



MAJOR STREETS
AND SUBDIVISION REGULATIONS

TROY, OHIO

A Report Upon

MAJOR STREETS AND SUBDIVISION REGULATIONS

Troy, Ohio

Prepared For
City Planning Commission
Troy, Ohio

By
HARLAND BARTHOLOMEW AND ASSOCIATES
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January, 1960

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January, 1960

City Planning Commission
Troy, Ohio

Gentlemen:

In accordance with our agreement, we are pleased to submit herewith our report upon Major Streets, and Subdivision Regulations. The text of the revised subdivision regulations has been submitted separately, but is described herein.

The improvement of existing trafficways in Troy has received considerable attention as evidenced by the current plans for the new Market Street bridge and other improvements. Additional projects will be needed as the city continues to grow. The major street plan described herein is designed to integrate these current projects and other needed new thoroughfares, street connections or extensions into a major street system which will both attract and accommodate the future traffic volumes.

Parking has also been considered from the standpoint of current and future needs and its relation to the traffic. The current problem is not serious, however, and except for some changes in the regulations, the proposals are generally for the future, rather than immediate development.

We wish to express our appreciation for the assistance and cooperation furnished us by officials and individuals during the preparation of this report.

Respectfully submitted,

HARLAND BARTHOLOMEW AND ASSOCIATES

By

Russell H. Riley

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INTRODUCTION

Streets and highways serve generally two principal, frequently conflicting, functions. One is to provide for the movement of people and vehicles, primarily the latter; the other is to afford access to the abutting land. Because of the manner in which cities evolved, the lack of coordination and foresight in their development, the popularity and ever-growing use of the modern automobile, these dual functions of traffic movement and access have become more and more difficult to maintain, especially as the city - and consequently the amount of traffic - continues to grow.

Thus, easy traffic circulation now requires that the functions of movement and access be separated or at least subjugated. Full separation is accomplished through the modern limited access highway such as the new U.S. 25. Subjugation is accomplished through the designation and development of systems of major and minor streets, the one to attract and accommodate movements, the other to discourage through traffic. The major streets, through direct alignment, high standards of improvement and appropriate traffic controls, can be made to promote and facilitate their use. The other minor streets can then be relatively narrow, lightly paved and even indirect so as to discourage traffic in residential neighborhoods and to foster residential quiet, privacy and safety.

The major street system should be related to the land use pattern of the community. Thus, dwelling areas should be connected to the industrial and main commercial centers, and the major dwelling and industrial areas should be connected to each other. Major streets should go around rather than penetrate the various residential neighborhoods. Communication between all parts of the city should be as direct as possible without requiring traffic to pass through points of concentration and congestion, such as the central business district, unless it is actually destined there.

Normally, the major streets will comprise about 20 percent of the total street mileage although accommodating the great preponderance of all urban traffic. Such a system of thoroughfares is not only more economical to construct initially and more efficient in operation, but also far less costly to maintain - in contrast with the large number and mileage of streets which must otherwise

be built and maintained when many or most of the minor streets also accommodate through traffic.

A major street plan was prepared for Troy in the early 1930's as a part of the original comprehensive city plan studies. Some of the earlier proposals have been carried out, but many others were never executed. A number of these are still valid, moreover, and should be consummated. The major street plan described in the present report is a complete revision of the original plan. This is based on the studies of land use, including the desirable future land use pattern, as well as on the character of development, topography and other physical features affecting present and future alignment.

Since traffic and parking are interrelated, particularly when street spaces are used, an examination was made of existing parking accommodations, primarily in the downtown area. Parking characteristics, the availability of spaces, and present and future demands are described in a separate section of the report.

The deficiency of the present street system in Troy, as in other municipalities, can be attributed largely to its piecemeal, uncoordinated early development. Ohio statutes now provide for subdivision control by the cities, and Troy has been exercising such control for a number of years. The current regulations and standards were reviewed as a part of the present program, revised subdivision control ordinance being submitted separately. Miami County also enforces subdivision regulations, and the latter were considered in drafting the revised subdivision control ordinance for the city.

MAJOR STREET PRINCIPLES AND STANDARDS

In general, the street system should be designed so that the major streets not only accommodate but even attract the principal traffic movements. For these purposes, such streets should be improved to high standards and traffic movements should be expedited through various traffic controls. Specific street improvements should also be designed to foster the appropriate land uses, particularly for the functioning of desirable industrial and commercial areas. From the standpoint of traffic movements and function, major streets can be classified in one or more of the following categories.

Limited Access Highways

Since surface streets are quite limited in capacity because of the intersections with their cross streams of traffic, turns and other conflicts, the modern limited access highway has come into use for the handling of large numbers of vehicles and the expediting of movements generally. Thus, the limited access highway with its continuous flow can easily accommodate 1200 to 1500 cars per lane per hour, and substantially higher volumes have actually been recorded on specific limited accessways. The only thoroughfare of this type in Troy is the new U.S. 25 at the western edge of the community, which is part of the interstate highway system.

Radial Streets

Radial streets lead from the heart of the city to all sections of the community. These are generally the most heavily used arteries, usually connecting with the main highways at the outskirts of the city and serving as parts of the state and federal routes. Of all the existing streets, the radial routes in most cities are the most adequate from the standpoint of location and alignment although they are frequently inadequate in width and capacity to handle the traffic volumes. For the latter purpose, the most important radial routes in Troy should accommodate four moving lanes of traffic, necessitating a pavement of 44 feet without parking and 60 feet or more where parking is permitted. Under these conditions, a right-of-way width of 66 to 80 feet would be required, and a width of 100 feet would not be excessive in rural and undeveloped areas.

Circumferential and Bypass Routes

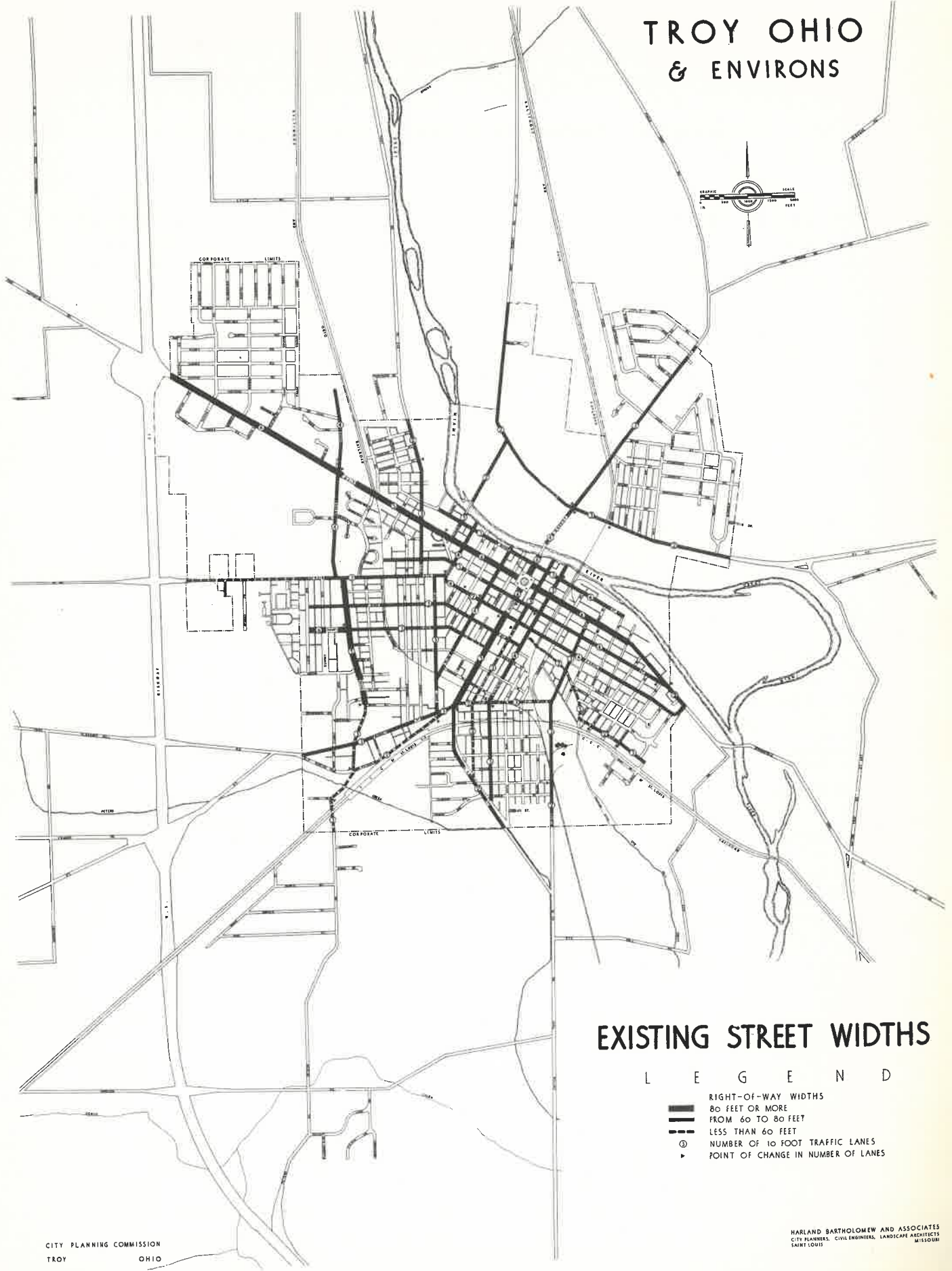
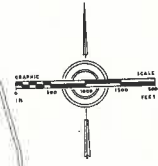
Much highway traffic has no desire to stop in the city, and a route like U.S. 25 which goes around the community is both a convenience to the traffic and an advantage to the city. A considerable amount of through traffic is forced through the central business area also because of the lack of satisfactory trafficways around this area. It is desirable to have a continuous thoroughfare loop outside and a little beyond the central business district to permit easy movement of local traffic across the city without adding to or creating congestion downtown.

A circumferential route is also desirable at or beyond the edge of the future urban area to permit traffic so inclined to skirt the community, as well as to facilitate cross-town movements between the various suburban areas.

Cross-town Routes






Continuous, direct streets leading from one residential section to another and between residential and industrial districts are needed for good communication within the city. Some of these cross-town routes may be part of complete or partial circumferentials; others may be elements of a gridiron pattern spaced at about one-half mile intervals, preferably around the edges of residential neighborhoods. Some of the cross-town routes will require only two moving lanes, although traffic signals and other controls should be used to provide as continuous movement as possible. Consequently, right-of-way widths of only 60 to 66 feet and pavements of 40 to 44 feet may be used in many instances, but street and pavement widths of 80 feet or more and of 44 to 60 feet respectively for four moving lanes will be needed where the cross-town route is also part of an important circumferential.

TROY OHIO & ENVIRONS



EXISTING STREET WIDTHS

L E G E N D

-  RIGHT-OF-WAY WIDTHS
80 FEET OR MORE
-  FROM 60 TO 80 FEET
-  LESS THAN 60 FEET
-  NUMBER OF 10 FOOT TRAFFIC LANES
-  POINT OF CHANGE IN NUMBER OF LANES

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EXISTING STREET AND TRAFFIC CONDITIONS

Troy, like so many other cities, has an existing street system which leaves much to be desired. This is particularly true with respect to continuity, only a few streets extending for any considerable distance without jogs or offsets. This was caused by past practices of largely ignoring adjoining property when each new subdivision was developed, so that the community became a patch-work of generally small, independently conceived and independently built areas. This was a common practice in many cities until relatively recent years, but its effects are especially noticeable in Troy.

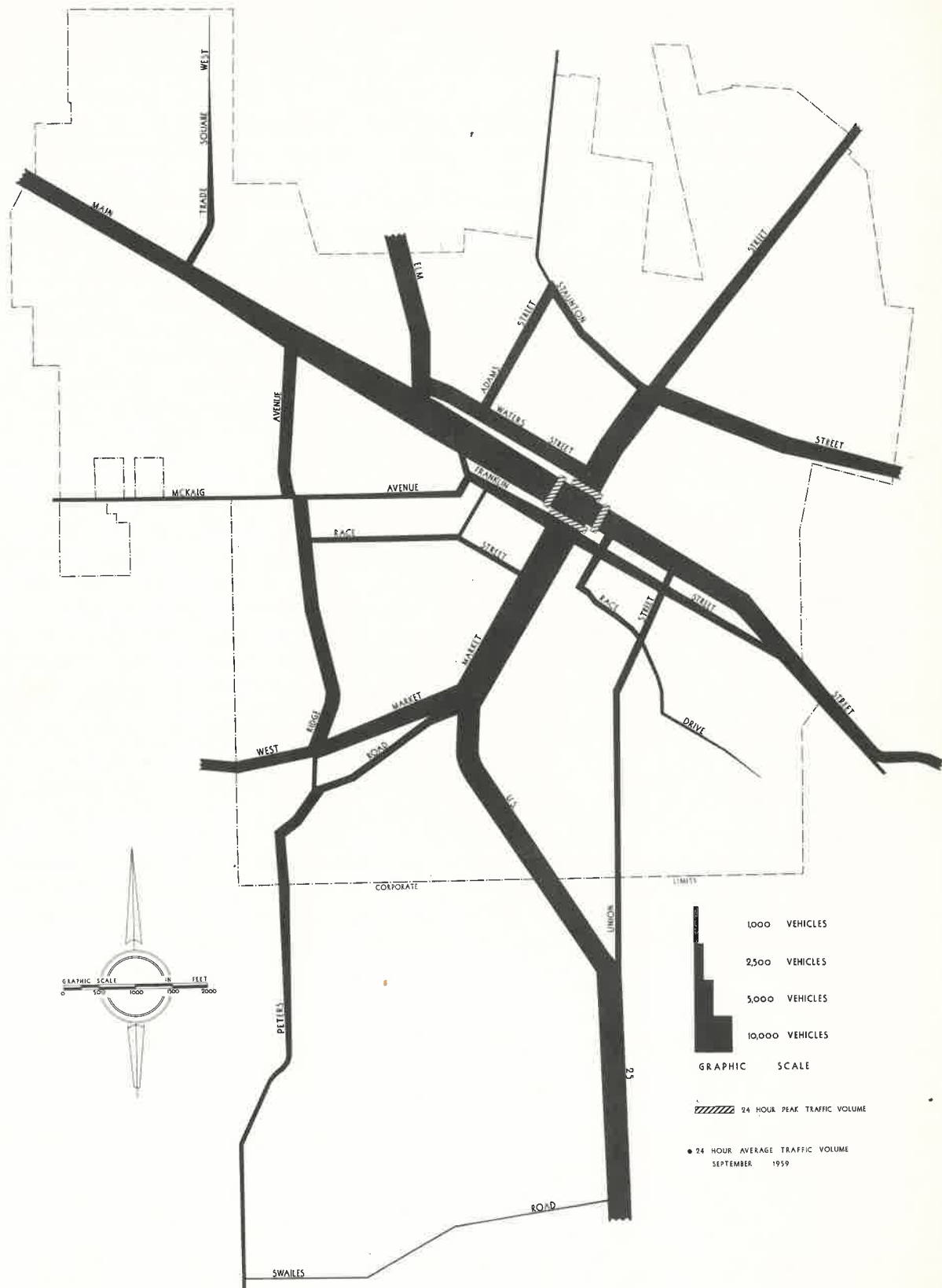
Existing Street Widths

The right-of-way widths of existing streets in the city are shown diagrammatically by categories of width on Plate 1, which also indicates the approximate widths of the pavements. Only those streets currently used as principal trafficways are shown on this map, the minor street widths and pavement designations being omitted.

The number of wide streets is very limited, with only three arteries - Main, Market and Ridge - having a right-of-way of 80 feet or more. (Drury Lane has a width of 100 feet for two blocks, but the street ends at Lake Avenue, and the width is ineffectual.) Main Street has a wide right-of-way for all, or practically all, of its length, being 80 feet wide west of Hobart Drive, and 100 feet in width from Hobart to Frank Street. Further, this is the longest continuous east-west artery, extending for a distance of more than two miles. Market Street has a width of 100 feet through the central part of the city from West Street to the river but narrows to less than 80 feet south of West Street. Ridge has a wide right-of-way only between West Street and McKaig, and there is an offset in Ridge at the latter, in addition to its narrowing down to 60 feet. Ridge is only 50 feet wide south of West Street.

The majority of the other streets used as trafficways are from 60 to 80 feet wide, mostly between 60 and 66 feet. However, several major streets, some of these quite important from the standpoint of location, have right-of-way widths of less than 60 feet. For example, McKaig is only 50 feet in width to the west of Lake Avenue and only 40 feet wide still farther west. Peters Road has a 50-foot right-of-way between West Street and the city limits although this widens to 60 feet outside the city. Race Drive which now carries a substantial amount of traffic is little more than an alley in width.

CITY OF TROY, OHIO



MAJOR STREET TRAFFIC FLOW

The lack of continuity in the street system is graphically indicated by Plate 1 also. Thus, Franklin Street ends at the railroad west of Elm Street. Canal has an offset with McKaig at Monroe Street. Race and Drury Lane end at Lake Avenue. Grant Street is offset from both Monroe and Elm, and Adams Street which has one of the principal bridges ends at Main Street.

As might be expected, the street pavements are related to the right-of-way, but there are many variations. Main and Market Street downtown each has six lanes. Main has a width of 50 feet or so as far west as Ridge and 40 feet or more from Ridge to U.S. 25. Market has a width of 50 feet or so from West Street to Franklin, but only two lanes south of West Street. Ridge has a pavement of 40 to 50 feet or more for most of its length, the exception being south of West Street where the right-of-way narrows to 50 feet and the pavement to a little over 30 feet. The pavement on a number of the streets in the central part of the city is 40 feet or more; these include Canal and Water Street east of Mulberry, Mulberry Street, Plum Street, and part of Franklin Street. Streets of this width are capable of carrying four moving lanes of traffic when parking is prohibited. Most of the other streets are 30 feet or more, although some arteries such as Union, South Market, and State Route 245, (Elm Street) have only two lanes with parking prohibited. In general, where the existing pavements on the most important thoroughfares like Main and Market are related to the function of the street and the traffic demands, pavements as a whole are somewhat variable depending on right-of-way widths and the exigencies of local conditions, rather than on a rational thoroughfare system for accommodating the major movements of traffic.

Traffic Flow

The volumes of traffic using the principal arteries in Troy are graphically indicated on Plate 2. This is based on 24-hour traffic counts taken in September, 1959.

By far the largest numbers of vehicles are found on Main and Market Streets. Thus, the volume on Main Street, which was about 4600 vehicles daily near the west city limits, amounted to more than 7000 in the vicinity of Ridge Avenue and to nearly 9500 vehicles per day east of Elm Street, where the peak occurred. Main Street averaged more than 8000 cars daily through the central business district. Market Street averaged about 9000 vehicles per day between the river and West Street, with a peak of over 9300 at the edge of the business district. North of the

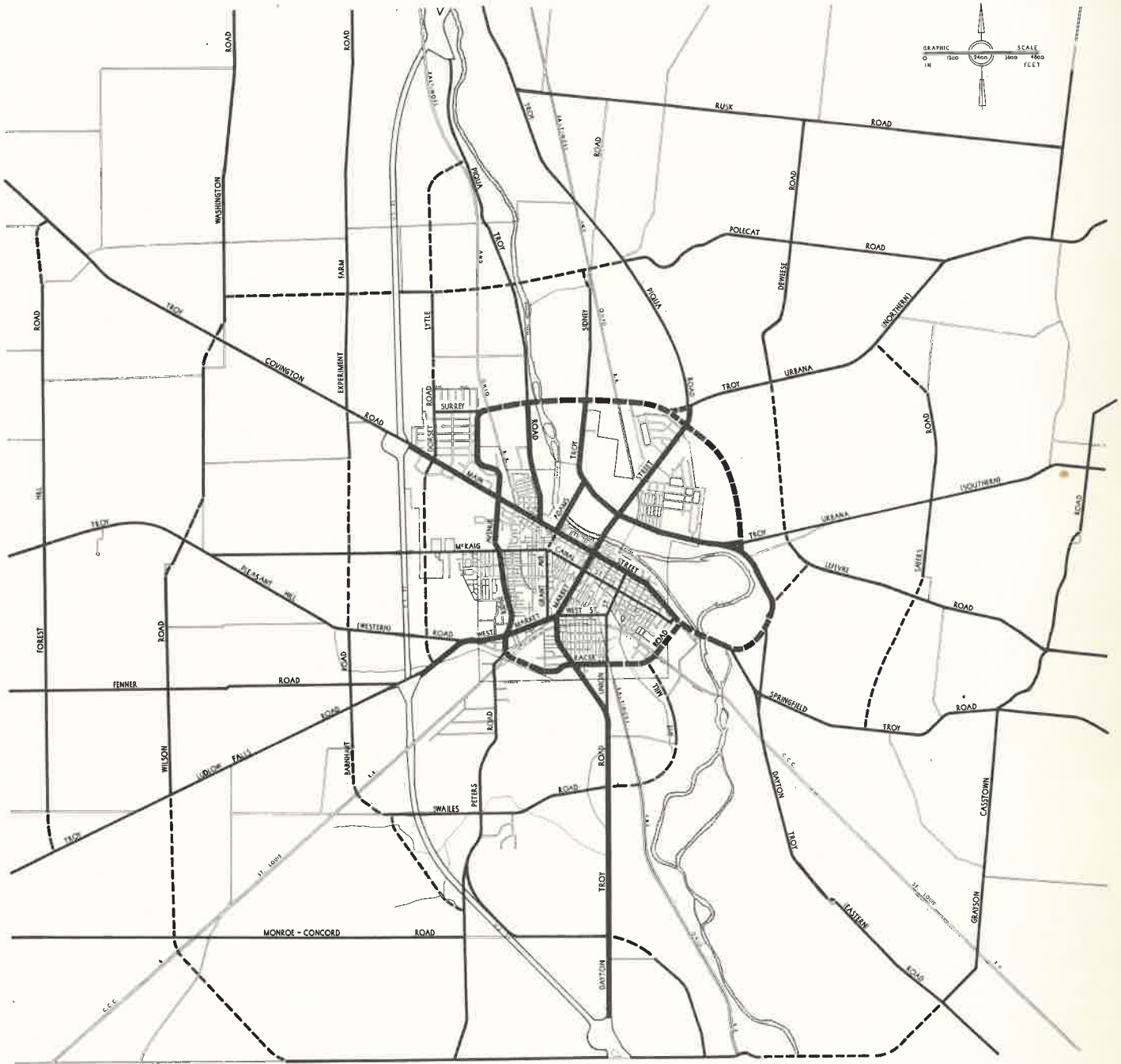
Miami River, traffic was a little lighter but still averaged some 7700 vehicles during the 24-hour period, much of this turning at Staunton.

Of the remaining streets, the most heavily used were old U.S. 25 (leading southward from Market), Elm, Staunton and Waters Streets. U.S. 25 carried nearly 5900 vehicles per day to the west of its junction with Union and about 6600 vehicles to the south, near Swailes Road. Traffic volumes on Elm Street averaged over 5000 and on Staunton (east of Market) and Water Street about 4900 and 4500 vehicles respectively. Except for Ridge Avenue, West Market, Adams and Franklin, which ranged from approximately 2750 to more than 4000, other streets were relatively lightly used. Peters Road reached a peak of about 2900 vehicles to the south of Ridge, but the other traffic volumes were generally only 2000 vehicles or less per day.

Additional traffic counts were taken around the square to measure the effects on traffic of the Friday shopping period. These counts indicated that the 24-hour volumes on Friday were about 2000 cars higher than during the average day on each of the four streets entering the square. The peaks were reached between 6:00 and 7:00 p.m., the highest of these on Market Street at the south edge of the square totalling over 1200 vehicles per hour. The others ranged from 900 to 1000 vehicles per hour.

Except around the square and on the Market Street bridge downtown, especially during the peak shopping periods, and for short intervals in the vicinity of certain plants, as on Ridge Avenue, the present traffic volumes do not exceed capacities. As these volumes increase, however, additional thoroughfares and thoroughfare improvements will be needed if congestion is to be avoided, especially downtown. The present street system forces much through traffic into this area - experience in other cities indicates that through traffic may amount to 50 percent or more of the total during most of the business day - and bypass arteries and other major streets are needed to divert movements from the central district. Further, the present street arrangement encourages traffic on many otherwise minor streets in the sections on both sides of Market, and major street improvements should be provided to attract these vehicles to the relatively few main arteries which normally can and should accommodate the traffic.

TROY, OHIO AND ENVIRONS



MAJOR STREET PLAN

LEGEND

EXISTING		PROPOSED
	DOMINANT MAJOR STREETS (4 MOVING LANES - 80' TO 100' RIGHT-OF-WAY)	
	OTHER MAJOR STREETS (2 TO 4 MOVING LANES - 66' TO 80' RIGHT-OF-WAY)	

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PROPOSED MAJOR STREET SYSTEM

The general future extent and arrangement of the Troy urban area were shown on a plan in the earlier report dealing with population growth and general land uses. The major street system that is proposed to provide for circulation and communication throughout this future area is shown on Plate 3. The locations and standards of improvement of the proposed major streets are designed (1) to attract and expedite the great preponderance of traffic movements, many of which are now dispersed over minor streets; (2) to establish easy access between places of residence and places of employment, as to the southeast and northwest; (3) to provide easy cross-town communication in all directions; and (4) to create additional bypass arteries for traffic forced through the central district, thereby enabling downtown streets more adequately to handle the traffic generated by shoppers and patrons of the district.

The area covered by the major street plan is considerably larger than the expected future urban area. Thus, the proposed street and highway system covers the territory within three miles in all directions of the present Troy city limits, which is the area over which the city is authorized to exercise subdivision control. The proposals for new highway connections or extensions beyond the urban area are intended primarily to create a continuous and logical county road system. The improvements are not urgent but should be provided for gradually if and when these more remote areas are subdivided.

Primary or Dominant Major Streets

Because of their location and width, a few arteries such as Market and Main Streets now carry the preponderance of traffic in Troy. These and certain other key streets, existing or proposed, would constitute the most important elements in the proposed major street system, as described in the following. Besides these local trafficways, U.S. 25, which is part of the federal interstate highway network, is an important supplement of the Troy major street system.

U.S. Route 25

This route is important to Troy because it performs two valuable functions from the standpoint of local traffic. First, it affords a bypass for through traffic which has no reason or desire to stop in the city. Before construction of the new route this traffic was forced over the old U.S. 25 and South Market Street directly through the

center of Troy; these streets are now relieved, therefore, of a substantial amount of through traffic. Second, U.S. 25, by way of the interchanges to the south and on Main Street enables traffic destined for Troy to enter the city as directly and expeditiously as possible at whichever point is closest to their destination. The directness of this routing will be further increased by the construction of the interchange at State Route 55 (West Market Street) leading past the industrial area along Ridge Avenue as well as to Market Street and downtown Troy.

Existing Radials - Main, Market and Troy-Dayton Road

Main and Market Streets are both wide and direct routes leading to and through the central business district. West Market and Dixie Highway are important branches of Market Street leading to existing or proposed interchanges on U.S. 25, as well as beyond the interstate highway. A new bridge to be constructed at the eastern edge of Main Street will improve access eastward across the Miami River. The Market Street bridge is only two lanes in width; in order to provide adequately for traffic, this bridge should be reconstructed to provide for four moving lanes of adequate width. Fortunately, this reconstruction is already contemplated and will shortly be started by the State Highway Department. Further, because of the current and expected future growth north of the Great Miami River, North Market Street will continue to increase in importance as a major radial route leading to downtown Troy. All of these thoroughfares should eventually provide for four moving lanes of traffic.

In order to realize the potential of Main and Market Streets downtown, improvement is needed in facilitating traffic movements around the Public Square. This is primarily a matter of traffic engineering, involving channelization and signalization, but it may also involve some change eventually in treatment of the center of the square. This is discussed in more detail in the section on parking.

Other Radial Routes

Staunton Road serves partly as a radial route leading via North Market Street into downtown Troy from existing and potential residential neighborhoods north of the river and partly as a cross-town artery generally paralleling the waterway. Since much of the new residential growth is expected in the northeast, this route will increase steadily in importance.

Adams Street, including the bridge, provides the only river crossing west of Market Street. Unfortunately, its approaches are very inadequate from both directions, and improvement should be made from the standpoint of visibility and ease of vehicular turning. While it will be costly, Adams Street should eventually be extended to Canal Street to connect to Grant Avenue. The extension involves completely developed property and will require the acquisition of a number of dwellings, but is necessary for better communication in the district between Market Street and Ridge Avenue - the ending of Adams Street at Main and the offset of one block between Adams and Monroe makes circulation presently most circuitous and awkward.

Elm Street - Piqua-Troy Road provide access to the major industrial center proposed along the Baltimore and Ohio Railroad in the northwest part of the community. Elm Street already carries over 5500 vehicles per day, and this will increase considerably with industrial expansion in the section. Consequently, the thoroughfare will eventually require four lanes for moving traffic, at least as far north as the new circumferential route described later.

Circumferential and Bypass Routes

The greatest deficiency in the existing street system is the lack of any adequate means for continuous movement between different parts of the city around or beyond the central business district. For this purpose, loops are proposed on both sides of the river, these loops in combination forming a circumferential route traversing the whole urban area.

Ridge-Vincent-Racer Connections and Extensions. As shown on Plate 3, a continuous route, generally semi-circular in form, is proposed through extending Ridge Avenue south-eastward under the railroad to Vincent Avenue, following the latter and Racer Street to Union and then extending Racer east and northeast to Main Street. This would create a thoroughfare generally around the central part of the city at a distance of a little less than one mile from the center of the downtown business area which would make possible easy communication between the residential areas south of the river and the industries along Ridge Avenue and along West Main and Trade Square east. The new route would become one of the most important in the city, permitting the bypassing of the downtown area and the relieving of downtown streets of substantial through traffic, which will become more and more needed as the city grows and traffic volumes increase.

The development of this artery will require a number of improvements. The jog in Ridge should be eliminated, which will not be expensive since it involves open land, although part of the park will be taken. Unfortunately, the area between the C.C.C. and St.L. Railroad and Vincent has recently been subdivided, but the extension of Ridge to Vincent can still be accomplished, even though now involving a residential street, which will need widening. The Racer Avenue extension skirts the edge of the sand and gravel industry along Union Street, but can be carried out without great difficulty, and the remainder of the extension to Main through the area east of Floral Avenue involves relatively flat property still undeveloped. Because of its traffic importance, the whole route will require four moving lanes.

New Main Street Bridge - Troy-Dayton Road - New Street - Trade Square East - Trade Road East - Ridge Avenue. The major element of the loop north of the Great Miami River is a completely new artery leading from Troy-Urbana Road (State Route 55) east of the city in a direction north, northwest and west across the river to the vicinity of Surrey and Trade Square East, thence using the latter and Trade Road East to Ridge Avenue and the loop previously described. With the new Main Street bridge, a connection to Dayton-Troy Road, and following the latter to State Route 55, the loop to the north would form a continuous route with the loop to the south. The new thoroughfare north of Troy-Urbana Road would provide a direct route to the proposed industrial development in the northwest from the extensive residential districts expected north of the river and would improve communication generally through the new bridge crossing of the Great Miami nearly one mile north of the Adams Street bridge. The portion of the route from Surrey to Main Street is actually less indirect than might appear from the plate; in fact, this is slightly better in alignment than the route currently followed by traffic using Ridge, Trade Road East, and the west side of Trade Square. An 80-foot right-of-way should be secured for the new streets in order to develop four moving lanes.

Other Major Streets

Only a few other major streets are proposed within the Troy urban area although a number of proposals are made for greater continuity in highways and roads around the urban area. The majority of these other major streets will not require more than two moving lanes. For this purpose, a right-of-way of at least 66 feet is necessary and 70 to 80 feet is more satisfactory and desirable, particularly when the street or highway traverses rural land.

Streets Inside Troy

McKaig - Canal Streets constitute a radial route in the central business district from the west. McKaig needs a more adequate right-of-way west of Lake Avenue, and the jog between McKaig and Canal at Grant Avenue should eventually be eliminated.

Dorset Road and Extensions. There is no adequate north-south trafficway between Ridge Avenue and U.S. 25, and the latter cannot serve a local circulation function. It is important that a new street be provided between Main Street and State Route 55 to the east of the interstate highway. This new street would now have to pass through the shopping center currently being developed adjacent to the motel on West Main Street. It is proposed to utilize Dorset Road for this thoroughfare to the north, extending Dorset to Lytle Road and then directly northward to meet Piqua-Troy Road.

Grant Avenue and West Street. Grant Avenue is the only continuous north-south street with more than a 50-foot right-of-way between Ridge and Market Street. It is strategically located to meet the extension of Adams Street at McKaig. West Street needs greater width, but it is the only through street from Market Street to Union Street south of Canal. West is also strategically located to function as a major street in this part of the city. Both West Street and Grant Avenue should be designated and improved to serve with Union Street, described below, as legs of a close-in loop around the central area.

Union Street. Union Street is located along the west edge of the industrial section in southeast Troy. It provides a continuous route from Dayton-Troy Road (old U.S. 25) to Main Street. While the major traffic movements follow South Market rather than Union, the latter will continue to function as a secondary route into the city, as well as an industrial service road.

County Roads

While some of the trafficways, such as Peters Road, Swailes and others outside the city, will serve future urban development, many of the county roads included in the plan are primarily for the purposes of easy circulation and convenience rather than heavy traffic. On the other hand, Troy will continue to grow over the years and even though urban types of construction during the next 20 to 25 years should be limited to the area encompassed on the land

use plan, the urban area may eventually expand much farther. The time to acquire street right-of-way is before and not after development. Consequently, from the long-range standpoint, the proposed county highway plan is of value - and many of these, particularly those closer to the city, may eventually carry substantial traffic, even though now of relatively small importance.

Peters Road is a radial route from the south which already carries nearly 3000 cars per day at the edge of the city. This will serve a substantial residential area expected to develop at low densities in the future.

Swailles Road - Barnhart Road - Connections and Extensions

The connection of Barnhart to Swailles Road, together with the extension of Barnhart north to Experiment Farm Road and of Swailles eastward to the primary city loop would create a future belt line near the south edge and to the west of the future community. The Swailles Road extension would lead to the major southeast industrial area.

Deweese Road Extension. This proposed street is within the future urban area, traversing the residential neighborhoods expected north of the river, and consequently will be of importance in the service of this area.

Polecat Road Extension. The extension of Polecat Road westwardly to Experiment Farm Road would establish another river crossing nearly one mile north of the proposed new bridge on the primary loop described previously. The route of this extension is at the edge of the future residential area proposed on the land use plan between U.S. 25 and the proposed industrial development.

Other Roads and Extensions. The other roads and extensions indicated on the major street plan are generally beyond the urban area. Some of these, such as Troy-Ludlow Road (State Route 55), Fenner, Pleasant Hill and Troy-Covington Road (State Route 70), are existing radial routes which will only need widening as the abutting property is subdivided. Others involve changes to improve their alignment or extensions to establish continuity.

Grade Separations

Three railroad lines traverse the city. The C.C.C. and St.L. Railway follows a route through the southeast and southwest. The B&O Railroad has two lines, one of these virtually bisecting the city in a north-south direction,

the other branching to and through the northwest, generally paralleling the Great Miami River. The latter line is essentially a service spur and has only four trains daily.

The main line of the B&O Railroad is the only one which creates a serious problem from the standpoint of traffic. Because of the number of passenger and freight trains over this line, in addition to switching movements, and the lack of grade separations except for the narrow, low-clearance structure at Race Drive, the B&O main tracks do constitute a barrier. The two dominant circumferential routes on the two sides of the river should both be separated from the main B&O line. One of these proposed grade separations is on the extension of Racer Street east of Union; the other is on the proposed new street at the north edge of the city. Grade separations would also be desirable at Staunton and on North Market Street. Since all of the grade separations would be expensive, particularly for a city of the size of Troy, some of these might be accomplished by separating two rather than four lanes with the railroad and carrying the other two lanes at grade across the tracks. The latter treatment is especially useful on established thoroughfares where the two center lanes may be carried under the tracks, with the rest of the pavement at grade for access to the abutting property.

Even though the C.C.C. and St.L. line is not as serious a barrier as the main B&O line, the importance of the proposed circumferential artery and the ease by which Ridge Avenue could be extended under the elevated tracks at this point make the separation of grades desirable. Construction of the roadway under the tracks could also be accomplished at the eastern crossing of this loop with the C.C.C. and St.L. near Floral Avenue.

CARRYING OUT THE PLAN

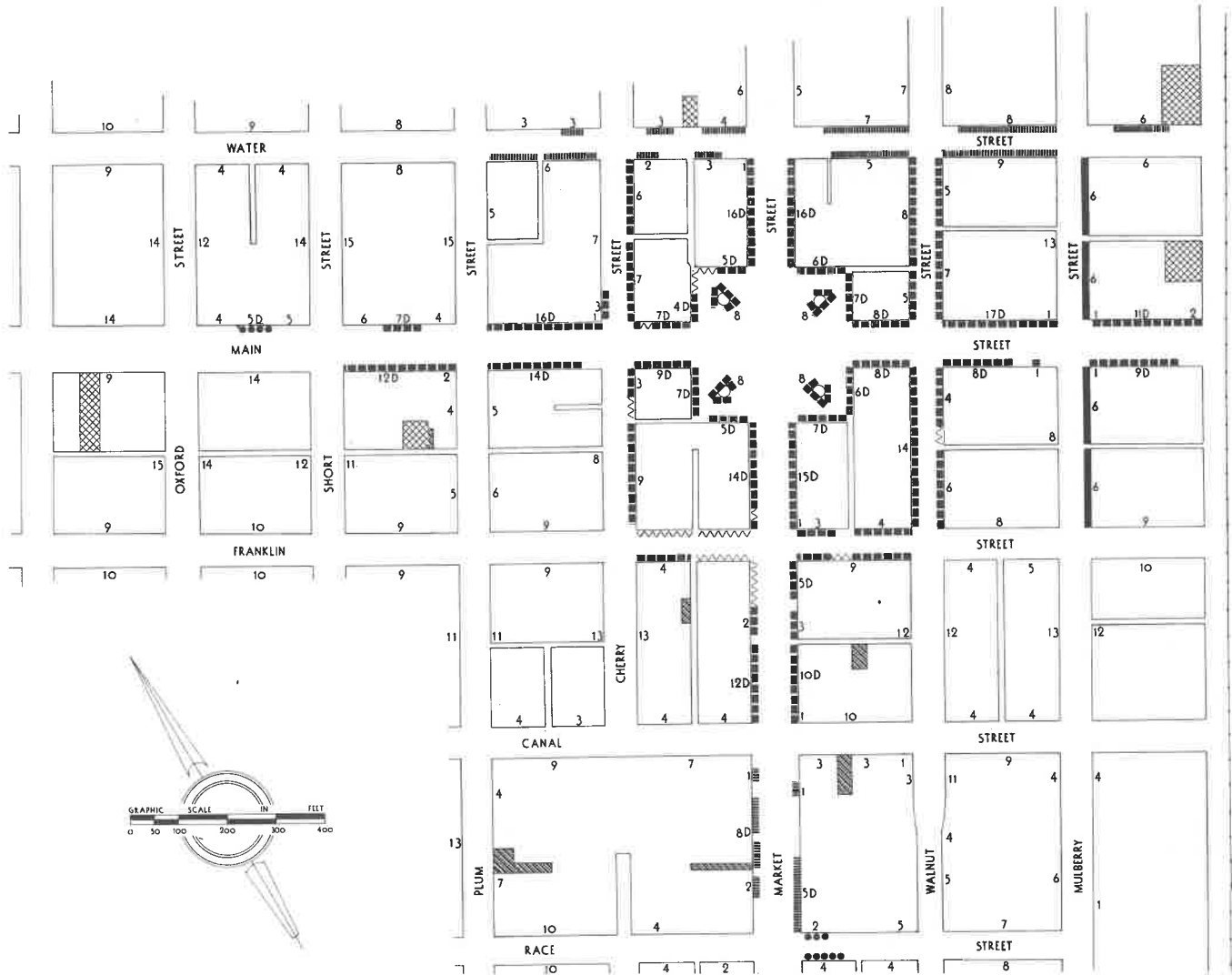
The major street plan is necessarily a long-range plan to be carried out over a period of many years as the need as well as the available finances and conditions dictate. The construction of major street improvements is costly, but one of the most expensive parts of such a program is usually the acquisition of right-of-way for needed extensions, widenings or realignments. This costly acquisition cannot be avoided now in built-up areas, but it can be avoided in the future in districts yet to be developed by acquiring properly located street rights-of-way well in advance of need.

The first step in carrying out the plan will involve careful study of the plan and report by the City Planning Commission and city officials, following which any adjustments can be made should these be deemed desirable, and the plan thereupon officially adopted. Once the latter has been accomplished, the city can then begin to acquire much of the street right-of-way through the enforcement of the subdivision regulations. Ohio legislation provides that whenever the City Planning Commission has adopted a plan for major streets and for parks and other open spaces for the city or for the territory within three miles of its corporate limits, then no plat of a subdivision of land within such city or territory shall be recorded until it has been approved by the City Planning Commission. A discussion of subdivision regulations is contained in the latter part of this report.

The majority of the street improvements in Troy will have to be financed by the city. However, certain projects will involve the routing of state highways for which state assistance may be obtained, and any road construction outside the city would be financed with county rather than municipal funds. For example, certain of the dominant routes, such as the circumferential, might be used in part for State Routes 55 or 70. In these cases considerable aid in the financing of the improvements might be secured from the State Highway Department.

Consequently, these elements of the proposed plan in particular should be discussed with state highway officials so that agreement can be reached on the routing. In fact, this should be done before the plan is finally adopted. Thereafter, the major street plan will serve as a valuable guide for the budgeting of available funds, which can be expended when and where they are most needed.

CENTRAL BUSINESS DISTRICT TROY OHIO



EXISTING PARKING FACILITIES

- L E G E N D
- | | | | |
|---------------|------------------|---|--|
| ~~~~~ | - NO PARKING | 5 | - NUMBER OF CURB SPACES |
| ----- | 1-HOUR METERED | D | INDICATES DIAGONAL PARKING |
| ———— | 2-HOUR METERED | ▨ | COMMERCIAL OFF STREET AREAS |
| | 2-HOUR POSTED | ▩ | MISCELLANEOUS PRIVATE OFF STREET AREAS |
| | 15-MINUTE POSTED | | |
| NO INDICATION | UNRESTRICTED | | |

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PARKING

Facilities for the parking of automobiles are related to the facilities for their movement. Obviously, a motor vehicle is of little value if it cannot be parked, and present-day habits demand space for such parking within a short distance from the destination of the driver. Moreover, the location and types of parking spaces have a direct effect on moving traffic since vehicles parked on-street may occupy space which could be better used for movement, and vehicles cruising around in search of space add to the volume of traffic.

Adequate parking space is an essential adjunct of modern urban development. Industries require off-street parking areas to accommodate their employees; stores and offices need space for their customers and patrons. The integrated shopping centers in the outskirts of many cities have been successful primarily because they could be easily reached and provided ample, convenient parking. The proposed zoning regulations would require space for off-street parking in relation to the requirements of specific types and sizes of buildings and land uses in all districts except the central business zone. Because of the building coverage and high land costs in the latter, such zoning requirements are usually not practicable, and the parking facilities must be provided by cooperative or public action in the most intensive downtown area.

There are several different types and kinds of parking requirements. Many vehicles need space for only a short time - not more than an hour and frequently for a half-hour or less - while the parker runs an errand or two or makes a routine purchase. Other cars may be parked for one or two hours, or even a little longer, while the motorist shops at a number of establishments or visits various professional offices. Still others, mainly the employees or owners of downtown establishments, may park for all or most of the day. The short-time parker needs space very close to his destination, preferably at the curb; shoppers and patrons in general are reluctant to walk more than a block or two; the all-day parker, however, may walk several blocks without inconvenience or discomfort.

Existing Parking Facilities

A survey was made of the number of parking spaces and of parking space turnover and vacancies in September, 1959. The general location and arrangement of the spaces and the

Table 1
 EXISTING PARKING FACILITIES
 Troy Central Business District

<u>On-street Spaces</u>		
1-hour metered	407	
2-hour metered	24	
2-hour posted	73	
15-minute posted	11	
Unrestricted	<u>530</u>	
Total On-street Spaces		1,045
 <u>Off-street Spaces</u>		
Commercial Areas	60	
Miscellaneous Private Areas	<u>85</u>	
Total Off-street Spaces		<u>145</u>
Total On and Off-street Spaces		1,190

type and extent of curb parking regulations are shown on Plate 4. The off-street areas are so small that only a few of the larger areas are shown on this drawing.

The street frontage around the business core, including the Public Square, Main and Market Streets and three - Cherry, Walnut and Franklin - of the four streets surrounding this central core, is restricted to one hour parking. However, the west side of Cherry Street is unrestricted, which is inconsistent with the one-hour regulation along the east side of this street. The one-hour restrictions on Main Street extend from the railroad west to Short Street, although only a part of the Courthouse frontage is regulated. Both sides of Water Street, running generally from Plum eastward to the railroad, are allocated to two-hour parking, as is Market Street south of Canal. Mulberry Street is restricted to two-hour parking along its east side between Franklin and Water, but has no regulation at all on the west side of the street. This is also illogical and inconsistent. The remaining streets are unrestricted, except for the short frontages set aside for 15-minute parking in front of the post office, etc.

The curb parking spaces along Main and Market Streets and around the Public Square are all diagonal, the angle of parking being about 40 degrees. Even though the street pavements are 65 feet, this decreases materially the space for traffic movement and causes interference due to the backing out of spaces. Changes to remedy these conditions are proposed later in this section.

Off-street parking space is very limited, being confined to a few areas for customer parking and miscellaneous spaces behind buildings. None of these is of any substantial size, the largest being those on Water and on Main Street (one of the latter serves the grocery west of the railroad, the other a supermarket west of Oxford Street). These lots are indicated as commercial on the drawing although they are actually adjuncts of the establishments; the private areas include the spaces for employees. There is no public parking lot offering space on an hourly basis to transients. Besides the areas shown on the plate, there are many small areas where one or two or several cars are parked behind individual buildings.

The number of parking spaces within the district encompassed by the map is shown in Table 1. For the purposes of this table, the spaces generally west of Short Street were not considered as serving the business district and were omitted. There are 431 parking meters in the area, all

Table 2
 PERCENTAGE OF PARKERS BY TIME PARKED
 Troy Central Business District

	<u>Average Week Day</u>	<u>Friday Evening</u>
Less than 1/2 hour	74	63
1/2 to 1 hour	15	22
1 to 2 hours	7	11
2 to 4 hours	3	3
Over 4 hours	<u>1</u>	<u>1</u>
	100	100

Based on parking survey conducted in September, 1959.

but 12 of these in the blocks restricted to one-hour parking. The 12 two-hour meters are along the east side of Mulberry Street. The majority of the downtown streets are unrestricted, and consequently slightly over half of the total of 1045 spaces are without regulation. The small amount of off-street parking is indicated by the total of only about 145 accommodations.

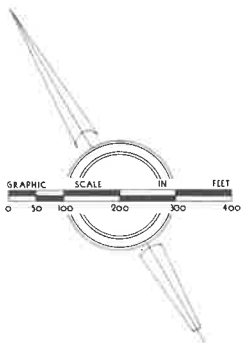
Present parking accommodations within the area covered by Table 1 represent about 55 spaces at the curb and eight spaces off-street per 1000 persons in the Troy urban area. While business district survey areas vary somewhat in different cities (that in Troy being relatively large in relation to the business core), a study by the United States Bureau of Public Roads several years ago indicated an average of 60 curb and 34 off-street spaces, or a total of 94 spaces, per 1000 in 20 cities of less than 25,000 population. Thus, Troy is about average from the standpoint of number of curb spaces, but much below average with respect to off-street parking. One advantage, however, is the amount of curb parking in and around the business core provided by the use of diagonal stalls. About 70 curb spaces on Main and Market Streets would be lost by converting from 40 degree to 30 degree parking, but about half of these could be regained in the Public Square itself should this be modified to facilitate traffic flow.

Use of Parking Facilities

In order to evaluate present parking characteristics, turnover and the availability of vacant space, half-hourly checks were made of the cars parked at the curb in and around the business core and checks were made of the number of vacant spaces in each block throughout the downtown area. These checks were made both on average weekdays (Tuesday) in September and during the Friday shopping period.




Almost nine out of every ten parkers in the core area parked less than one hour during the average day, about three-fourths of the parkers less than one-half hour. (See Table 2.) This is not unusual, considering the close-in locations of the spaces, but it does emphasize the number and high proportion of motorists who need accommodations for only short periods. Moreover, about one car in each ten violated the restrictions since these spaces were all in the one-hour metered blocks. The parking durations were a little longer on Friday evening, but even then seven out of eight stayed less than one hour, and three out of every five stayed less than one-half hour.

CENTRAL BUSINESS DISTRICT TROY OHIO



USE OF CURB PARKING SPACES

L E G E N D

-  TOTAL NUMBER OF SPACES ON EACH BLOCK FACE
 -  NUMBER OF VACANCIES ON EACH BLOCK FACE ON AN AVERAGE DAY - 3:00 P.M., TUESDAY, SEPT. 15, 1959
 -  NUMBER OF VACANCIES ON EACH BLOCK FACE ON A PEAK DAY - 7:30 P.M., FRIDAY, SEPT. 18, 1959
- *INCLUDES ALL CURB AND ISLAND SPACES IN CORNER OF SQUARE

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These proportions would indicate that in parts of the core area such as the southeast corner where the establishments are of a type like drug stores catering to the very short-time parker, a limit of one-half hour might properly be used.

The number and proportion of vacant spaces in and around the business district and in the blocks along Main Street are graphically shown on Plate 5. Spot checks were made to investigate vacancies in the other blocks also. All of these were made in the late morning and mid-afternoon peak parking periods. In general, Plate 2 and the supplementary checks indicate that there is no shortage of parking spaces in Troy during the normal business day, but there is a shortage of parking accommodations during the peak shopping period which occurs Friday evening. Thus, around the Public Square, the very core of the district, one-half or more of the spaces were vacant during the day. (Experience has shown that about one space in each six - 15 percent - should always be vacant for convenience to the shopper and for reduction of cruising in search of space.) On the other hand, during the Friday evening peak, practically every block from Plum to Mulberry Street and from Water to Canal was completely filled, except for Plum Street south of Franklin and for Mulberry Street, where the vacant spaces were not shown on Plate 5.

As might be expected, considerable use was made of the most convenient unrestricted spaces during the day. For example, only eight spaces out of 51 were vacant along Main Street west of Short shown on the plate, and only two spaces out of 96 were vacant on Plum and Short Streets north of Franklin when these blocks were checked. Practically all of the spaces along the west side of Mulberry were continually in use also. These conditions indicate that the metered area might be extended to advantage, particularly on the west side of Mulberry and around the Courthouse to make the regulations more consistent and to provide convenient space for visitors to the county offices.

Parking Demands

An analysis was made of the parking characteristics, including the number of vacant spaces, block by block in order to estimate the parking demand. The figures were assembled by areas in relation to the center of the district and the locations of the establishments, as shown in the following table.

	<u>Average Day Peak</u>		<u>Friday Peak</u>	
	<u>Vacant</u>	<u>Total</u>	<u>Vacant</u>	<u>Total</u>
Core Areas	150	433	12	433
Intermediate Areas	24	324	38	324
Fringe Blocks	125	288	70	163*
	299	1,045	120	920*

*Other spaces were little used and were omitted from evening check.

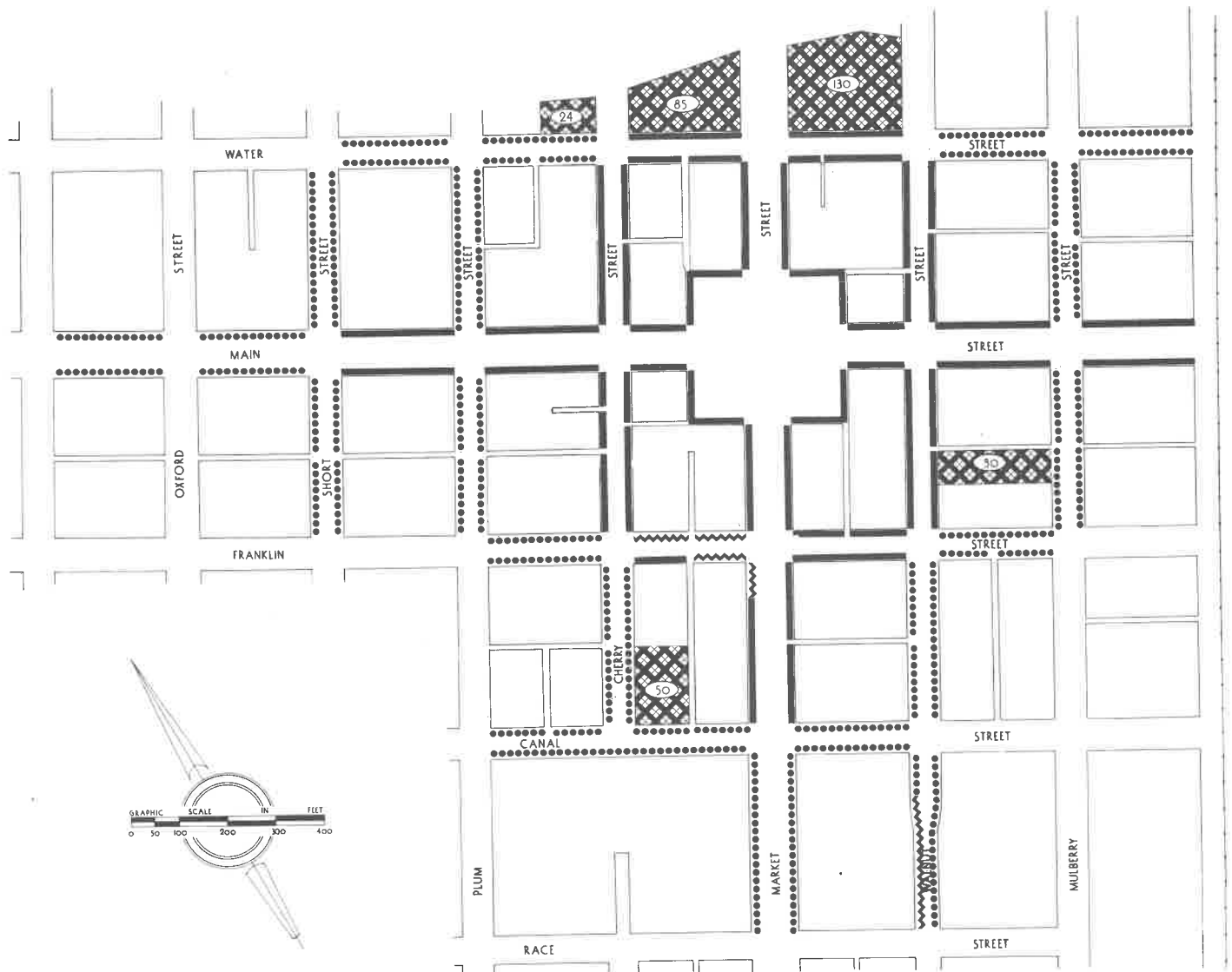
Approximately 300 of the total curb spaces were vacant during the peak parking period of the average day. Since a vacancy ratio of only 15 percent of the total is considered necessary for adequacy and convenience, there is a surplus of about 140 on-street spaces in the downtown area as a whole during the normal day. However, a few of the spaces are a little inconvenient and consequently it is estimated that the present parking surplus is about 100 spaces. Further, it will be noted from the table that a relatively high vacancy during the day is found in the core blocks so that a surplus of some 85 spaces exists for shoppers and patrons - although some of these may desire to stay more than one hour.

During the Friday evening peak, the situation is quite different. Thus, only 12 spaces were vacant in the core area and only 50 spaces in the core and intermediate areas combined. Since about 65 spaces should be always available close in, and about 50 spaces in the intermediate areas, based on 15 percent of the total accommodations, these figures would indicate a shortage of about 65 spaces on Friday evening. The less convenient fringe blocks were naturally little used since nearly half of those checked were vacant, and the remote blocks were almost entirely unused. Considering the very small number of vacant spaces found at convenient locations on Friday evening, it is possible that additional customers could be attracted to the district at this time if more parking spaces were made available.

Future Demands






Based on the number of occupied parking spaces in the various blocks and an estimate of the cars parked in the miscellaneous off-street areas, about 830 cars were parked on the average day in the downtown district as a whole. Allowing for the desirable 15 percent vacancy, this would

CENTRAL BUSINESS DISTRICT TROY OHIO



PROPOSED PARKING PLAN

L E G E N D

-  ONE-HOUR CURB PARKING METERED
-  TWO-HOUR CURB PARKING METERED
-  OFF-STREET PARKING AREAS
-  INDICATES APPROXIMATE NUMBER OF SPACES
-  NO PARKING

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indicate a total present parking demand for about 930 spaces. Assuming that the future parking demand will increase about 50 percent in the next two decades - neither the traffic movements downtown nor the parking requirements are likely to increase in the future as rapidly as population and traffic in the Troy area as a whole - this would create a need for about 1470 spaces. Since the present accommodations aggregate about 1190 spaces, not allowing for some that are inconvenient or unsatisfactory, the future demand would represent an increase of at least 300 spaces over the present.

Proposed Parking Plan

It should be emphasized that the proposed parking plan on Plate 6 is intended for the future and not for the present except that some of the proposals for changes or extensions of the parking restrictions could be carried out in the next few years. This plan proposes the eventual development of several off-street lots, as well as more effective use of certain on-street areas.

The principal change in the parking regulations is proposed in the increase of two-hour meters. The illogical restricting of only one side of Mulberry was previously mentioned. Meters should be installed on the west side of this street from Franklin to Water also. Two-hour limits are proposed along Cherry south of Franklin, along Canal, along Franklin west of Cherry and on parts of Water, Short and Plum Streets. The majority of these streets are unrestricted and are almost fully occupied during most of the day even though several such as Franklin and Cherry are quite convenient to the Square and should be reserved for patrons of the district. Some extension is proposed also in the one-hour metered zones as along Water east and west of Market Street and on the presently unrestricted west side of Cherry. These are all very conveniently located with respect to the core of the business area.

Initially, certain of the additional metered areas, such as the frontages along Short, Plum and Canal Streets, might be restricted on the basis of four-hour rather than two-hour limits, with a charge of five cents for each two hours. This would permit their use by some all-day parkers, while tending to discourage the complete pre-empting of spaces as around the Courthouse, by employees and other all-day parkers - some of the present parkers would not be willing to pay any parking fee and would move farther out. The four-hour limits and lower fees would also tend to encourage wider use of the metered areas than would be the case otherwise, until such time as the parking demand warranted the two-hour restriction.

Because of the need for additional space for traffic, Main and Market Streets should eventually be widened about 3.5 feet on each side, and the angle of parking changed to 30 degrees, in line with the recommendations made in a recent engineering report to the city by Harry Balke Engineers of Cincinnati. This would make possible two full moving lanes in each direction in addition to the space for parking, but would reduce the number of spaces by about 70. Two schemes for the channelization of the square were contained in the Balke report. One of these (Figure VII in said report) would establish the channels by means of traffic islands without seriously disturbing the attractive central island, and without changing the present parking. The other scheme (Figure VIII) would completely alter the square, removing the central landmark, but would provide 36 additional parking spaces. Thus, under this scheme, about half of the spaces lost by the street widening would be recouped within the Public Square.

Present building coverage in most of the downtown area is sufficiently high that the development of off-street parking lots will be relatively expensive. The four areas proposed for possible long-range parking accommodations are occupied almost entirely by housing. The majority of these homes are quite well maintained; moreover, Troy is unusual in the number of well-kept residences downtown so that they would not be inexpensive. However, even though downtown dwellings are still popular, it would be easier and more desirable from the standpoint of business and commerce, to utilize the close-in residential properties for off-street parking facilities when these are more seriously needed. All of the proposed lots are conveniently placed, those along Water in particular being at the very edge of the district. Except for a few structures on the west side of Market, all three lots on Water are occupied by homes in good condition. The lot on the east side of Walnut includes three or four dwelling structures, that at Cherry and Canal about six residential buildings, some of which are substantial.

The proposed parking lots would accommodate more than 300 cars. This would meet the estimated future demand for some 1470 stalls, assuming that all the existing off-street spaces, some of which are poor, would be retained or replaced privately. The proposed facilities would also compensate for loss of some of the curb parking, but unless additional spaces were provided within the square, an additional lot or a parking structure would be needed to compensate for the total loss of 70 spaces or more.

SUBDIVISION REGULATIONS

As discussed in an earlier report on Economy, Population and General Land Use, the pattern of the community is influenced by many factors, including the topography and other physical conditions and features of the site and the manner of adaptation to the site. The latter is especially important. Once streets are platted and lots are laid out, the pattern of that particular area is established and little can be done to change it in the future. If each individual land subdivision is well designed and the subdivisions as a group are well related to the land and to each other, the community will be livable and efficient; if the plats are poor and uncoordinated, conflicts result and the various services and facilities will be unsatisfactory or costly. The lack of through streets in Troy, the inconsistencies in width and the numerous street jogs and of offsets, like those in many other cities are the result of piecemeal, uncoordinated, individual subdivision designs.

In accordance with Ohio statutes, Troy has the authority to control all subdivisions of land within its corporate limits and in unincorporated territory for a distance of three miles therefrom. Miami County is authorized to exercise control over all territory beyond this jurisdiction of the cities such as Troy and Piqua. Troy has been enforcing subdivision regulations for a number of years, and they have been useful and effective, but a few changes and adjustments are needed. The county also enforces subdivision control so that close coordination of the standards and rules is desirable to make them as uniform as practicable in their application.

Briefly, subdivision regulations prescribe the procedure for securing the review and approval of the subdivision plan by the Planning Commission, establish general standards for street, block and lot layout and arrangement along with other design features, and specify the street, utility and other improvements which must be made to insure a satisfactory environment for the development. After final approval is given, the plat may be recorded and individual building construction begun.

Of particular importance in carrying out the comprehensive city plan is the provision for major streets, parks, school sites and similar improvements in any area where these are proposed by the plan. Familiarity with the

official plan proposals and their application to the tract being subdivided is a prerequisite to beginning the subdivision design. Major streets through the property should be direct in alignment and adequate in width, which benefits the remainder of the area because the minor streets need serve only for access, gain in privacy and safety, and can utilize less width and lighter pavements therefor. Schools and parks can be made more convenient and visually effective by providing ample areas at the appropriate location well in advance of building construction.

Individual subdivisions are usually too small to constitute a substantial part of a residential neighborhood (normally about one square mile). Consideration should be given in the design, nonetheless, to the proper platting of adjoining property so that eventually the whole neighborhood can be appropriately laid out from the standpoint of an over-all integrated design.

The revised subdivision regulations were presented separately, but are described briefly in the following.

Subdivision Design Standards

The revised regulations, like the present, prescribe the standards and requirements to be observed in creating a good subdivision design. These include specifications concerning street and block dimensions, lot sizes, general street arrangement, easements for utilities and drainage and similar basic elements of the subdivision. For example, existing street alignments in adjoining areas must be continued wherever desirable and streets must be properly related to the topography and to the logical and reasonable development of vacant surrounding land. Lot sizes must comply with existing zoning requirements.

Improvements

In order to insure good living conditions and a good quality of building construction needed physical improvements should be installed at the inception of the development. These improvements include the grading of streets, street pavements, curbs and gutters, sidewalks (except for large lots), approved water supply and sewerage disposal, proper storm drainage and appropriate street tree planting.

While installation of the improvements must precede building construction, the installation can be accomplished in stages in connection with a large project. Further, for

the purposes of securing approval of a plat, the subdivider could file a cash deposit or a surety bond to insure construction of the improvements later but within a specified time.

Procedure to be Followed

The subdivision regulations require submission to the Planning Commission of a preliminary plat showing the proposed subdivision plan, the physical features of the area, its relation to surrounding property, et cetera, to permit proper appraisal of the plan. Before preparing the plat, the subdivider should consult with the Director of Public Service to become thoroughly familiar with the regulations and with official plan proposals affecting the property. If the preliminary plat is in compliance with the design standards and other requirements, including general arrangement, its relation to the development of surrounding property and provision for applicable proposals of the comprehensive plan, the Planning Commission would approve it after its review.

Approval of the preliminary plat constitutes authority for the subdivider to proceed with street and utility installations and other improvements and with preparation of the final plat. In lieu of immediate installation, the subdivider could post a bond to guarantee construction as stated before. After its approval and signing the final plat could be recorded in the office of the Recorder of Miami County, and lots could be sold and building construction started.