawthorne.

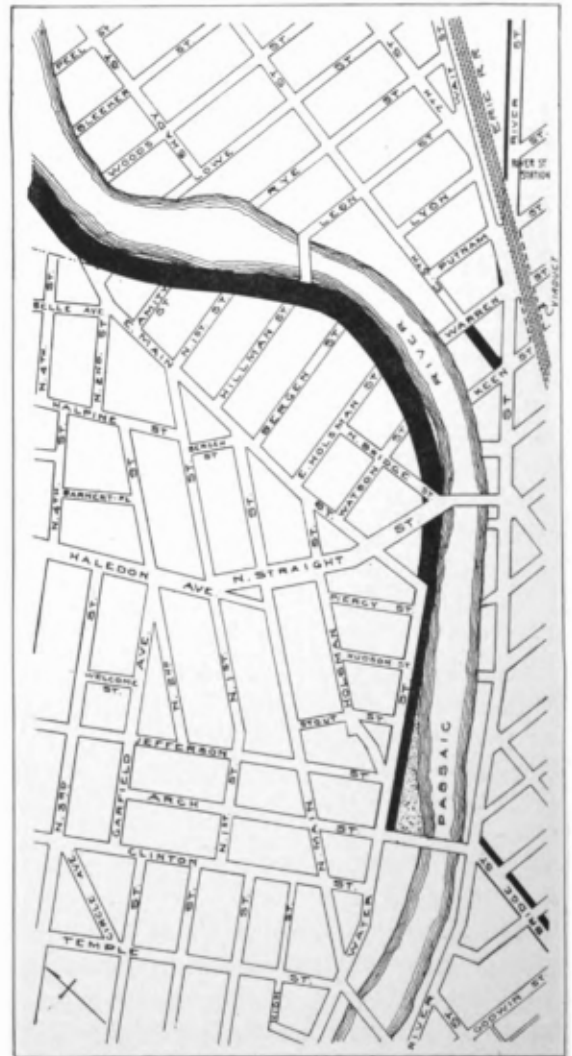


FIGURE 49.—Water Street extension and widening.

MARSHALL STREET.

Marshall Street paralleling Main Street for a considerable distance, unencumbered with trolleys and being the principal street from the downtown section to Montclair, Bloomfield, the Oranges and Newark, is seriously handicapped by not having a better outlet to the north. As it comes to an abrupt stop at Oliver Street, all the traffic using it is obliged to occupy Main Street from that point in order to enter the business district. This embarrasses a large amount of through traffic by obliging it to use Main Street through its most congested section. If Marshall Street were extended from Oliver Street to Market so that it would feed into Prospect Street, the effect would be to speed up the movement of vehicles throughout the entire business district. The business district could be served with a far greater number of machines entering from both north and south; congestion on Main Street would be relieved; and the speed of traffic through the city would be tremendously accelerated.

Marshall Street, extended thus and joined through Prospect Street with the proposed Fallsway Memorial, the Water Street improvement, and Hamburg Avenue would immediately become a thoroughfare of increased importance. Today the factories are encroaching more and more toward the east, the distance between them and Main Street is steadily lessing; indeed, factories are even now operating on Main Street itself. If the factory movement toward the east is not halted, the supremacy of Main Street as the chief shopping street of the city will be seriously threatened. To keep Main Street the street it is, means that the factories must be kept at their present distance. They cannot be allowed to come any nearer; if anything, they should be pushed farther back.

The extension of Marshall Street would tend to increase the land values on Prospect Street. The through traffic that would go over this street from Totowa, Little Falls, Haledon and Pompton to Newark, the

Oranges, Montclair, Bloomfield and Clifton, when added to its present local traffic, would make it one of the most traveled streets in

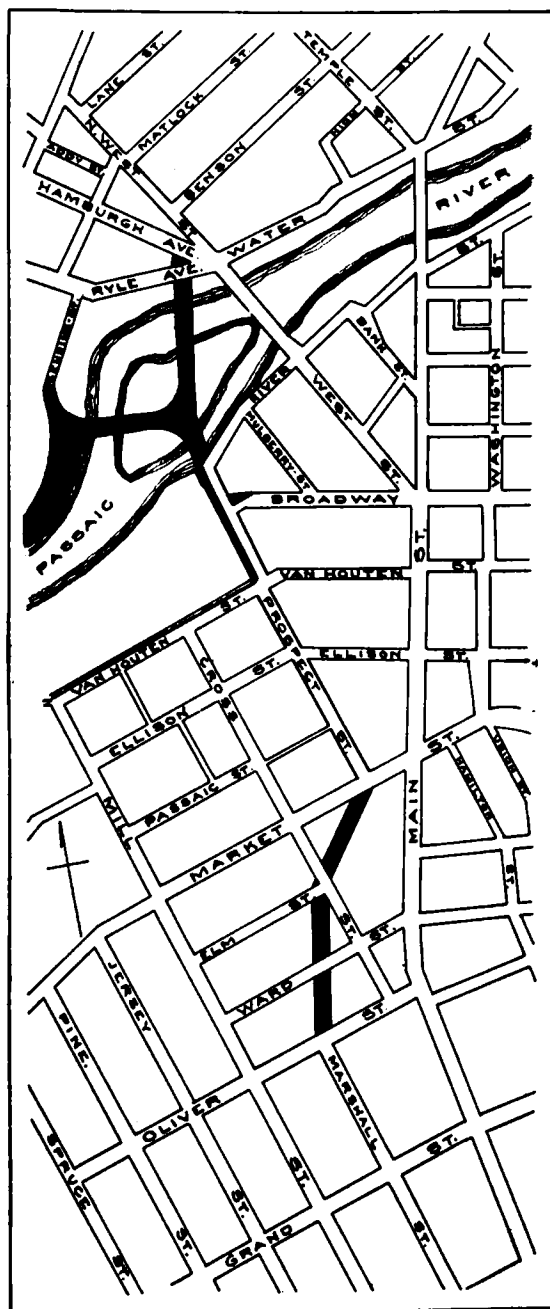


FIGURE 50.—Marshall Street extension. Prospect Street widening and extension to Hamburg Avenue and Fallsway Memorial.

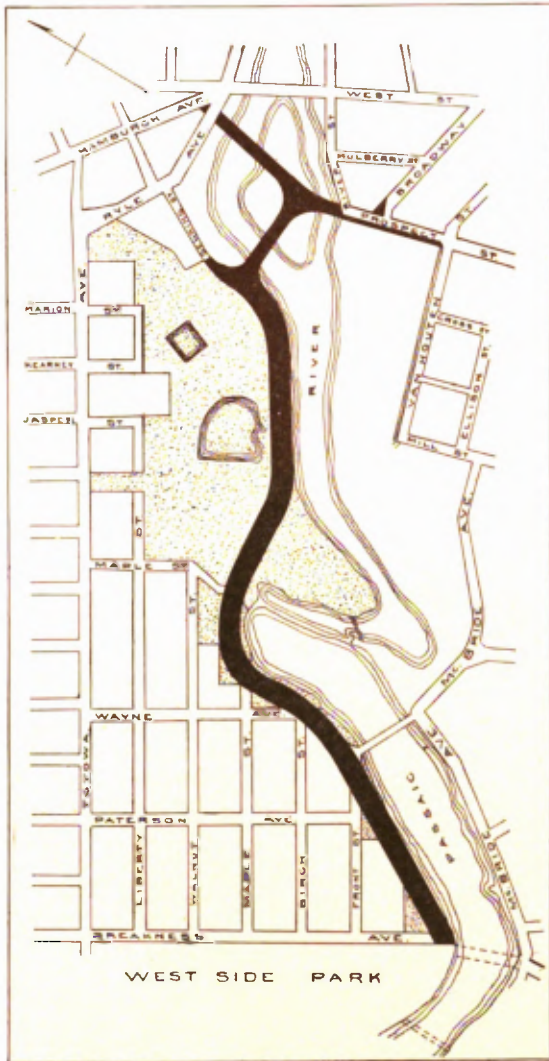


FIGURE 51.—Fallsway Memorial Park and Parkway. Broadway cutoff.

the city. This would of course, attract shoppers and serve to galvanize the whole district now in a transitional stage with new life. In time it would not be unreasonable to expect that this street improvement would roll back the factory development away from Main Street, fill up the gap between Prospect and Main Streets with stores and help permanently to maintain Main Street in its present position as the chief shopping center of the city.

THE FALLSWAY MEMORIAL.

The Fallsway Memorial would do more than provide access to the Falls, though this would be a sufficiently worthy achievement in itself—it would also shorten the distance between the west and east sections of the city, thus affording a new street of easy grades from the center of town to West Side Park. It would also relieve the congestion of traffic on Main Street, permitting through vehicles entirely to avoid Main Street and consequently increase the ability of that street to care for purely local traffic. The traffic from Little Falls, Singac and Totowa, now using Union Avenue would all be diverted to the Fallsway Memorial. This would relieve both Hamburg Avenue and West Street of their present congestion. By opening up new routes to traffic—making offset streets like Marshall and Prospect through streets and encouraging traffic to circulate instead of stagnating in a maize of streets leading absolutely nowhere; by providing what practically amounts to a new street parallel to Main and West Streets, thus doubling the thoroughfare space available for through traffic; by affording such streets as Broadway, River and Water a new outlet for their traffic, the Fallsway Memorial with its connections is the one big outstanding street improvement that will do more than any other improvement, not even excepting the Bridge Street extension and widening, to relieve downtown congestion.

The Fallsway Memorial and its connections including the three new bridges over the Passaic River may be viewed in various ways; it may be considered, in one sense, as a continuation of Broadway, thus affording one continuous street from West Side Park to East Side Park. In another sense, it may be looked upon as a projection of River Street across the Passaic and as a means of providing direct access from Totowa to Riverside. Then, too, it may be regarded as an extension of Water Street past the Falls, thus

shortening the routes between Hawthorne and West Side Park.

The Fallsway Memorial would afford an approach to our greatest natural asset—the Falls. That nothing has ever been done to preserve and make available to the public the majesty and grandeur of this beautiful spot is the severest indictment that can possibly be lodged against our past lack of prudence and foresight in city planning. This remarkable cataract with its interesting chasm should have been preserved for public purposes a hundred years ago. The preservation of the Falls is something that Paterson has always wanted, still wants and will want until they are acquired.

Had the reservation of the Falls for recreational purposes been worked out at the time the city was founded in connection with the utilization of its power for industrial purposes, the happiest solution to both problems would, of course, have been possible. But even today it is not too late. The land still vacant, however, is being rapidly improved; if the Falls are ever to be acquired for public purposes, it must be now without delay before all the land is improved.

These are some of the practical considerations which make the Fallsway Memorial a paramount necessity. But it may be made something more than a mere thoroughfare.

As yet the city has erected no memorial to the heroes of the World War. Who can deny the appropriateness of such a memorial, especially when it is coupled with the preservation of land at present vacant in the vicinity of the Falls on Monument Hill as a public park? No other place with the exception of Garret Rock, affords such a wonderful panorama of the entire city and, indeed, of the entire surrounding country. That the G. A. R. should have chosen this site for the memorial to those who fell in the Civil War certifies to its availability as a monument site; that this monument should now be removed to East Side Park nearly sixty years after the close of the War, instead of reflecting upon the

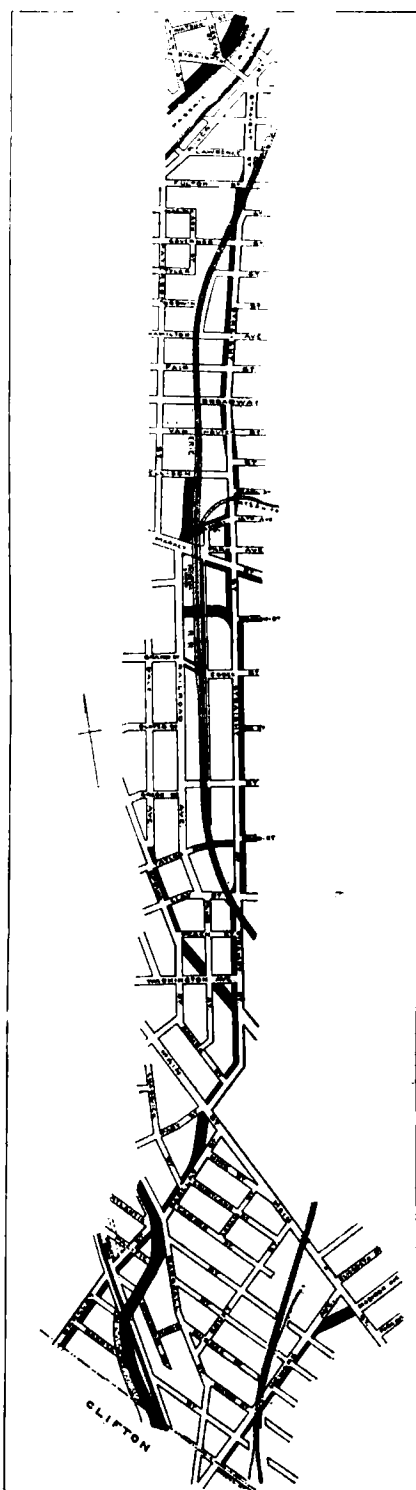


FIGURE 52.—Straight Street widening and extension. Barclay Street widening. Newark Avenue widening and cutoff.

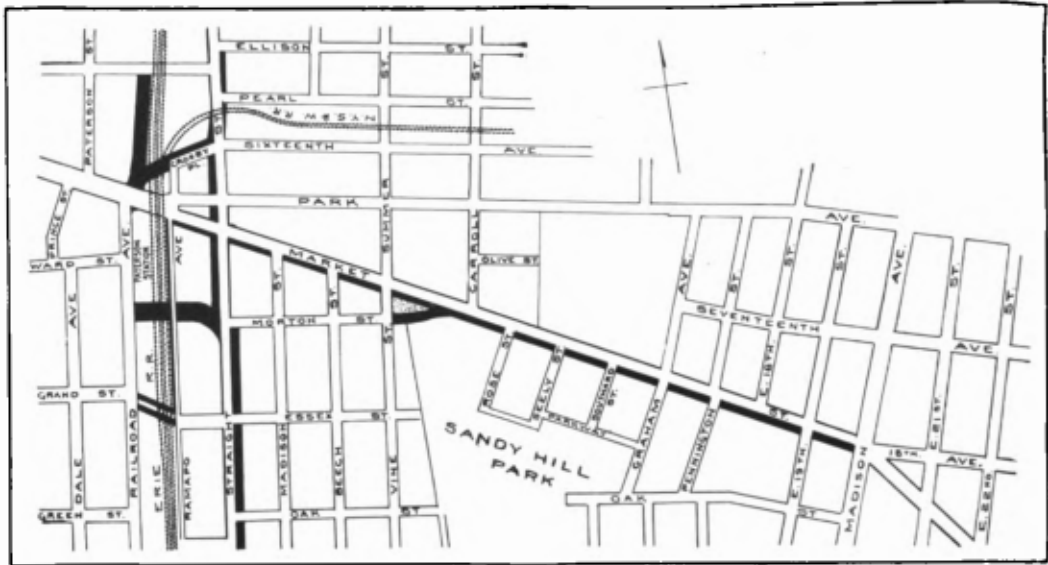


FIGURE 53.—Market Street widening. Railroad Avenue extension. Crosby Place and Sixteenth Avenue extension. Morton Street extension.

unique location of this rugged promontory overlooking the Passaic for monument purposes, is only another proof, if any were desired, of the dreary isolation at present surrounding the approach to the Falls.

Viewed either as a thoroughfare or as a memorial, the Fallsway Memorial is an indispensable part of any satisfactory program of civic development.

STRAIGHT STREET.

Straight Street is one of the most important links in the city's major street system. Being the only continuous street running north and south through the city between Madison Avenue and Main Street and located immediately to one side of the business district, it will, in time, serve not only as a cut-off between Main and River Streets and, therefore, as a relief to the downtown streets, but as a main highway between such communities as Montclair and Clifton on the south and Ridgewood, Prospect Park and Hawthorne on the north. Yet its unique position in the city's street system has, up to

date, been very inadequately appreciated, so inadequately, in fact, that today it is almost impossible for an automobile to use it—the pavement is so bad. To realize its true importance, Straight Street must be given an increased width—fifty feet is entirely too narrow for the traffic it will be called upon to care for within a few years. It should be widened to a width of at least eighty feet. As its southern extremity it should, moreover, be straightened so that it will connect directly with Barclay Street. This will obviate the necessity of making an awkward turn on Main Street and thereby increase the capacity of both Main and Straight Streets.

MARKET STREET.

Market Street is one of the oldest as well as most important traffic thoroughfares of the city. It leads out east from the business center past the principal railroad station. Some of the most important public and commercial buildings are located on this street. It is the direct thoroughfare to Hackensack and Fort Lee and via Hackensack to Hoboken

and Jersey City. To the west of the business center, the street enters Spruce Street where it connects with McBride Avenue by which Little Falls and the country to the west is reached.

From Spruce Street to Mill Street, Market Street is now fifty feet wide; from Mill Street to Washington Street, 60 feet wide, where it expands into 90 feet and continues at that width to Ramapo Avenue. East of that street, it is 50 feet wide as far as Madison Avenue. From Madison Avenue, east to Market Street bridge, where it enters Bergen County, the street has a width of 70 feet.

There is considerable traffic congestion in the narrow portion of Market Street east of Ramapo Avenue. It is proposed to remedy this condition by widening the street on its southerly side from its present width of 50 to 70 feet. The widening would make of Market Street a thoroughfare not less than 70 feet wide in any part east of the business center. Traffic would then move to and from the center much more freely than at present.

From Ramapo Avenue to Summer Street, the buildings which would be cut are generally three-story frame and brick buildings of considerable age. From Summer Street to Pennington Street the buildings are mostly two-story frame buildings which can in most cases be moved back on the lot. From Pennington Street to Madison Avenue, the widening would not occasion any building damage.

LAKEVIEW AVENUE.

Lakeview Avenue, 120 feet wide, the widest street in the city, is an excellent connection from Market Street, south through Clifton into Passaic. East 37th Street would be the proper continuation of the street north into Vreeland Avenue, where traffic could continue through East 33rd Street, and the bridge across the Passaic to Bellair and points to the north and east. Unfortunately, the Susquehanna Railroad is in the way and the street was vacated in 1914 for a length of 325 feet south of 21st Avenue. Two one-

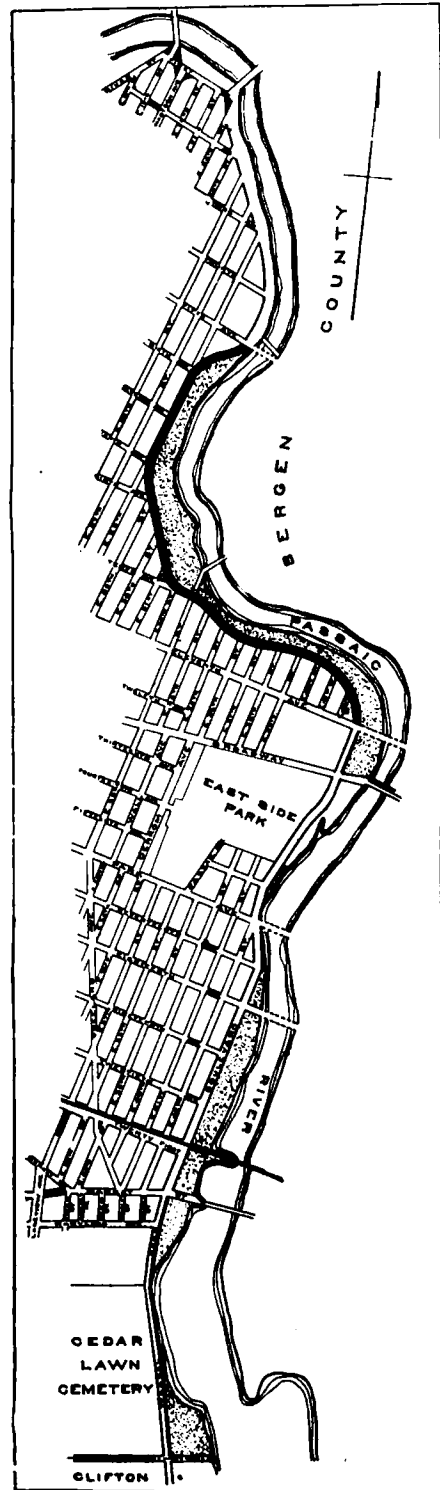


FIGURE 54.—Boulevard relocation and widening Lakeview Avenue extension. Twenty-third Avenue First Avenue cutoffs.

story and one two-story buildings of little value and which can easily be moved, have been placed on this area. It is considered that the importance of the direct continuation of this avenue to the north of Market Street warrants reclaiming the vacant portion of East 37th Street, and provision of a crossing at East 37th Street in the grade crossing elimination plans of the Susquehanna Railroad.

THE BOULEVARD.

This avenue is already laid out for the most part at a width of 100 feet along the west shore of the Passaic River, but the several breaks in its continuity destroy its usefulness, and consequently it has not been improved.

The street is strategically located for detouring the heavy pleasure traffic from New York City and points south, to the east of the congested portions of the city, on its way to Ridgewood, Tuxedo and points north.

Besides relieving congestion on other north and south streets nearer the heart of the city, it will furnish a very attractive and scenic way which it is anticipated will attract a considerable pleasure traffic when once it is improved. Following the river, it will be nearly level, and objectionable grades which occur on other routes will be avoided. It will also form an important link in a belt traffic way round the city, connecting its main thoroughfares.

The avenue has good connections to the south of the city through Dundee Drive, Lexington Avenue and Randolph Avenue to the main thoroughfares on the south and via the Wagaraw Bridge to Ridgewood, Tuxedo and points north via Maple Avenue.

It is not believed that the citizens of Paterson will long tolerate the foul condition of the river, which is constantly growing worse by the diminution of the dry weather flow, and the increased discharge of waste into the stream. The proposed improvement pre-

sumes that the river will eventually be reclaimed and made attractive.

In order to effect this improvement, it is proposed to widen Weasel Road on the river side from its present width of 70 feet to 100 feet, and park the areas intervening between it and the river. From Market Street north to East Side Park, the existing avenue 100 feet wide is made use of, and the areas to the east bordering on the River are also to be parked.

Through East Side Park, there is at present a dirt roadway near the river bank. This part of the park has been improved very little, no doubt, to the condition of the river. A park roadway of adequate width is proposed, nearly on the line of the dirt roadway above mentioned, continuing the Boulevard northwardly into East 43rd Street. From Broadway north East 43rd Street would be widened on its east side from 85 to 100 feet, and the avenue would be continued on easy curves over unimproved land somewhat elevated above the river bank and from 50 to 200 feet back from the river. This location is chosen rather than the Boulevard as now laid out, in order to elevate the roadway and thus obtain a wider outlook over the Passaic Valley, as well as to obtain a park area along the bank of the river which will be of inestimable value to the residential area to the west, when the river is reclaimed. All that portion of the Boulevard heretofore laid out on the river bank between East 43rd Street and Tenth Avenue, as well as between East 31st Street and Fifth Avenue would be included in the park area where not taken in the new boulevard location.

The Boulevard is made continuous where now broken at the Cramer & King Co.'s works by curving it through Tenth Avenue around the western side of this plant.

The street north to Fifth Avenue bounds a residential area and added value will no doubt be given to it for this purpose, by the continuous Boulevard and park strip between the Boulevard and the river. North of Fifth

Avenue, the adjacent property is industrial and the Boulevard follows existing lines along the river bank nearly to the Wagaraw Bridge where the Boulevard is swung to the west, cutting a one-story factory building in order to make an adequate approach to that bridge.

MORRIS AND ESSEX BOULEVARD.

The Morris Canal extending from the Hudson River at Jersey City to the Delaware River at Phillipsburg, has not been in use for some years and is a very considerable barrier to traffic as the antiquated bridges over the canal are narrow and the approaches are very abrupt with dangerous turns and steep grades.

The canal has a nominal width of 40 feet at the water surface, 25 feet bottom width and a depth of 5 feet. The right of way averages about 66 feet in width. The canal is level throughout Paterson, is about 100 feet above its business center and averages some 15 feet below the Lackawanna Railroad which parallels it on the west.

The canal winds through Paterson in approximately the arc of a semi-circle around Garret Rock which is some 200 feet above the canal, approaching the city in a northerly direction and leaving it in a southwesterly direction.

The Morris Canal and Banking Company and the Lehigh Valley Railroad Company, its lessee, are the owners and occupants of the Canal. By the terms of the charter, the State has the right to take the property in 1924 by paying the fair value thereof and, by the terms of its charter, it would revert to the State in 1974.

Negotiations have been in progress for some time with a view to releasing to the State most of the canal property. It is expected that legislation in regard to the transfer will be enacted at the present session of the legislation.

It is important, therefore, to determine

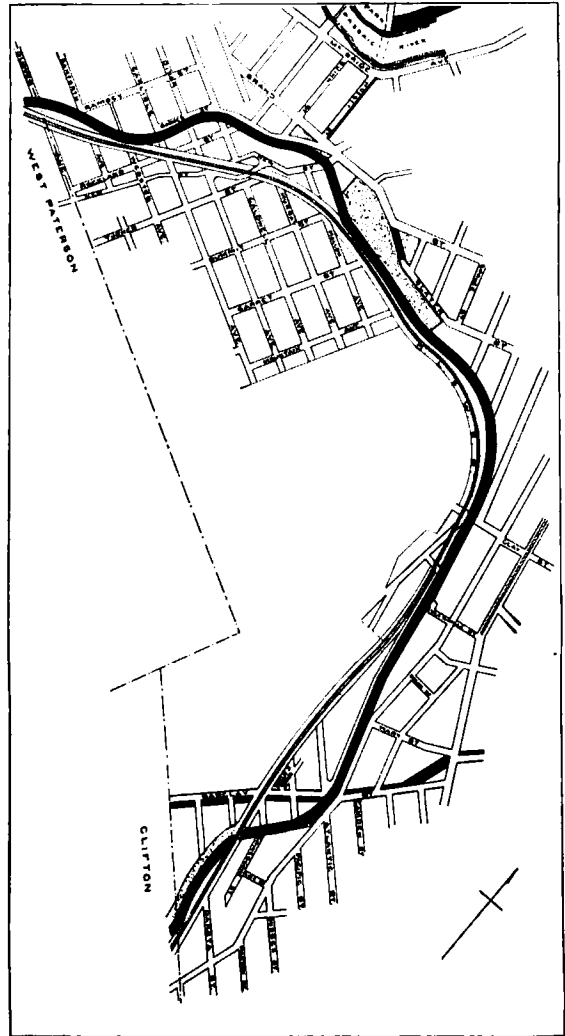


FIGURE 55.—Morris and Essex Boulevard. Slater Street straightening. Hoxsey Street widening.

what is the best public use to which the property can be put. Its value to the State largely lies in its continuity and the opportunity it gives for removing the obstructing bridges and improving the highways at the crossings. After careful study of various suggested uses it is believed that a continuous boulevard from Branch Brook Park or Bloomfield to Phillipsburg on the Delaware River will be most satisfactory. This will not preclude the use of parts of the canal for water supply

pipe lines if found desirable. This boulevard will give a fairly direct thoroughfare line for the most part between Bloomfield and the business section of Paterson by way of Barclay Street and Marshall Street. The present dangerous and obstructive bridges at Marshall Street and Barclay Street should be removed. The boulevard would cross these streets at their level with an improvement of present grades. The elimination of the grade crossings would be effected much more satisfactorily than if the water way remained. A park area is proposed on the west side of the canal between Marshall and Barclay Streets to include the bank on the west side. Connection is also proposed with the existing street system at Clay and Mill Streets, while a park area now mostly unimproved property and a part of it occupied by a playground would be taken on the east side of the canal to Slater Street and Grand Street, extending from Spruce Street to about 200 feet east of New Street. In connection with this improvement, Slater Street is given a more direct connection into Grand Street and its usefulness should be considerably increased.

At New Street, the present narrow and ancient bridge would be removed, the intersecting thoroughfare brought to a common grade and a square formed where the boulevard would also connect with Grand Street and Hoxsey Street. This latter street would be widened to 80 feet for a bridge connection with the west side of the Passaic. To the west of New Street, Barnes Street, adjoining the canal on the north and which carries a street railway track, would be incorporated within the limits of the boulevard.

NEWARK AVENUE.

Madison Avenue terminates on the south at Main Street and there is at present no satisfactory connection with Bloomfield Road or Valley Road and the localities along these roads.

It is proposed to supply this deficiency by

extending Madison Avenue across Main Street into Newark Avenue, widening this street on its easterly side from sixty to eighty feet and continuing it into Marshall Street and the Morris and Essex Boulevard.

Madison Avenue with the break at the Susquehanna Railroad removed and extended into Newark Avenue then will become the important artery connecting Ridgewood and Montclair, which its location and width predicate. When this improvement is carried out, there should be little occasion for through pleasure traffic between these localities to pass through the congested portion of the city.

YORK AVENUE.

This avenue, extending from Twelfth Avenue to Putnam Street, is one of the ancient highways of the city which has not been obliterated by the rectangular street system.

Since it runs adjacent to and parallel with the Susquehanna Railroad, and because it can readily be connected with East 15th and East 16th Street on the north and East 18th Street on the south, it can be made to form with these streets an important traffic artery. It then makes a traffic thoroughfare between River Street and the Riverside section on the north by easy grades through East 18th Street to Market Street and points south.

The importance of this connection is largely due to the fact that East 15th Street and East 16th Street are the only streets running north and south between the Susquehanna Railroad and East 27th Street which have suitable grades for heavy trucking. All the others go up and then down a hill some 50 feet high by considerable grades.

East 16th Street, which is 60 feet wide, forms a junction with York Avenue, having a width of 50 feet, at Putnam Street. There is an offset in these streets of about 40 feet which it is proposed to remove by cutting through two and one-half blocks from 100 feet north of Keen Street to Lyon Street,

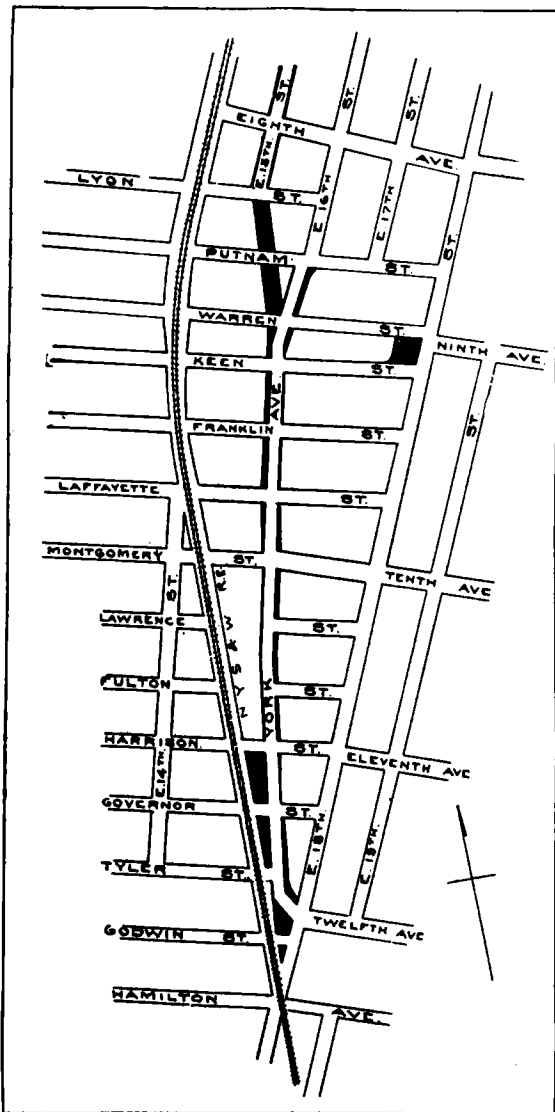


FIGURE 56.—York Avenue extension and widening. Ninth Avenue cutoff.

which would involve moving five frame houses.

York Avenue, at the present time, is 50 feet wide. It is proposed to make it 60 feet wide by widening on either side as indicated on the sketch. A triangular piece of property is taken at 12th Avenue and the railroad to make a direct connection with East 18th Street.

Plans proposed for the elimination of grade

crossings on the Susquehanna Railroad show Keen Street passing under the railroad and when this project is carried out, Keen Street and Ninth Avenue will make an important east and west thoroughfare.

Governor Street and Eleventh Avenue also form an important crosstown thoroughfare, and to make the connection of these streets as easy as practicable without interfering with traffic on other streets, it is proposed to widen out York Avenue north of Governor Street to the railroad property.

MADISON AVENUE.

Madison Avenue, 80 feet wide, is perhaps the most important north and south thoroughfare in the city for pleasure traffic. This traffic is very heavy during the summer months. The usefulness of the street is greatly impaired, however, by the break in its continuity at the Susquehanna Railroad. All traffic is forced to detour around this break by sharp turns through narrow streets. Undesirable interference with the normal traffic on these streets is also a consequence of the interruption. Only frame buildings of considerable age are cut by this improvement. In connection with this proposal, it is recommended to extend Sixteenth Avenue eastwardly over now vacant property into Madison Avenue. This street, paralleling Park Avenue, should serve to relieve its traffic to some extent.

SIXTEENTH AVENUE AND CROSBY PLACE.

Park Avenue has to carry heavy traffic of all classes—automobiles, busses and street cars. It is highly important to provide relief for the street in parallel streets to the greatest extent possible. To provide such relief is the main object of this improvement. Crosby Place would be widened to 70 feet and extended over railroad property under the railroad tracks, which would be elevated according to the railroad grade crossing

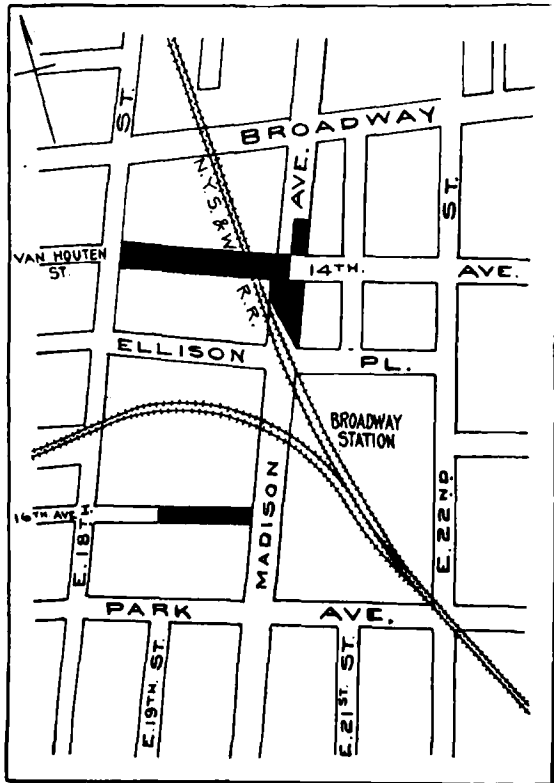


FIGURE 57.—Madison Avenue extension. Van Houten Street extension. 16th Avenue Extension.

elimination plans. A connection would thus be made at Market Street and Railroad Avenue favorable for the diversion of traffic into this avenue. To further increase its usefulness, it is proposed to extend this street over unimproved property into Madison Avenue. Much better outlets will be afforded both east and west to all property on this street than is the case at present.

MORTON STREET.

At present Morton Street has a length of three blocks between Straight Street and Summer Street. In order to improve the traffic circulation around the new railroad station which has been proposed as a part of the railroad grade crossing elimination plans, as well as to furnish some relief to the Market Street traffic, it is proposed to extend Morton Street under the elevated tracks of

the Erie Railroad at a width of 70 feet from Straight Street to Railroad Avenue, passing to the north of the Eastwood factory. To further accomplish the purposes above mentioned, it is proposed to extend Morton Street eastwardly to Market Street through a corner of Sandy Hill Park.

EAST FIFTH STREET.

This improvement will afford a better traffic thoroughfare from the industrial districts on the west side of the river to the industrial areas in the Riverside section of the city as well as better connect them with Fairlawn and points east. It will also more fully utilize the Hillman Street and Sixth Avenue bridges as well as improve the traffic connection between the Riverside industrial section and the downtown business section of the city. To accomplish these aims, it is proposed to eliminate a 100-foot offset in East Fifth Street at Branch Street by directly connecting the two portions of East Fifth Street through unimproved property and to extend it one block from Warren Street to Keen Street, thus bringing it into River Street.

VAN HOUTEN STREET.

Van Houten Street, extending from Mill Street to East 18th Street, is in line with 14th Avenue, which runs from Madison Avenue to East Side Park. These streets are separated by a block on which are several frame buildings and the tracks of the Susquehanna Railroad. It is proposed to join Van Houten Street and 14th Avenue by cutting through the block. At least half of the value of the obstructing buildings would be taken in clearing the break in Madison Avenue at this place. A crossing of the railroad can be provided in plans for the elimination of the railroad grade crossings. Fourteenth Avenue is well built up. A direct traffic connection with the heart of the city is important. This connection will also serve to make

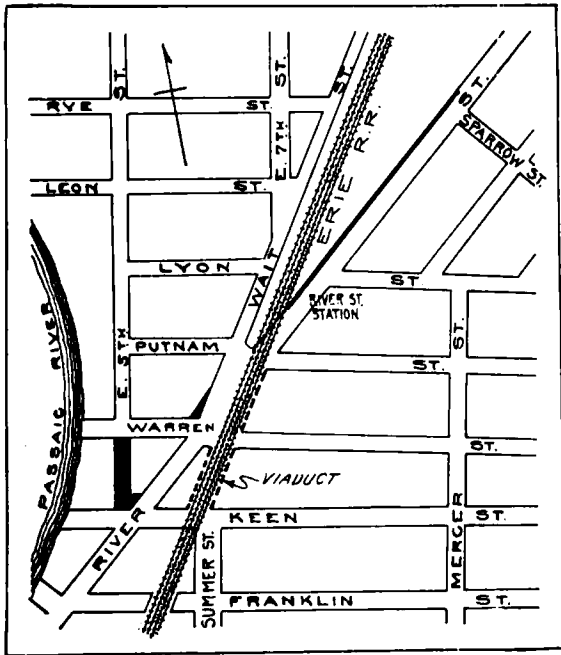


FIGURE 58.—East Fifth Street extension. River Street widening.

Van Houten Street and Fourteenth Avenue a parallel of much importance to Broadway and relieve it of considerable traffic originating to the south.

TWENTY-THIRD AVENUE.

Twenty-third Avenue should be an important link in the traffic plan of the city. It is proposed to cut off the northeast corner of East Twenty-third Street and Madison Avenue. This would permit a trolley now on East Railway Avenue to be relocated so as to run on 23rd Avenue to Trenton Avenue and thence south to Crooks Avenue, thus opening up this entire area for residential development as well as serving the heavy industrial zone to the west.

A continuous thoroughfare is thereby obtained via Beckwith Avenue, Alabama Avenue and Market Street in no place less than 70 feet wide. This will put the southwest section of the city in direct communication with the Market Street Bridge.

These improvements together with that of Newark Avenue furnish a through traffic route from Bloomfield and Montclair via Bloomfield Road and Valley Road, Newark Avenue (proposed), Madison Avenue, California Avenue and Market Street to easterly points via the Market Street bridge, shunting the business portion of the city.

SUMMER STREET VIADUCT.

Summer Street, which is 80 feet wide from Fulton Street north, stops at Keen Street. Traffic to continue northerly on Summer Street has to turn at right angles on Keen Street, progress about 200 feet west and then turn through a large angle into River Street.

To avoid these turns and the indirect traffic route, in connection with the elimination of the railroad grade crossings, it is proposed to carry the railroad on a viaduct between Keen Street and River Street. The railroad right of way underneath the structure will then be available for carrying Summer Street traffic directly into River Street.

CLARK STREET.

Clark Street, were it not for the offset at Market Street, would really be a continuation of Church Street. This offset seriously interferes with all the traffic using the three intersecting streets. Traffic crossing from Church to Clark or from Clark to Church, instead of cutting the traffic on Market Street at right angles must in either case join the traffic on that street, unnecessarily congesting it and slowing it down. The two turns necessary to go from one street to another are, moreover, exceptionally awkward and dangerous. Much traffic refrains from using either street because of this offset.

If the southwest corner of Clark and Market Streets were cut off, Church and Clark Streets would be made practically a continuous street, intersecting Market Street almost at right angles and entirely obviating the two turns now necessary to cross it. This would

almost afford the equivalent of another short north and south street through the business section extending all the way from Broadway to De Grasse Street.

PASSAIC RIVER BRIDGES.

The City of Paterson is not only separated in a measure from surrounding areas which should be an integral part of its business territory by political boundaries, but by the Passaic River as well. This river surrounds the main part of the city for two-thirds of its circumference and it is only on the south that bridges are not necessary for communication with the surrounding country. Garret Rock and the Morris Canal offer such great obstructions that the river crossings may be said to extend along more than three-quarters of the circumference of the main portion of the city available for outside communication.

The importance of the highway bridges over the Passaic River in relation to its traffic thoroughfares as well as to the business interests and well being of the city is, therefore, manifest.

To the northwest across the river are the Totowa and Haledon sections of the city, both largely residential, and inhabited by a considerable portion of the people working and doing business in the city. This portion of the city extends on both sides of the river for about one-third of its length through and around the city. Seven of the 14 highway bridges spanning the Passaic within the city limits connect this area with the main portion of the city.

Beginning at the western end of the city, the existing and proposed bridges, proceeding down the river are as follows:

1. Lincoln Bridge—This bridge connects McBride Avenue with Totowa Avenue and Cumberland Avenue at the westerly limits of the city.

2. Preakness Avenue Bridge—This is a proposed bridge which would connect the proposed Morris and Essex Boulevard, Grand Street and Little Falls Road over the Passaic

into Preakness Avenue at the easterly side of West Side Park, and into the proposed Fallsway Memorial. This bridge would form an important link in the system of avenues contemplated in the major street plan.

3. Spruce Street Bridge—This bridge, which is immediately above the Falls, gives an excellent view of them, and connects Market Street through Spruce Street and Wayne Avenue with the Totowa section of the city. Its north approach will be on the proposed Fallsway Memorial.

4. Prospect Street Bridge—Prospect Street at the present time is a street of fair width and comparatively little traffic. It more nearly parallels Main Street than any other in its most congested section. It is proposed to make this street a parallel to Main Street and relieve that street of congested traffic by bridging the river at the foot of Prospect Street over to the Island. From the Island, the bridge would branch one leg entering Hamburg Avenue and the other turning into the proposed Fallsway Memorial.

5. West Street Bridge—This bridge, the most important in the city, is a continuation of Main Street into Hamburg Avenue. Part of its heavy traffic would be diverted over the proposed Prospect Street bridge.

6. Main Street Bridge—The location of this bridge indicates that it should be of first importance, directly connecting as it does, Main Street with North Main Street and points to the north. Main Street, however, between Broadway and Bank Street is only 47 feet wide and between Fair Street and Hamilton Avenue is occupied by so many market teams that through traffic is throttled to such an extent that the longer course through Bridge Street and over the Arch Street bridge is generally preferred. The bridge accommodates a large amount of local trucking however.

7. Arch Street Bridge—Arch Street bridge at the present time carries the trolley lines, busses and most of the pleasure traffic from the business center to Hawthorne and

points north. When Bridge Street is extended and widened as proposed, the traffic will arrive more directly at this bridge and the traffic will be even heavier but most of the tributary traffic is now forced to use this bridge.

8. **Straight Street Bridge**—When the contemplated widening and extension of Straight Street is completed, a through route to one side of the congested district will be provided for automobile traffic from Montclair, Bloomfield, Newark, etc. to Haledon, Hawthorne, Ridgewood and points north over this bridge. This bridge would then take a larger share of the burden which now falls mainly on the Arch Street bridge.

9. **Hillman Street Bridge**—This is a modern steel bridge with little traffic. It connects the Haledon section of the city with the Riverside industrial section and affords ample communication between them. Traffic will distribute itself over this bridge by the proposed improvements in East Fifth Street.

10. **Sixth Avenue Bridge**—This bridge also connects the Haledon section of the city with the Riverside industrial section. Considerable trucking passes over this bridge between industries on either side of the river. The contemplated improvement of East 5th Street will facilitate this traffic.

11. **East 19th Street Bridge**—This bridge connects River Street, East 19th Street and Madison Avenue with Hawthorne, Ridgewood and points north via Lincoln Avenue. There are, unfortunately, abrupt turns in the street approaches to this bridge and its alignment introduces other turns, so that the course of traffic from any of the streets in Paterson into Lincoln Avenue is very irregular. The bridge, too, is hidden by frame buildings so that it cannot readily be seen when approached.

It is proposed to make the inadequate approaches more satisfactory by removing the three frame buildings in the way of a direct approach from River Street, as well as cut off the southwest corner of Madison Avenue

at First Avenue and the northeast corner of East 19th Street and First Avenue so that the traffic from Madison Avenue can use the bridge with safety and comfort.

12. **Wagaraw Bridge**—This is the most important bridge for the Riverside section leading to Ridgewood and points north via Maple Avenue. The larger part of the heavy summer traffic on Madison Avenue moves north via this bridge, turning a right angle at Madison Avenue. It is proposed to make this turn less abrupt and improve the route via this bridge by cutting off the southeast corner of Madison Avenue and First Avenue.

The proposed Boulevard should take a considerable part of the large north and south pleasure traffic which makes use of this bridge and to provide a satisfactory approach, it is proposed to widen the Boulevard somewhat to the west so that it will be 100 feet wide to the west of the wing wall of the bridge.

13. **Fifth Avenue Bridge**—This bridge connects the Riverside industrial section with Fairlawn, Paramus and points to the east, also via the Paramus Road with communities to the north and south as well. The bridge does not directly connect with Fifth Avenue as there is an offset of more than 100 feet at the Boulevard.

Traffic on the projected Boulevard would be interfered with to a greater or less extent by this cross traffic on Fifth Avenue turning into and out of the Boulevard. Consequently, it would be well when the present bridge is replaced, to consider a new location continuing Fifth Avenue directly across into the street south of Fairlawn Avenue.

14. **East 33rd Street Bridge**—This bridge connects 33rd Street, which is an extension of Vreeland Avenue and Lakeview Avenue, via the proposed extension of East 37th Street, into Bellair and points to the north in Bergen County.

15. **Eleventh Avenue Bridge**—This is a proposed bridge to convey traffic on the proposed cross town thoroughfare north of

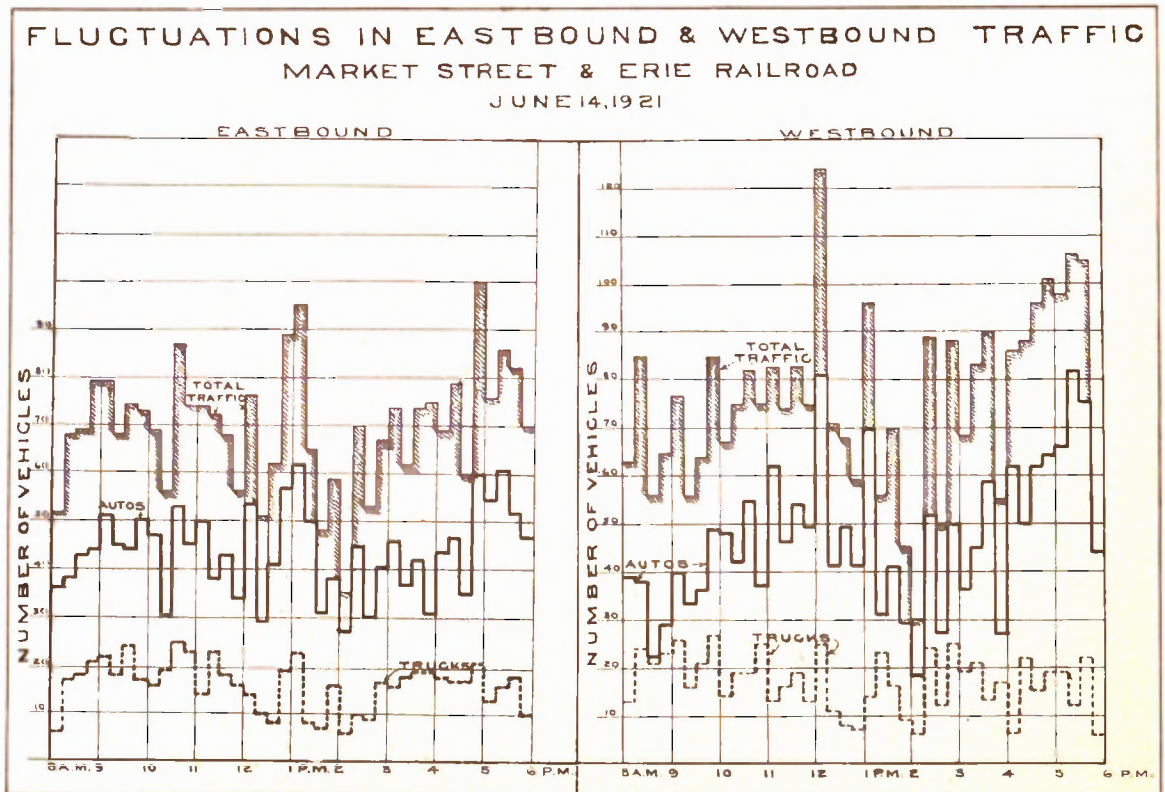


FIGURE 59.—The flow of traffic fluctuates momentarily. The automobile traffic of one fifteen minute period is often double that of the preceding fifteen minute period. The volume on the two sides of a street varies enormously.

Broadway through Governor Street and Eleventh Avenue across the Passaic into Bergen County. With suitable connections to the east, it should carry a considerable part of the traffic to and from parts of the city to the north of Broadway which now crosses the Broadway Bridge.

16. Broadway Bridge—This important bridge over which the traffic between the central business section of the city and points to the west passes, via Arcola, is not modified in the plans proposed. Other bridges are proposed to the north and south, however, which take part of its traffic.

17. Park Avenue Bridge—This is a proposed extension of Park Avenue across the Passaic River and would be a necessary link in a thoroughfare continuing Park Avenue through at present undeveloped territory in Bergen County.

18. Eighteenth Avenue Bridge—This is a proposed bridge to carry Eighteenth Avenue across the Passaic River. This bridge with other proposed bridges in the vicinity are planned to give better communication between Paterson and localities to the east. To effect this 18th Avenue should be continued in Bergen County to Passaic Junction.

19. Market Street Bridge—This important bridge directly connecting the business centre of Paterson through Dundee Lake and Rochelle Park with Hackensack as well as points to the south and west, is given better approaches from the Lakeview section by the proposed plans. The proposed connection of Alabama Avenue with Market Street and the changes in Newark Avenue should bring the Lakeview section of the city in much closer relation to Bergen County points via this bridge.

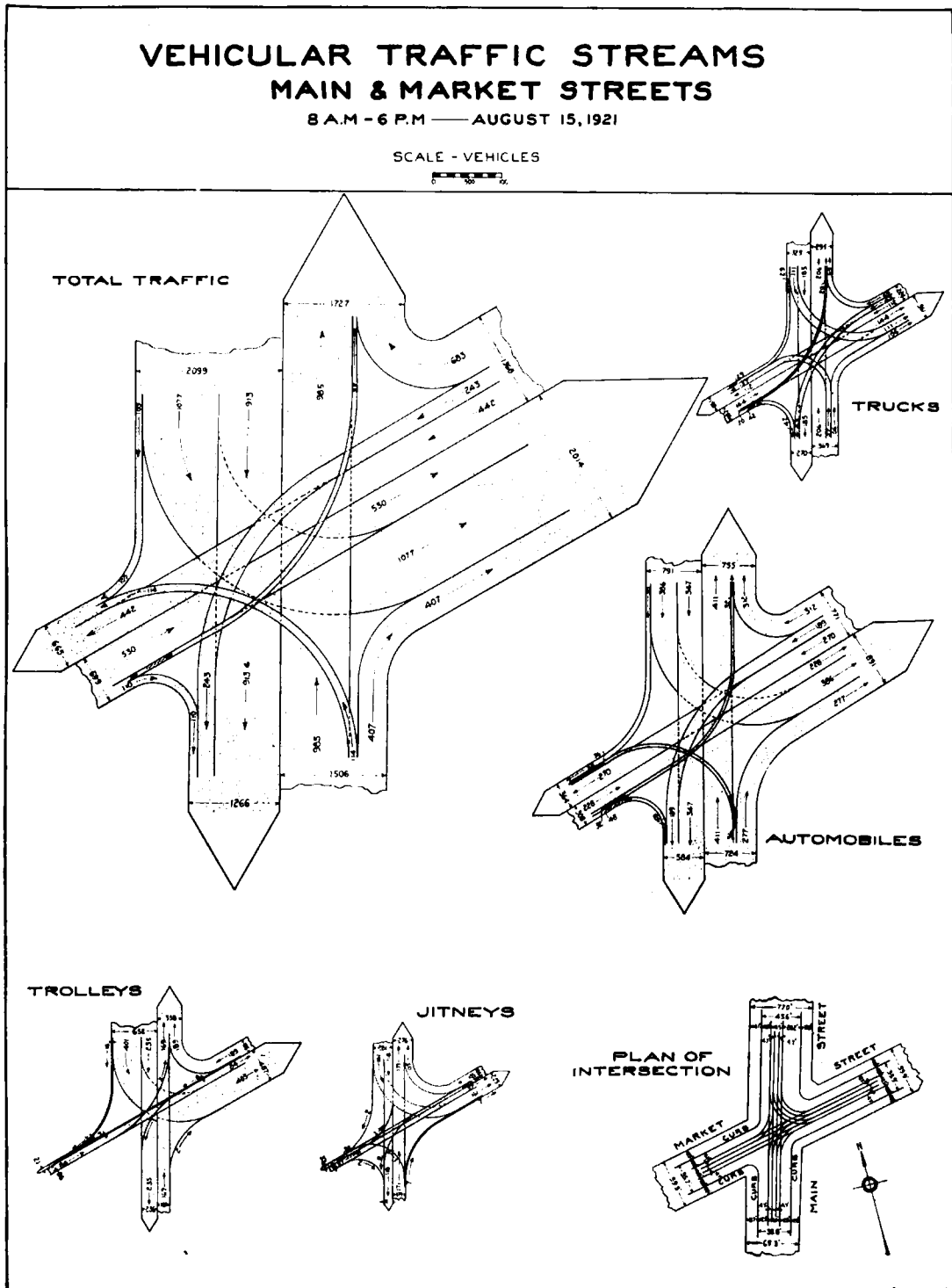


FIGURE 60.—Removing the jitneys and trucks from Main Street will very appreciably lessen congestion. The extension of Marshall Street would, moreover, enable through traffic to avoid Main Street.

CHAPTER V.

THE ADMINISTRATIVE AND FINANCIAL MACHINERY FOR
CARRYING OUT THE PLAN.

Quite as important as the city plan itself is the financial and legal plan devised to carry out the improvements contemplated by the plan. How to apply the city's resources toward the carrying out of a plan in a manner that will neither embarrass the city's finances, endanger the solvency of individual property owners, nor unduly disturb the conduct of business during the execution of the plan are administrative problems of major importance which must be thought out before any real plan can be undertaken with a view to successful completion. Both the city and the property owner must be in a position to pay for the plan or the plan can, of course, never be realized. It is this homely fact which necessitates the consideration of such technical but none the less fundamental matters as the establishment of proposed street lines upon the city map, the control of improvements within the lines of mapped streets, condemnation, damages, special assessments, assessment bonds, debt limits—indeed, the entire administrative and financial machinery necessary to be set in motion for the carrying out of the plan.

The Establishment of Proposed Street Lines.

The first step in carrying out a street plan must of necessity be the establishment of the proposed street lines and their incorporation as a part of the city plan. Only through placing the projected widenings and extensions upon the official map of the city can owners develop their property in accordance with the city's program of improvement.

The mere mapping of the proposed improvements will injure no one. Nobody will be restrained from the free use and enjoy-

ment of his property; every plot can be used in exactly the same manner as the owner would anyhow whether or not the projected street lines were laid down upon the city map. But as the mapping of the proposed streets places the owner under no legal obligation to observe the plan, neither is the city obliged to observe it. Mapping a street over private property is a quite different thing from taking private property and, until property is actually taken, there need be no compensation. If owners have the right to disregard the plan, so, too, has the city—it may change or modify the plan, or it may refrain from ever carrying out the improvement if it so elects.

If this is the law, wherein then, is the advantage of placing the proposed street widenings and extensions upon the city map? The chief outstanding advantage lies in the fact that it gives the city a constructive program of development, it focuses public attention upon a group of co-ordinated improvements which when executed will fit into a comprehensive scheme promoting the highest development of all parts of the community. If they are not placed upon the map, they will never be carried out, and if they are not placed upon the map until the city is ready to carry them out, their execution is going to be deferred for many years after the time their execution would otherwise be possible.

The fact that these improvements have been placed upon the official map after an exhaustive survey of the needs of the whole community will, moreover, tend to prevent the spending of public moneys upon relatively unimportant improvements.

All owners without exception are anxious to improve their property in a manner to in-

crease its value. Until an official map is adopted, they are denied the privilege either of improving their property in a manner to give its value the maximum enhancement or of helping the community to attain a comprehensive plan.

Immediate Acquisition of Vacant Land Within Proposed Streets.

All vacant land within projected street lines should be immediately acquired by the city. Such land presumably will never be cheaper to acquire than now. So long as the city refrains from acquiring the land within mapped streets, the owner, of course, has the right to use it as he chooses. The land is his until it is actually taken by the city and until that time he has not only a right to develop it and to erect buildings upon it, but a right to put up buildings with the single object of extracting larger damages from the city when his property is taken.

For the city to procrastinate in taking the land that is at present vacant within mapped streets, whether such streets be widenings or extensions, is in effect to give tacit approval to its development without reference to the official plan. If the map may be changed and the streets completely abandoned without any indemnity against loss being guaranteed the owner on account of compliance with the plan in the development of his property, certainly the owner cannot be blamed for taking his own counsel in improving his land and ignoring the mapped street.

Justice to the owner of vacant land within projected street lines who will suffer serious loss in observing the plan should the city alter its intention of ultimately taking his property, as well as justice to the taxpayer, who through the refusal of the municipality to take such lands immediately, would through rising land values and the erection of costly buildings be burdened with increased

taxes, both demand that the land now unbuilt upon be purchased without delay.

The acquisition of such lands is, moreover, the best pledge a city can give of its intention to carry out its program.

The appropriation of so much of the front portion of vacant lots, or of the forecourts of improved lots, as might be necessary to afford the increased width to the widened thoroughfare, would make the owners in front of the widened portions, distributed here and there as they would be throughout the length of the new street, the staunchest advocates urging the quickest possible completion of the improvement.

With part of the street widened, the owners along the widened portions would never rest until the entire thoroughfare were widened. There would be no turning back from the plan; in fact, there could be no turning back from the plan because the city would stand irrevocably committed to it.

Gradual Recession of Fronts in Built Portions of Widenings.

The acquisition of the vacant land within the projected lines of a street, of course, would still leave the built-on land to be acquired before the street is completed. Alterations in street lines are at best always difficult and expensive but in the case of improved properties, they are doubly difficult and expensive. In Paterson, the land values exceed the building values in very few localities; indeed, outside of the business sections, the building values are almost invariably greater than the land values and in many cases, as where the land is improved with expensive factories, this excess is manifold. The prudence of proceeding most cautiously with the widening or extension of streets through built-up localities is therefore obvious.

When it comes to the extension of a street, very little choice is left to the city—to get

any benefit at all from the street, it must expropriate both the vacant and the improved lands at once. Unlike a street to be widened, there is in the case of a street extension, no existing street, not even a narrow one, to be used by traffic. The use of the thoroughfare cannot, therefore, go on hand in hand with its acquisition—all of it has to be acquired before any part of it can be used even to the slightest degree. Every consideration of prudence and expediency demands that an extension be carried out as an integral improvement without delay.

But in the case of a street widening, economy demands—unless the increased width is required at once—that the widening be made as and when the existing buildings are demolished and reconstructed. At that time the new building can be made to recede to the new street lines, thus relieving the city of all damages for buildings.

This method of widening streets has been exercised on several different occasions in Philadelphia. The power to proceed in this manner is conferred upon the cities of New Jersey by Chapter 137, Laws of 1920.

It would be disastrous to the city to require that all the streets in need of widening should be widened in their entirety at once. By gradual widening as and when old buildings are replaced by new ones, progress is made step by step towards a wider street without unduly straining either the city's or the property owner's finances.

Platting the new or widened street upon the city plan interferes with no one in the use and enjoyment of his property until he comes to rebuild. This may be in a year, ten years, or a hundred years. But when the property owner does rebuild, his building must recede to the new street line. It is then that he is injured, if he is injured at all; and it is then that his land is taken for public use, and he is entitled to have his damages assessed.

The instant an old building is torn down, the city takes that part of the plot within



FIGURE 61.—Note how the City Hall trolley loop congests the narrow portion of Ellison Street between Main and Washington Streets.

the widened street for public use. Existing buildings are not interfered with. Immediately upon the destruction of the old building, the city takes possession. Recession follows upon the rebuilding or altering of the front of the buildings now erected. The moment this rebuilding is commenced is therefore the moment of taking which gives the person whose land is taken the right to damages.

Making Improvements Pay for Themselves.

Judicious expenditure on a well-thought out city plan usually results in an appreciation of neighboring land values that is at

least equal to the sum expended upon its execution. In some instances, the enhancement in nearby values, may even exceed the cost of an improvement.

Through the assessment of benefits, a city plan may, to a large extent be made to pay for itself without encroaching upon the municipality's borrowing power, increasing the general tax rate, or throwing new financial burdens upon those least able to bear them.

It is a rare improvement that does not confer some local benefit. Such local benefit as an improvement confers upon neighboring property should be assessed, the assessment being limited only by the cost of the improvement and the amount of benefit conferred. The city should assume no part of the cost where the local benefit is sufficient to pay the whole expense. Only in instances where the local benefit does not equal the cost of the improvement, should the city at large participate in the expense. When the city assumes part of the cost, the sum assumed should be limited by the amount that the local benefit falls short of defraying the whole cost.

Property can be assessed only for the benefit derived from an improvement. The assessment may not be for benefit that is speculative and distant or dependent upon

remote and uncertain contingencies. The benefit must be substantial, certain and capable of being realized within a reasonable and convenient time. An assessment cannot be levied if, in the opinion of the courts, the measure is premature and will cost more than the proprietors of the adjacent land will be benefited by the improvement.

To be assessed, property must be of such a nature that its value is capable of actual enhancement in consequence of an improvement. Unless this enhancement in value is susceptible of reasonably accurate measurement, the property cannot be assessed. An assessment should represent the difference between the value of the property before and after the improvement. In levying an assessment, the enhanced value of property by reason of the improvement should be taken into consideration.

The assessment of benefits will make great improvements immediately possible which if paid for by bond issues would have to be deferred for many years. The city's borrowing capacity is limited by law to seven per cent. of its assessment roll. At present the city is within one per cent. of its debt limit. Obviously the city's borrowing margin is unable to finance the improvements recommended in this report.



CHAPTER VI.

EXCESS CONDEMNATION.

Excess condemnation is a city planning power that not only Paterson but every city in the state should possess. Without it, the benefit that may be conferred by an improvement is often to a very large extent lost.

Under the present limitations of our state constitution, a city in projecting a street improvement is prohibited from taking more land than the minimum absolutely necessary for the proposed widening or extension. No matter what condition the adjoining property is left in when a street is widened or extended, the city is forbidden to take more land than that which lies within the two lines of the proposed street. The property fronting upon the street may be cut up into plots so irregular in shape and so small in area as to be practically useless, yet the municipality is powerless to take effective steps towards the replotting of the land which must occur before the full benefit of the improvement can be enjoyed.

If the city had the power to take excess lands, it could, in condemning land for the street, not only condemn the land required for the street itself but so much additional land as might prove desirable to form suitable building plots contiguous to the new street. Sometimes, where a portion of a lot is taken, the value of the entire parcel must be paid. In such instances, the city would certainly do better to acquire the fee to the entire lot.

The Massachusetts Committee on Eminent Domain stated the case for the replotting of remnants most ably in the following words:

"The land abutting on any existing street is divided and arranged in lots, which as well as the circumstances have admitted, are adapted to the street in its present condition, and the buildings thereon are constructed in conformity therewith. Any widening of the

street not only destroys the existing buildings, but, by reducing the size of abutting lots, leaves the residues of remnants of many of them in such shape and size as to be entirely unsuited for the erection of proper buildings unless and until these remnants have been united with the adjoining properties, generally with those in the rear, which are thus enabled to extend out to the new street lines.

"The same condition is found, and frequently even to a greater extent, when a new thoroughfare is laid out through existing blocks covered with buildings.

"Hence, when an existing street is widened or a new thoroughfare is laid out under the present system, the lots on one or both sides of the new or widened street are left in such condition that, until a re-arrangement can be made, no suitable buildings can be erected, and the public benefit to be derived from the improvement is in great measure lost."

So serious and far-reaching in their effect are these disastrous economic consequences resulting from the present method of widening old and laying out new streets, that they furnish the strongest argument in favor of excess condemnation.

The maps of almost any street widening or extension demonstrate the advantage of excess condemnation. They graphically present the infinitesimal morsels, the narrow, elongated gores, and the shallow remnants with diagonal fronts of varying widths, so frequently left by street improvements. In some instances, the angles are not right angles; and the opposite sides of the same lot are neither parallel nor equal. When Delancey Street in New York was widened to provide for the bridge approach a tapering strip with an area of some 90.8 square feet was left extending along the street for more than

one hundred feet with an average width of less than eleven inches. Several other strips less than ten feet in width were left fronting along the widened thoroughfare for an equal distance. These strips robbed the lots adjoining them in the rear of their natural frontage on Delancey Street.

The following are examples of plots left by improvements actually made in New York:

At the corner of Elizabeth and Delancey Streets a triangular segment 9.10x1.51 feet in dimension, or 6.87 square feet in area; between Mulberry Street and Cleveland Place on Delancey Street, a segment 1.47x8.98, or 6.59 square feet in area; between Barclay and Vesey Streets on West Broadway, a segment 2.6x13.5, or 17.27 square feet in area; on Prince Street and Flatbush Avenue, one 4.3x10.3 or 21.96 square feet in area; on Lafayette Street and Flatbush Avenue, one 1.7x6.4 or 5.28 square feet in area; and on Lafayette and Pearl Streets one 4.8x9.2, or 21.63 square feet in area.

It is self-evident that the utility for commercial purposes of the lots fronting on these street extensions and widenings was greatly impaired. Lots which, if united under single ownership, would afford sites for substantial business blocks commensurate with the importance of the street, and which would bring in large rents, are now on or very near the margin of no-rent land. They are so small and irregular in size as to be totally unfit for improvement. "There are streets in New York today," says Mr. Lawson Purdy, "which have been widened for ten years but still look as though they had been devastated by an earthquake. The reason is that when the map is inspected it is found that there are all sorts of small bits of land in separate ownerships just as they were when the street was widened."

Since each parcel, by the mere fact of its adjacency, commands the values of the neighboring plots, every owner becomes, as it were, a monopolist. Knowing the strategic position of his own remnant and that its union

with any other would immediately, without any effort on his own part, result in a greater value than the sum of the two separately, each proprietor over-estimates the true importance of his own plot and shrewdly bargains to get not only the proportion that his own parcel contributes to this increased value, but also as much more as he is able to wring from the purchaser. Not succeeding in his designs by legitimate means, the owner, if he be unscrupulous, sometimes erects so objectionable a building on his land or puts the land to such a use as practically to coerce the adjoining owner into either purchasing it at an exorbitant price or selling his own at a great sacrifice. The limited power of eminent domain, heretofore existing, has often served to make the ultimate development of the city dependent upon petty jugglery.

In some instances, remnants owned by estates may be so tied up as to make it impossible to sell or develop them.

Until a concentration of ownership takes place, the enhancement in value of the real estate fronting on the improvement is held in abeyance; if the separate parcels are not united, the increased value never matures at all. Sometimes the increase which would naturally be expected is not enjoyed by anyone to its full extent. Even though the property owners are deterred from realizing upon the improvement, they are, nevertheless, obliged to pay the special assessments levied to pay its cost. Excess condemnation not only relieves the land owners from this burden, but accelerates the city's growth and prosperity by insuring the quick and sure development of its thoroughfares.

Excess condemnation is of benefit not only to the community, but frequently to the private owner as well. The Massachusetts Committee on Eminent Domain puts it thus:

"It frequently happens that an owner, the greater part of whose estate is necessarily taken for a public work, would prefer not to be left with the remnant on his hands, and if an opportunity were offered, would volun-



FIGURE 63.—Map of Paterson 1840. The causes of present day street congestion in Paterson are to be found in the total lack of all planning fifty, eighty and a hundred years ago. The communities suburban to Paterson are now developing without regard to any plan just as Paterson did.

tarily request the city to take the whole estate. Many people recognize that there is less opportunity for differences of opinion upon the question of market value of a whole estate than over the more complicated question of the value of the portion which has been taken, and the damages to the remainder by reason of such taking; and hence a system under which the city would acquire the whole estate would be productive of greater ease in the settlement of damages, and less likelihood of litigation over the question involved."

To secure the power of excess condemnation, the constitution of the state will have to be amended. Immediate steps should be taken towards this end.

Within the past few years five states, New York, Massachusetts, Ohio, Wisconsin and Rhode Island, have adopted constitutional amendments relative to excess condemnation. This fact alone suggests how important the power of excess condemnation is to proper street planning.

The New York amendment is submitted as a desirable model for New Jersey to adopt.

It reads as follows:

"The legislature may authorize cities to take more land and property than is needed for actual construction in the laying out, widening, extending or relocating of parks, public places, highways or streets; provided, however, that the additional land and property so authorized to be taken shall be no more than sufficient to form suitable building sites abutting on such park, public place, highway or street. After so much of the land and property has been appropriated for such park, public place, highway or street as is needed therefor, the remainder may be sold or leased."

With the adoption of such an amendment to the state constitution, the planning powers of the city will be considerably strengthened. Today, a city projecting a program of street widenings and extensions stands in danger of being ruined by its projected improvements. Excess condemnation in enabling it to replot the land contiguous to a proposed improvement stimulates development.



CHAPTER VII.

SPECIAL ASSESSMENTS.

Probably no city has had more experience in assessing the benefits to defray the cost of street improvements than New York. A brief survey of the methods used by the large metropolis cannot fail to be of the greatest help to every municipality in framing its own policy on the subject.

Street openings and widenings have been assessed in New York since 1793. For the past hundred years, the damages have been estimated by three commissioners appointed by the Supreme Court. One of these commissioners designated by the Court as the Commissioner of Assessments, has assessed the benefits. This procedure finally proved so unsatisfactory that it was abolished. Commencing in 1917, all damages and benefits in street and park proceedings have been ascertained by the Supreme Court without a jury.

Assessments are estimated separately by lots and not by blocks, except in the case of acreage, where they are levied according to ownership. This practice is followed even though the land adjacent to an improvement is held in large tracts. The reason for doing this is that lots frequently change ownership during the progress of an assessment. To estimate the benefits by tracts instead of by lots would not only inconvenience the owners in paying their assessments, but would also give the city difficulty in apportioning them.

The benefits and damages must in each case be assessed separately. It is not sufficient to report the excess of one over the other. Originally the benefits were set off against the damages but this practice did not provide adequate data for the correction of errors in the estimate and assessment. This defect in the statute was remedied more than seventy-five years ago.

The Benefit Area.

The power to fix the benefit area was in the hands of the commissioners until 1906. In that year it was transferred to the Board of Estimate and Apportionment. The commissioners had for a long time practiced laying out large benefit areas to avoid large assessments for the excessive awards which they so frequently granted. By giving the Board of Estimate the power to limit the assessment area, it was hoped that the commissioners would become more prudent in their awards. The amendment was also intended to secure uniform treatment for different proceedings.

When the commissioners fixed the assessment area, it was nothing unusual for a parcel to be assessed for several street openings—in some instances as many as five or six separate proceedings. The districts frequently included several blocks on each side of the improvement. They also extended a like distance longitudinally beyond the improvement. To remedy this situation, the Board of Estimate, under the authority of this charter amendment, immediately adopted a set of uniform rules to govern it in all proceedings.

Distribution of Benefits Between Different Areas.

The benefits may be apportioned between districts of special benefit, one or more boroughs, or parts of boroughs, and the city at large. Levies against one or more boroughs or the city at large are in the nature of flat rate assessments and collected with the annual real estate tax. This obviates the necessity of preparing maps to show the rela-

tion of each parcel of property assessed to the improvement.

The rules controlling the benefit area and the apportionment of assessments in street openings are most elaborate. Under these rules the assessment area is generally deemed to include one-half the area between the street to be opened and the nearest parallel street having the same or a greater width. Except in unusual cases, the local area of assessment is limited by a line not more than 1,000 feet from the improvement.

When the local area is divided into zones, the primary area is deemed to be the property fronting on the improvement to a depth of 100 feet. The primary area is not assessed for acquiring more land than a street having a width of 60 feet, plus 25 per cent. of the actual excess over that width up to a maximum of 80 feet. Neither borough nor city relief is extended unless the primary area will otherwise be required to pay for more than the equivalent of 80 feet. In determining the assessment, the street is considered as being its actual width plus the value of the building damage expressed in terms of equivalent street width of the same value based on the aggregate allowance for undedicated areas. The assumption is that a share of the expense equivalent to paying for a street 80 feet wide represents the limit of local benefit. The percentage of cost assessed locally is, therefore, 100 per cent. for 60-foot streets, 89 per cent. for 70-foot street, 81 per cent. for 80-foot streets, 75 per cent. for 90-foot streets, 70 per cent. for 100-foot streets, 62 per cent. for 120-foot streets, 57 per cent. for 140-foot streets, 53 per cent. for 150-foot streets, and 40 per cent. for 200-foot streets.

The secondary area may not be assessed at a proportionately greater rate than the primary area: The basis for this assessment is 55 per cent. on the first fourth of the distance to the boundary of the primary area, 80 per cent. on the first half of the distance, and 93 per cent. on the first three-fourths of the distance.

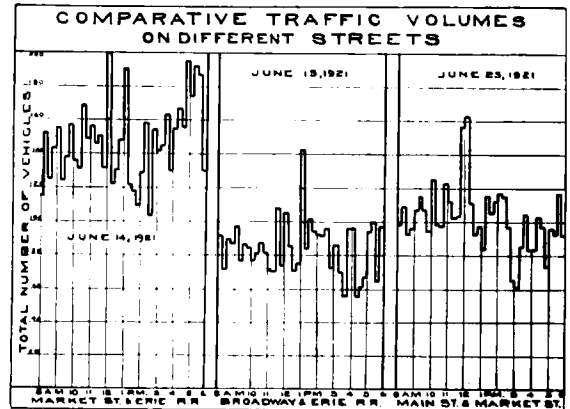


FIGURE 64.—Note the difference in the peak hour on different streets.

Neither borough nor city benefit is recognized subject to the above provisions unless the street has a width exceeding 80 feet and borough or city benefit is manifest. City benefit is not recognized unless the street is more than 100 feet wide. Exception to this rule may, however, be made in unusual cases. It is expected that where benefit to more than one borough or where benefit to the city is recognized, at least 50 per cent. of the benefit not assessed locally must be assumed by the borough in which the improvement is located. Several exceptions have, however, been made to this rule. Any expense placed upon the city by reason of damage to buildings is deducted from the relief afforded the local area. Where the benefit area is the depth of a normal lot and the narrow dimension of the lot fronts upon the improvement, the assessment is a simple matter. Each lot, other things being equal, bears its proportionate part of the assessable cost subject to the limitations imposed by law.

Where the greater dimension of the lot, however, fronts upon the improvement, four strips are laid out on either side of the improvement, a depth of 25 feet being allotted to each strip. Each of these strips bears a diminishing per cent. of the assessable cost, the exact per cent. varying according to the circumstances in the particular case. The



FIGURE 65.—The City Hall trolley loop prevents Washington Street from being made a two-way street.

minimum and usual percentage assessed against the first strip is 60 per cent. of the assessable cost, against the second 20 per cent., against the third 12.5 per cent. and against the fourth 7.5 per cent. The maximum percentage assessed against the first strip rarely exceeds 80 per cent. of the assessable cost.

Where the benefit area exceeds the depth of the normal lot, the assessable cost is prorated between a primary and a secondary area of assessment, the primary area consisting of the first 100 feet abutting on the improvement and the secondary area of the land back of this 100 feet. The amount charged against the primary area is assessed as if the benefit did not exceed the depth of a normal lot, the land being subdivided into strips and each strip bearing a diminishing per cent. of the cost assessed against the area. The amount charged against the secondary area is assessed, not by strips, but by lots. The assessments in this area are made arbitrarily, the maximum assessment levied on the lot nearest the improvement being less than that charged against the fourth strip in the primary area, and the minimum assessment levied on the lot most remote from the improvement being not less than \$5.

The borough assessment act enables the city to avoid an increase in its bonded indebt-

edness by paying cash for its improvements. The increase in the city or borough tax rate resulting from this policy might, in the case of large assessments, be so great as to impose a very serious burden upon the individual taxpayer. This is despite the fact that the board may in its discretion make these assessments payable in five annual installments. Although this has not happened, yet an endeavor has been made to anticipate this situation by limiting the amount of charges that may be incurred in any one year. Borough assessments are levied against all property, no distinction being made between land, buildings or personal property.

The Half-Value Rule.

Since 1840, the commissioners have been prohibited from imposing any assessment upon a plot in excess of one-half its taxed value.

This provision has saddled a large share of the cost of many improvements upon the city, especially in those instances where the property values have been grossly underassessed. Before real estate was assessed at its full value, as now, the effect of this restriction was to limit the actual assessment for benefit against property at a figure below one-half of its true value. In the outlying sections it was formerly no uncommon occurrence to find property assessed at a mere fraction of its real value. In such cases the assessments for benefit very often did not exceed one-eighth or one-tenth of the full value. To bring the assessments legally within the scope of this limitation, a tendency developed among the commissioners to extend the benefits over very large areas.

To remedy this situation the charter was amended at the time of consolidation to provide that the assessments should in no case exceed one-half the value placed upon the property by the assessment officials. The manner in which the assessment officials are to arrive at this value is unrestricted by law.

They are not required to take the valuation of the tax commissioners.

One-Third of Buildings Assessed Upon the City.

The discretion of assessing on the city any portion of the cost, not exceeding one-third, of the buildings taken in street proceedings has been vested in the commissioners for a very long time. This right, however, does not extend to any other improvements than buildings.

In the earlier openings, the Commissioners were usually more ready to assess a portion of this cost upon the city in the case of longitudinal than in the case of cross streets. The former being the main traffic thoroughfares, were assumed to confer a greater general benefit upon the city than the latter, and consequently more properly chargeable in part against the public treasury. This policy has, however, not been followed for many years.

Buildings Within Projected Street Lines.

The city at present exercises no authority over the erection of improvements within projected street lines. The city plan was for many years effectively controlled through a statutory provision, prohibiting the payment of compensation for buildings constructed within proposed streets. Until thirty years ago, the courts sustained the constitutionality of this clause. Now, however, such a provision is considered invalid on the theory that it imposes a restriction upon the use of property which amounts to an encumbrance. The courts have held it unconstitutional on the ground that it deprives an owner of the beneficial use and free enjoyment of his property, or that it at least imposes a restraint upon such use and enjoyment as materially to affect its value without legal process or compensation.

This principle has more recently been carried so far by the courts that an owner

who deliberately and intentionally places a building within the lines of a projected street for the sole purpose of enhancing the damages to be collected from the city does not thereby forfeit his right to compensation for the destruction or injury to his building. The commissioners may, however, in computing the damages in such a case, consider whether the building can be moved further back on the lot.

The Block Rule.

The block rule is applied by both the first and second judicial department in assessing the damages incurred for land, but only by the first judicial department in assessing the damages incurred for buildings. The second judicial department prorates the cost of buildings upon each front foot of land included within the assessment area. The expenses connected with the estimate and assessment are distributed according to the frontage in both departments. The application of the block rule to buildings increases the portion paid by the city, in that the awards are more apt to exceed one-half the value of the property. The first department embraces the boroughs of Manhattan and the Bronx; the second, the boroughs of Brooklyn, Queens and Richmond.

The cost of the land taken for each block of street is generally assessed upon the property fronting such block. Unless it appears that one piece of property is benefited more than another similarly situated, this rule must be applied. Where the expense of opening a street through a certain block is very much greater than the expense of opening it through the rest of its course, the court is justified in imposing upon the property fronting upon such block an assessment for such sum as it deems the property benefited by the opening of the street. Nor is the block rule applicable where an extension of a street

largely benefits the surrounding neighborhood as well as the property fronting upon it. When it appears that part of the land benefited by a street is interior land to which there is no access, while the remaining property fronts on a paved street, each parcel of land is assessed proportionately to the benefit sustained without regard to the block rule.

Principles Followed in Estimating Damages for Buildings.

Where buildings are suitable to the land, direct evidence of their structural value is admissible. The structural value of the building, making allowance for depreciation, and the value of the land may in such cases be shown separately; and the sum of these two, though not a conclusive test, is competent evidence of the market value. The proper measure of damages where a portion of a building is taken is the difference between the value of the building before the improvement and the value of the remaining portion after the improvement.

In 1910, the Board of Estimate and Apportionment adopted a resolution for the destruction of buildings encroaching upon streets in all cases where the awards claimed were, in the judgment of the Corporation Counsel, greater than the actual expense of moving such buildings back from the street lines. In 1911 the Board suggested that such buildings be offered for sale at an upset price representing the difference between the award and the actual cost of removal.

Principles Followed in Estimating Damages for Land.

The value of land is usually estimated upon a square foot basis for the awards. For land where a whole parcel is taken, the measure of damages is its fair market value;



FIGURE 67.—The proposed Fallaway Memorial would enter the downtown section by way of Market Island.

where a part of a parcel is taken, the measure of damages is the difference between the value of the whole before the taking and the value of the residue after the taking, disregarding the benefit resulting from the improvement. Whether the whole parcel or part of the parcel is taken, the compensation in either case must be the present value of the quantity acquired, and this value must be based, not on what the property would bring at a forced sale, but on its fair worth in the market.

The fact that an appraisement is for less than the land cost the claimant is not of itself a ground for interfering with the award. The price paid upon a bona-fide sale of the property about the time of vesting title in the city furnishes some, although not conclusive, evidence as to its value. In the absence however, of evidence that it was sacrificed or its sale forced or that other circumstances exist which except the case from the general rule, such sale price is regarded as controlling. Although the value of land taken cannot be established by showing what is paid for other parcels similarly situated, the awards may not be largely in excess of the amount paid for other property in the vicinity at bona-fide sales. The value of lands, moreover, cannot be established by testimony of

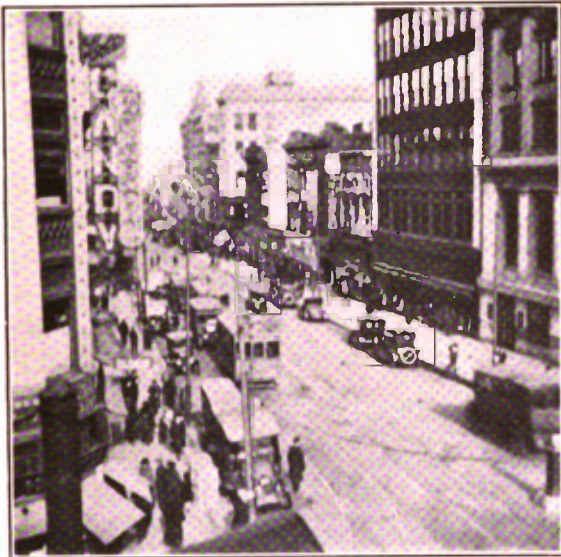


FIGURE 68.—The trolleys limit the amount of traffic that can use Main Street when there are parked cars at the curb.

offers received for the property. Evidence of the profits of a business conducted on the land taken is incompetent as proof of the market value of the property. But evidence as to the intended use of the land is admissible as a part of the *res gestae* to show the circumstances under which it was taken, and its situation when appropriated.

Damages are awarded on the basis of acreage value, and not on city lot values, when the land taken extends back hundreds of feet from the highway and no lots are destroyed.

Plottage is a percentage added to the aggregate value of two or more contiguous lots when held in one ownership as representing an increased value pertaining to a group of lots by reason of the fact that they admit of more advantageous improvement than a single lot. As a matter of law, a property owner is not entitled to plottage. Whether an award is made for it depends upon the circumstances in the case subject to the determination of the commissioners upon the evidence. Plottage, if allowed, can only attach to vacant lots or to lots valued irre-

spective of the improvements upon them. Parties to a proceeding, who own two or more adjoining lots, may present their claims for the value of their lots considered as one parcel or as separate parcels. Where plottage is allowed, the full value of the buildings on the separate lots need not be awarded; where plottage is not allowed, the full value of each lot and its buildings must be awarded.

Principles Followed in Estimating Damages for Excess Lands.

Excess condemnation, though not yet utilized, has been authorized in New York since 1915, provided the additional property taken is not more than sufficient to form suitable building lots abutting on the improvement. Title to the excess lands must be acquired in the same proceeding as the required lands. The compensation awarded by the commissioners for required and excess lands, respectively, must be stated in their report. In arriving at the damages paid for the required land, the same rule is applied as would govern the determination of damages if no excess lands were taken. The fact that some of the land is required and some is excess does not entitle an owner to greater compensation than if all of his parcel were taken as required land. Only the amount paid for the required land can be assessed in the way of benefits. The excess lands acquired by the city are subject to assessment for benefit in the same manner as land not taken.

Principles Followed in Estimating Damages for Intended Regulation.

Damages for intended regulation of grade, which injured buildings not required for street purposes, were discontinued in 1915. For almost a century generous allowance had been made for such damages, although they

had not been suffered at the time of allowance. Petitions for a change in the legal grade were frequently submitted and granted immediately before the physical grading of the street was contemplated. In such cases compensation was paid for damages never inflicted. Where a change of ownership occurred before the intended regulation was effected, the result was often very embar-

rassing to the purchasers who actually suffered the damages but did not receive the awards, these having been pocketed by the original owners. The awards for changes in grade are now made when the street is graded. The awards are, therefore, paid to those who own the buildings at the time they are damaged.





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