

City

A PARKING PLAN FOR DOWNTOWN BISMARCK

PREPARED FOR
THE CITY OF
BISMARCK, NORTH DAKOTA

BARTON-ASCHMAN ASSOCIATES, INC.



A PARKING PLAN FOR DOWNTOWN BISMARCK

**Prepared for the
City of Bismarck, North Dakota**

by

**Barton-Aschman Associates, Inc.
Minneapolis, Minnesota**

March, 1978

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SUMMARY OF PRINCIPAL FINDINGS AND RECOMMENDATIONS

The following findings and recommendations are the key results of the study of parking in downtown Bismarek. They were reviewed and discussed during the course of the study with the Parking Planning Committee which was composed of members of the Chamber of Commerce, the Bismarek Parking Authority, and the City of Bismarek staff.

PRINCIPAL FINDINGS

1. During the peak parking time of the day, 79 percent of the vehicles parked in the study area belong to people working downtown.
2. Many residential streets adjacent to downtown are used for all day parking by downtown employees.
3. Seventy-seven percent of the vehicles parked in the study area were parked for over four hours.
4. The peak parking occupancy of the day was 62 percent.
5. Thirteen blocks in the study area had parking occupancies of 85 percent or more.
6. Approximately 50 percent of the vehicles parked at curb spaces with time limits are parked in violation of the posted time limit.
7. There is adequate, convenient space for short-term (shopper) parking if employee parking is controlled.
8. The existing parking system income is not enough to meet existing expenses.

RECOMMENDATIONS

1. Investigate the possibility of establishing a van pool and car pool program for downtown employees.
2. Examine the possibility of establishing a shuttle bus service between the Civic Center parking lots and downtown Bismarek to encourage all day parking in these lots.

3. Construct a parking lot north of the Post Office and Federal Building.
4. Construct a parking lot north of Bismarck Hospital.
5. Establish a permit system to eliminate downtown employee parking on residential streets.
6. Increase the cost of repeat tickets to discourage all day parking on downtown streets.
7. Establish a uniform time limit for parking on downtown streets.
8. Establish a minimum fee of fifty cents per day for parking in public parking lots.
9. Re-stripe existing parking lots to accommodate twenty-five percent compact vehicles.
10. Consolidate existing off-street parking lots to better utilize space.

INTRODUCTION

STUDY PURPOSE

This study is intended to aid the municipal government, business community, and property owners in examining the various fundamental issues involved in the development of parking facilities in downtown Bismarck. A proposed course of action leading to the development of a parking system that will improve the present parking system and satisfy future anticipated demands is developed. The purpose of this report is to summarize the results of the parking inventory and demand forecasts, and to develop a policy plan to guide the development of a downtown parking program.

REPORT ORGANIZATION

In recognition of the many ramifications of parking policies and plans, this evaluation proceeds through the following steps:

1. An examination of the existing parking system, its usage, and the characteristics of its users (Chapter 2).
2. An appraisal of parking needs, considering growth in the downtown area (Chapter 3).
3. A discussion of developing public policies in the areas of locating, financing, managing, and operating parking facilities (Chapter 4).
4. An analysis of locational patterns for the parking system in view of current and planned land use patterns (Chapter 5).
5. A recommended parking program (Chapter 6).
6. A financial review of the existing parking system and a financial analysis of the proposed system (Chapter 7).

SUPPLEMENTAL MATERIAL

This report is presented in summary form with discussion and amplification only when necessary for clarity of understanding. Detailed data are contained in the supplemental material developed as a part of this study.

During the course of this study, a number of technical memoranda were prepared which documented the data collection and analysis phases. These memoranda are contained in the Technical Memoranda Notebook available for inspection at the Department of Public Works. The contents of this notebook are presented in Table 1.

TABLE 1
LIST OF TECHNICAL MEMORANDA

1. Revised Work Program
 2. Existing Parking Conditions
 3. Developing Public Parking Policy
 4. Parking Location Options
 5. Financing Parking Facilities
 6. Management and Operation of Parking Facilities
 7. Results of Postcard Survey
 8. Parking Demand and Alternative Locations
 9. Financial Analysis of Parking System
 10. Implementation of Parking Plan
 11. Parking Assessments
-

The findings and conclusions of these memoranda were reviewed and discussed with the Parking Planning Committee composed of representatives of the Downtown Association, Chamber of Commerce, Bismarck Parking Authority, and the City administration. The members of the Committee are shown in Table 2. The Committee met four times during the course of the study to provide guidance to the City staff and consultant (see Table 3).

The opinions, findings, and conclusions expressed in this publication are those of the author and the Committee and not necessarily those of the North Dakota Highway Department or the Federal Highway Administration.

TABLE 2
PARKING PLANNING COMMITTEE ROSTER

Name	Affiliation
Leroy Walker	Bismarck Parking Authority
Chuck Peterson	Chamber of Commerce
Bob Therrien	Downtown Association
Dave Schlaht	City Planning Department
Raymond Jundt	City Public Works Department
Dave Erickson	City Traffic Engineering

TABLE 3
PARKING PLANNING COMMITTEE MEETINGS

Date	Subject
October 12, 1977	Existing Conditions
October 26, 1977	Alternative Parking Locations
November 16, 1977	Financing System Expansion
January 10, 1978	Financing System Expansion

EXISTING CONDITIONS

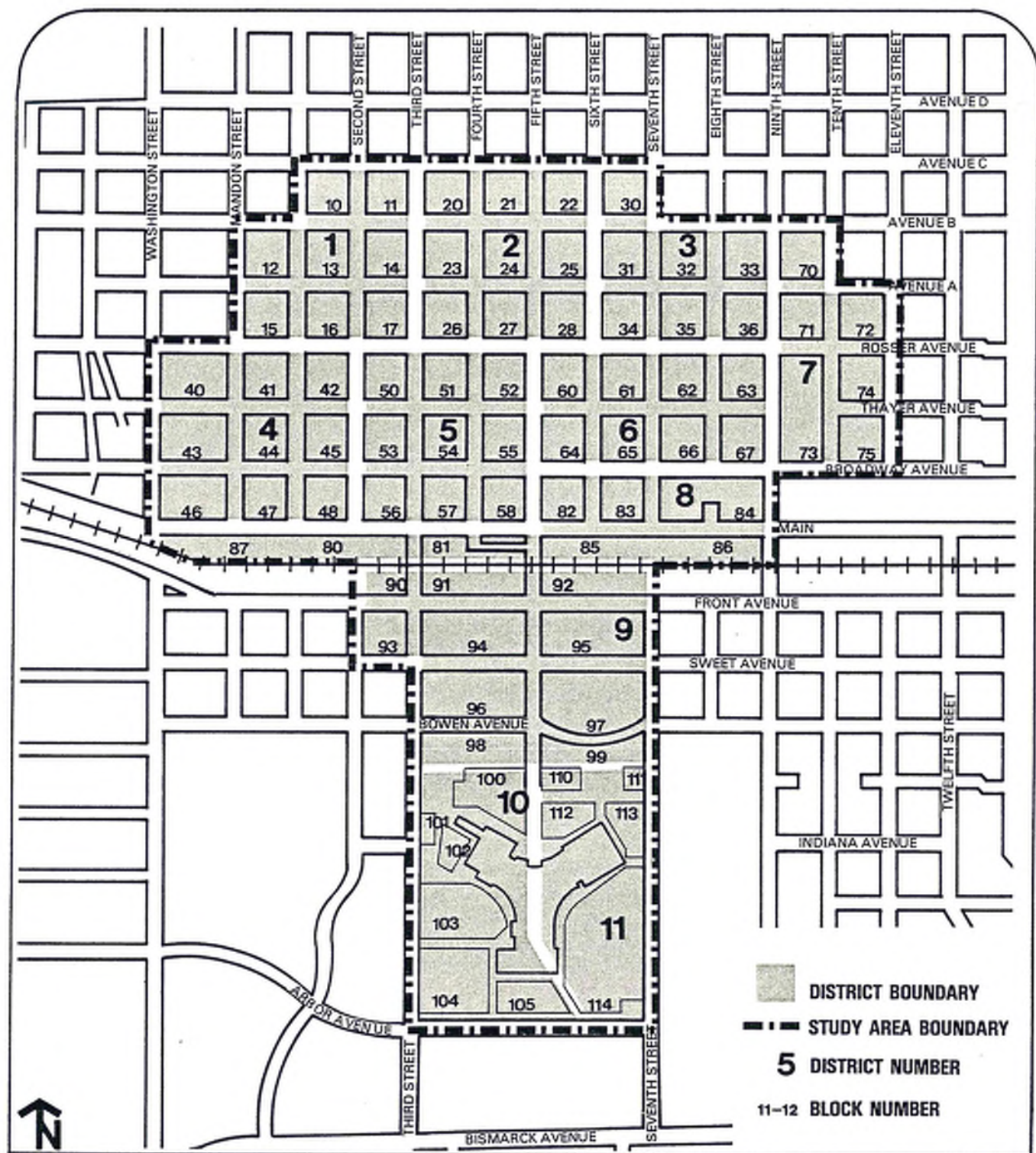
On Tuesday, August 16, 1977 data were collected regarding the usage of parking spaces within the downtown area of Bismarck. On Wednesday, August 17, 1977 postcard questionnaires were distributed during peak parking hours to all vehicles parked within the study area. The study area consists of 85 blocks, which were aggregated in 11 districts as shown in Figure 1.

PARKING INVENTORY

Due to construction at the time of data collection, 150 public parking spaces south of the Civic Center were not available and could not be considered in evaluating existing parking conditions, but will be used for determining future parking needs.

There were 10,640 available parking spaces in the study area. They were composed of 2,160 on-street curb spaces, 410 garage spaces, and 8,070 parking lot spaces. Table 4 shows the breakdown of parking spaces in the study area according to on-street and off-street type.

Parking spaces were also categorized by type of user. They were categorized as on-street spaces, spaces available to the general public, and spaces reserved for specific employees, customers, or residents. Table 5 shows the inventory of these facilities in the study area. Seventeen percent of the parking spaces are off-street spaces available to the general public. When on-street spaces are included, 38 percent of all parking spaces are available to the general public. Appendix Table 1 shows the distribution of on-street parking spaces by type.



BISMARCK PARKING

**FIGURE ONE
STUDY AREA**

TABLE 4
PARKING FACILITY INVENTORY

Type of Parking	Number of Spaces
<u>On-Street</u>	
Free Curb	2,160
<u>Off-Street</u>	
Garage	410
Lot	4,565
Sub-Total	4,975
Kirkwood Plaza Lot	3,505
Total Off-Street	8,480
Total Study Area	10,640

TABLE 5
LOCATION, TYPE, AND CAPACITY OF PARKING FACILITIES

Type of Parking	Number of Spaces
<u>Free On-Street</u>	
10 minute time limit	24
1 hour time limit	797
2 hour time limit	254
No time limit	1,085
Total On-Street	2,160
<u>Off-Street</u>	
General Public	1,831
Employee	1,249
Customer	1,835
Residential	60
Sub-Total	4,975
Kirkwood Plaza Customer	3,505
Total Off-Street	8,480
Total Study Area	10,640

Another way to categorize parking spaces is by long-term parking and short-term parking. Long-term parking is any parking that occurs for four hours or more, while short-term parking is for less than four hours. Long-term parking is mostly by people working in the area, while short-term parking is for trips such as shopping, personal business, and to visit medical facilities. Table 6 shows the distribution of the long-term and short-term parking spaces within each district of the study area.

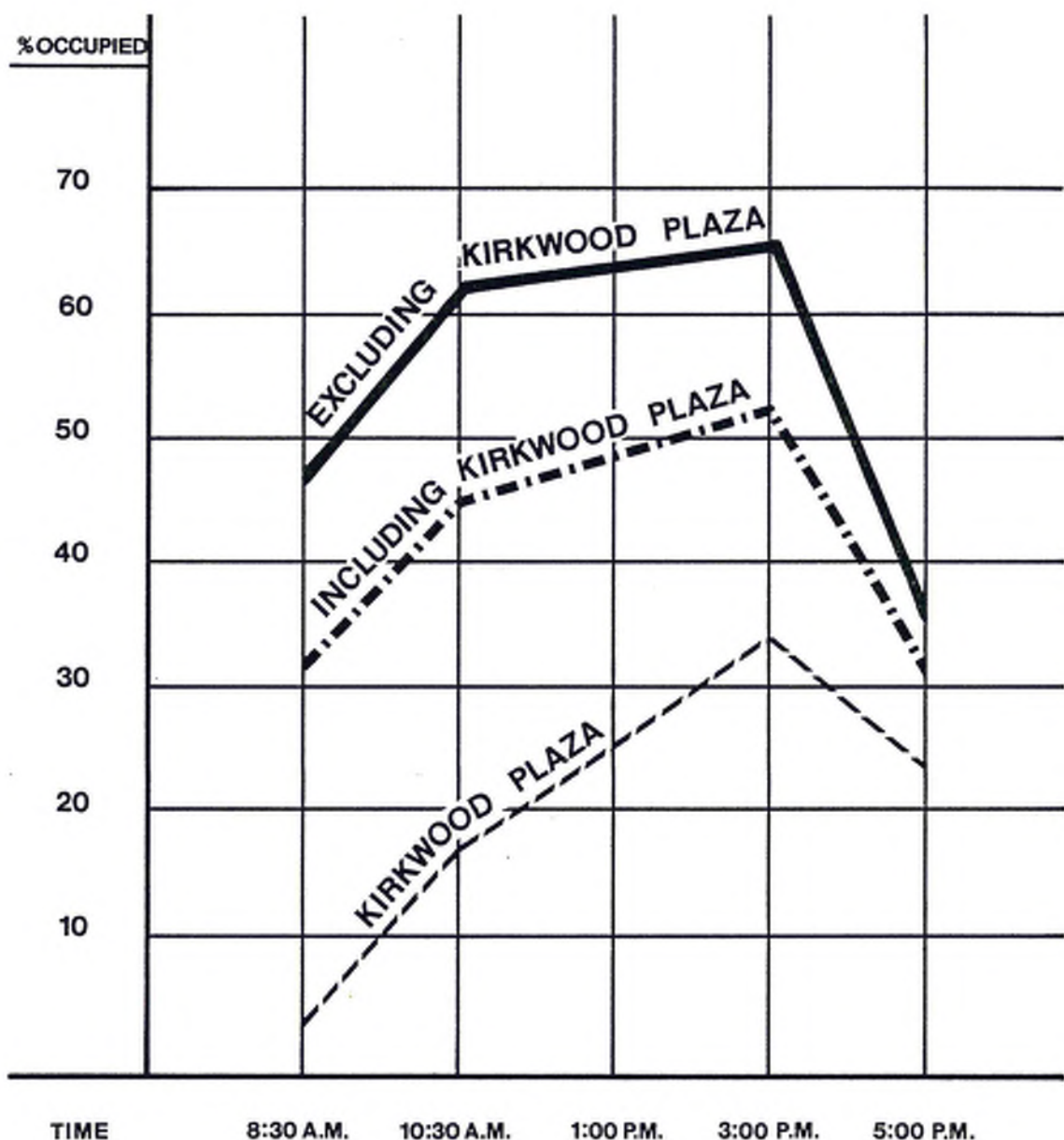
TABLE 6
NUMBER OF PARKING SPACES BY TYPE OF USAGE

District No.	Short Term	Long Term	Total
01	48	292	340
02	375	427	802
03	75	244	319
04	582	186	768
05	596	325	921
06	750	309	1,059
07	63	438	501
08	622	334	956
09	260	1,209	1,469
Sub-Total	3,371	3,764	7,135
10 (Kirkwood Plaza)	1,761	-	1,761
11 (Kirkwood Plaza)	1,744	-	1,744
Total	6,876	3,764	10,640

PARKING USAGE

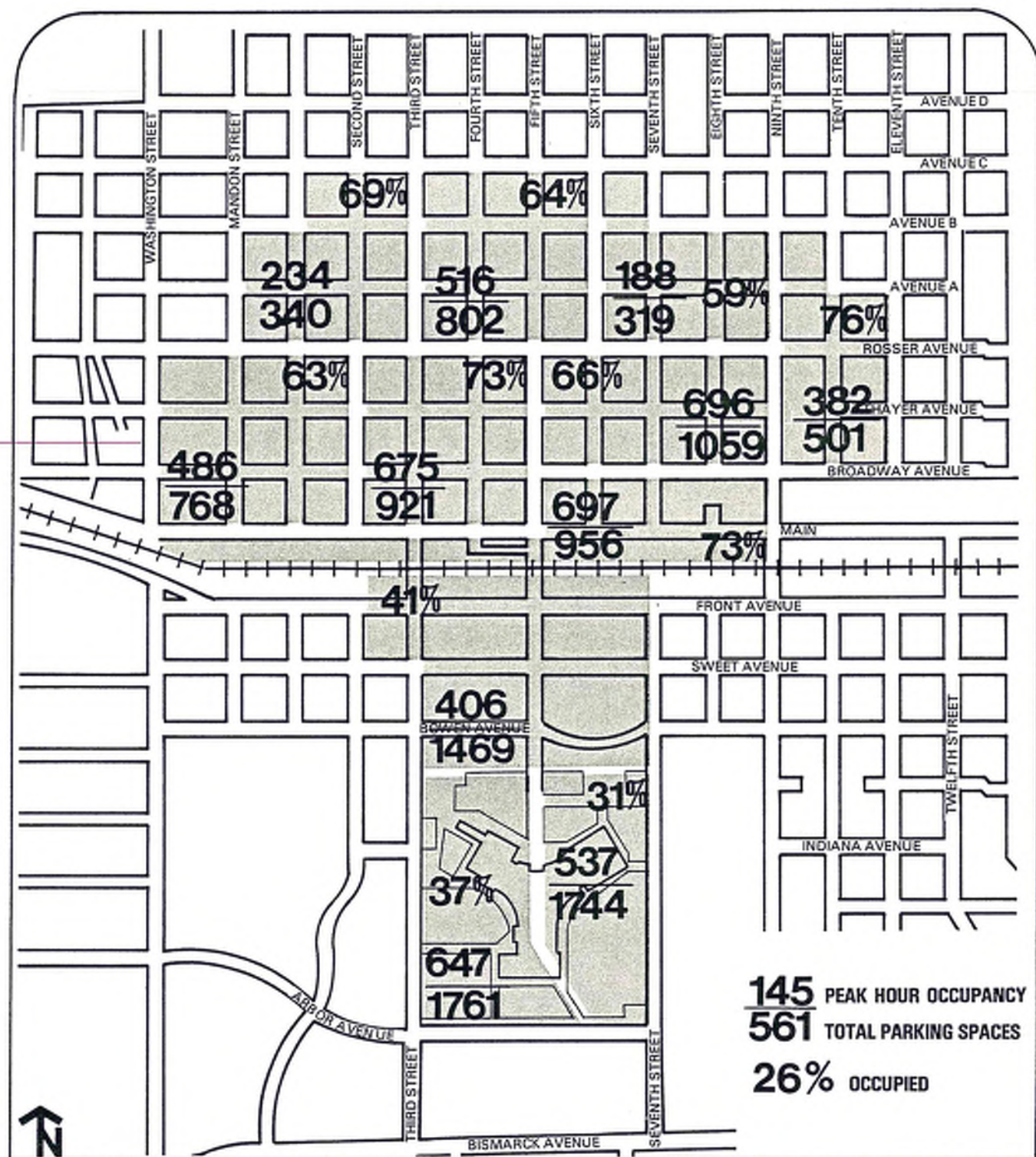
The number of vehicles parked in the existing spaces varies by season of the year, day of the week, and hour of the day. In downtown Bismarck, data collected on any weekday will represent an average day. The occupancy data for this study was collected on August 16, 1977, which is during the pre-school retail activity. This represents a slight increase in retail activity over a normal week during summer months, but is less than will occur in the pre-Christmas season.

During a typical weekday, the total number of vehicles parked in the study area builds up to a peak at approximately 3:00 p.m. as shown in Figure 2. At this time, 5,633 of the 10,640 parking spaces are occupied, which represents a total occupancy of 53 percent. While this overall occupancy rate does not suggest a parking shortage, localized shortages do occur within the Central Business District (CBD). Figure 3 shows the total inventory, total occupancy, and percent occupied



BISMARCK PARKING

FIGURE TWO
PARKING OCCUPANCY



BISMARCK PARKING

**FIGURE THREE
PARKING OCCUPANCY BY DISTRICT**

(by district) within the study area. The percent occupied ranges from a high of 76 percent in District 7, to a low of 31 percent in District 11 (Kirkwood Plaza).

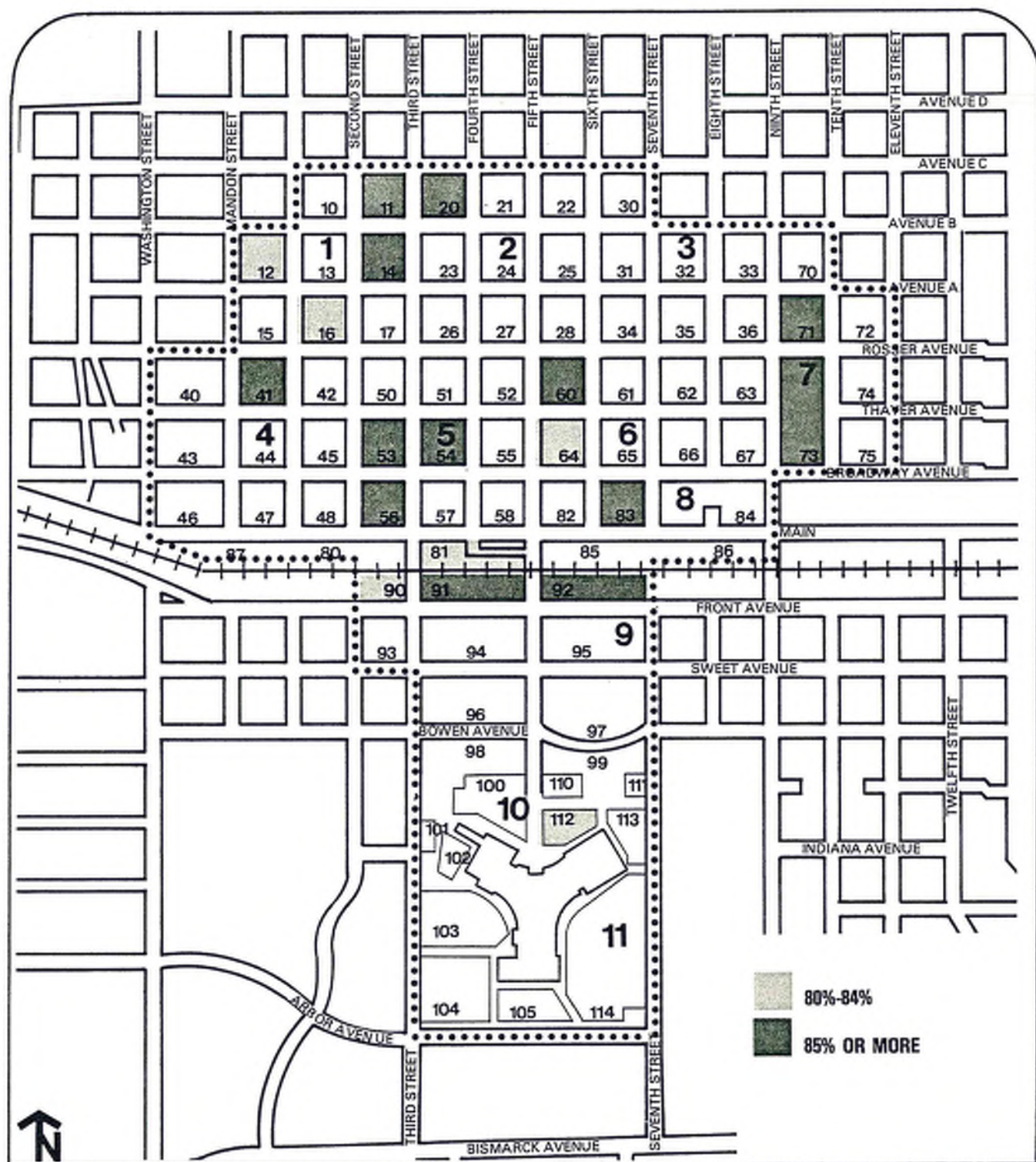
To give a better illustration of how the parking spaces are occupied in the study area, Figure 4 shows the block-by-block percentages in three categories: (1) those blocks which are occupied 85 percent or more, (2) those blocks which are occupied between 80 and 84 percent and (3) those blocks which are occupied less than 80 percent. When a block is occupied 85 percent or more, it is generally considered full because some motorists park over the parking lines and occupy two spaces with one vehicle. Also, it starts to become difficult to find a parking space, so the area "feels full" to motorists. There are 13 blocks that are occupied 85 percent or more, with the majority of these blocks being in the downtown area. Exceptions to this are the residential neighborhoods north of the Federal Building - Post Office, and the area near St. Alexius Hospital. As can be expected, the parking intensity is greatest in the center of the study area and generally becomes less intense around the outside of the study area. Appendix Table 2 shows the existing parking inventory and occupancy for each block in the study area.

Figure 5 shows the on-street space inventory and occupancy for each district in the study area. Appendix Table 3 shows the on-street parking inventory and occupancy by type for each block in the study area. Table 7 shows the percent occupancy of the various parking facilities for the study area. Seventy percent of the on-street spaces were occupied, and 49 percent of the off-street spaces were occupied during the peak hour of the parking survey.

TABLE 7
PERCENT PARKING FACILITIES ARE OCCUPIED DURING PEAK
OCCUPANCY TIME AT 3:00 P.M.

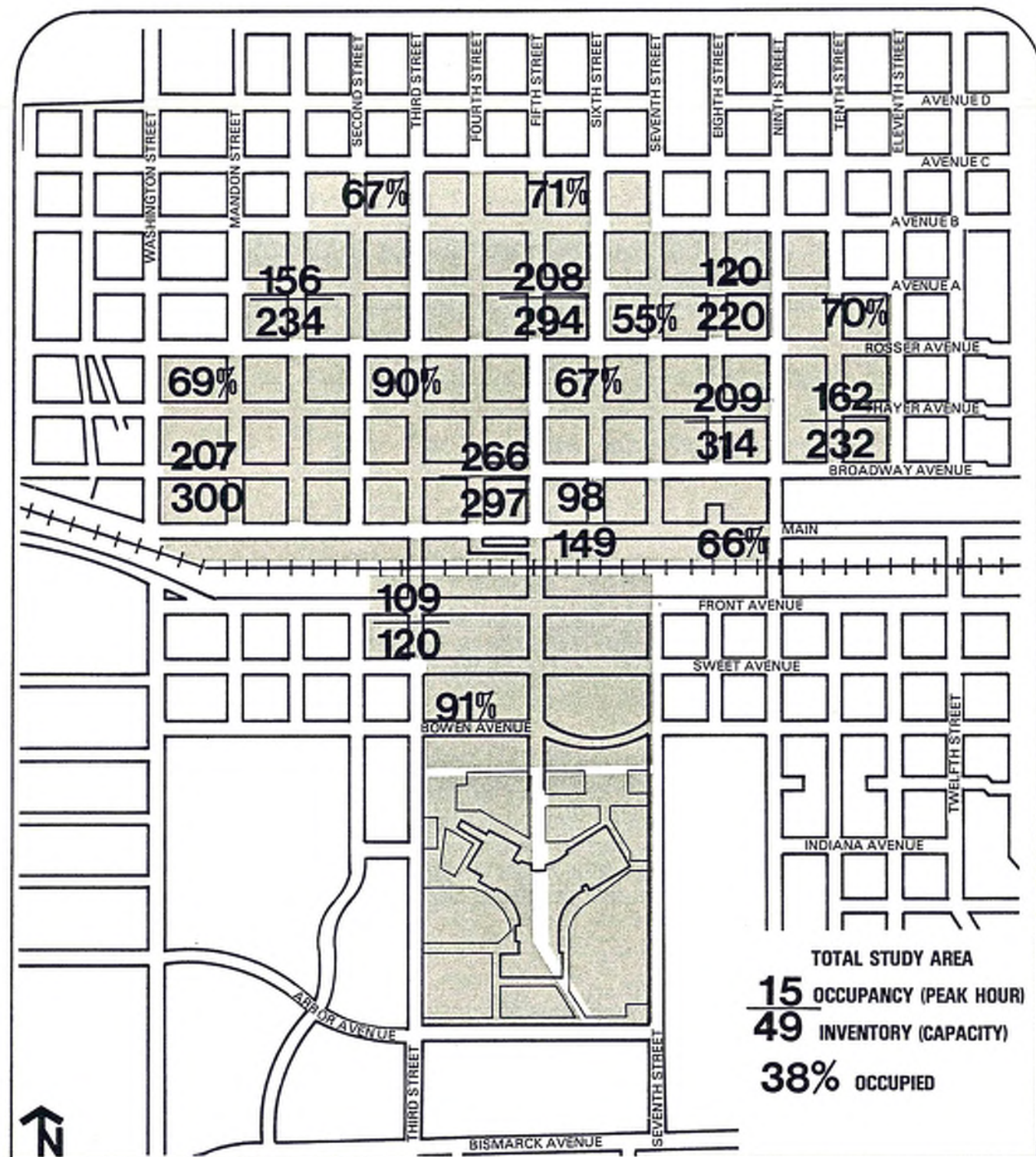
Type of Parking	Total Percent
On-Street*	
10 minutes	42
1 hour	70
2 hours	77
No limit	69
Total On-Street	70
Off-Street	
General Public	45
Employee	75
Customer	63
Residential	45
Kirkwood Plaza Customer	34
Total Off-Street	49
Total Study Area	53

*Does not include vehicles parked in no parking zones.



BISMARCK PARKING

**FIGURE FOUR
PEAK HOUR OCCUPANCY BY BLOCK**



BISMARCK PARKING

**FIGURE FIVE
ON-STREET PARKING**

Figure 6 shows the off-street inventory and occupancy for each district in the study area. Table 8 shows the percent occupancy of lots and garages during the peak occupancy time of the day.

TABLE 8

PERCENT PARKING LOTS AND GARAGES ARE OCCUPIED DURING PEAK OCCUPANCY TIME AT 3:00 P.M.

Facility	Total Study Area
Garages	69
Lots (excludes Kirkwood Plaza Lot)	58
Both	59

Figure 7 shows the public parking space inventory and occupancy for each district in the study area. Public parking spaces are those spaces which can be used by anyone coming into the study area, and include both publicly owned and privately owned parking spaces. Appendix Tables 4, 5, 6, and 7 show the parking inventory and occupancy for the various parking facilities for each block in the study area.

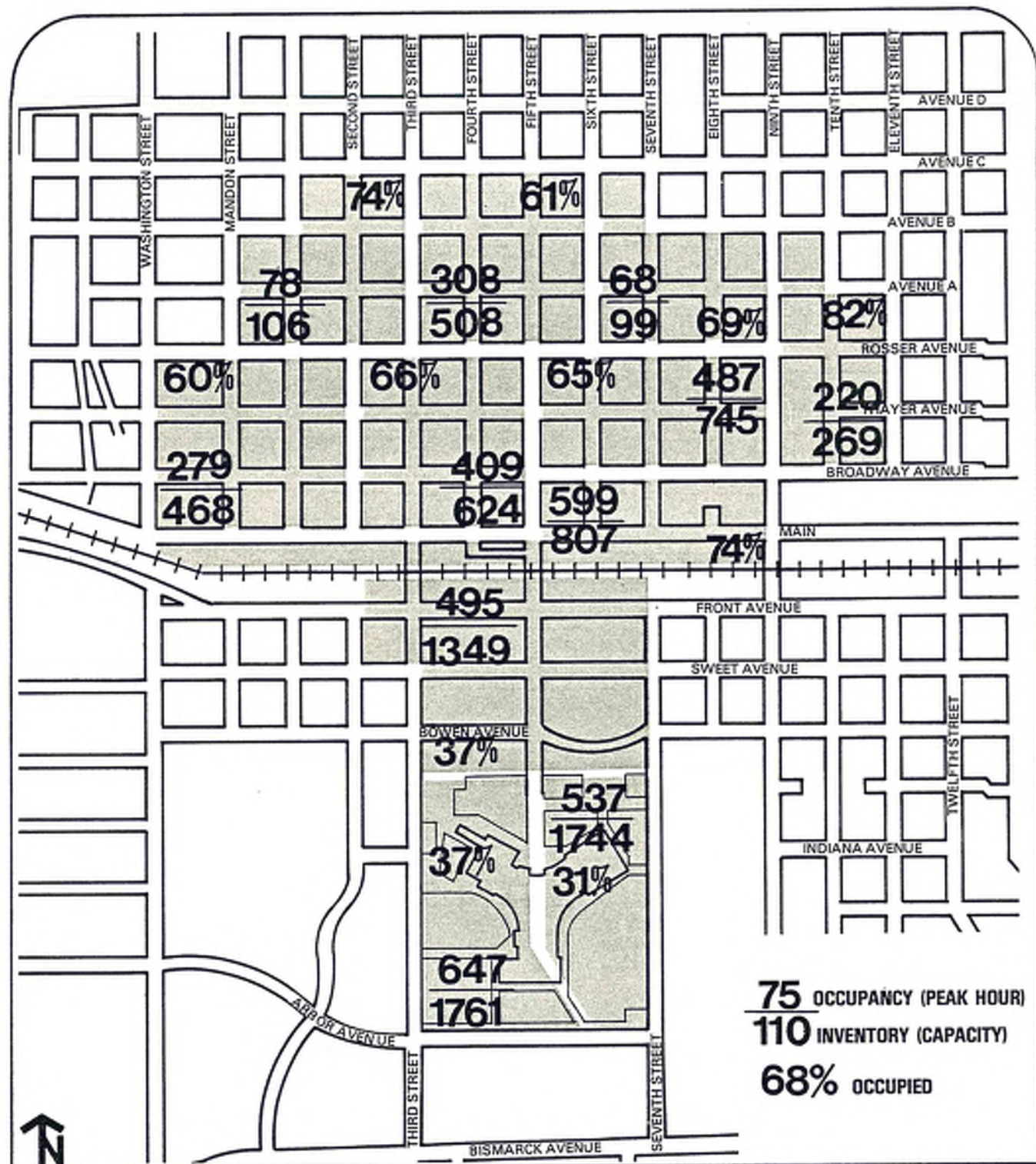
TRIP ORIGIN

The origin of all trips to the downtown area were tabulated as originating either in Bismarck or in other areas. The City of Bismarck was divided into the four sections of Northeast, Southeast, Southwest, and Northwest. The areas outside of Bismarck were classified as North, South, East, and West. Table 9 shows the distribution of the trips as revealed from the postcard survey. The one percent for unknown are those cards that did not answer the question showing the origin of the trip.

TABLE 9

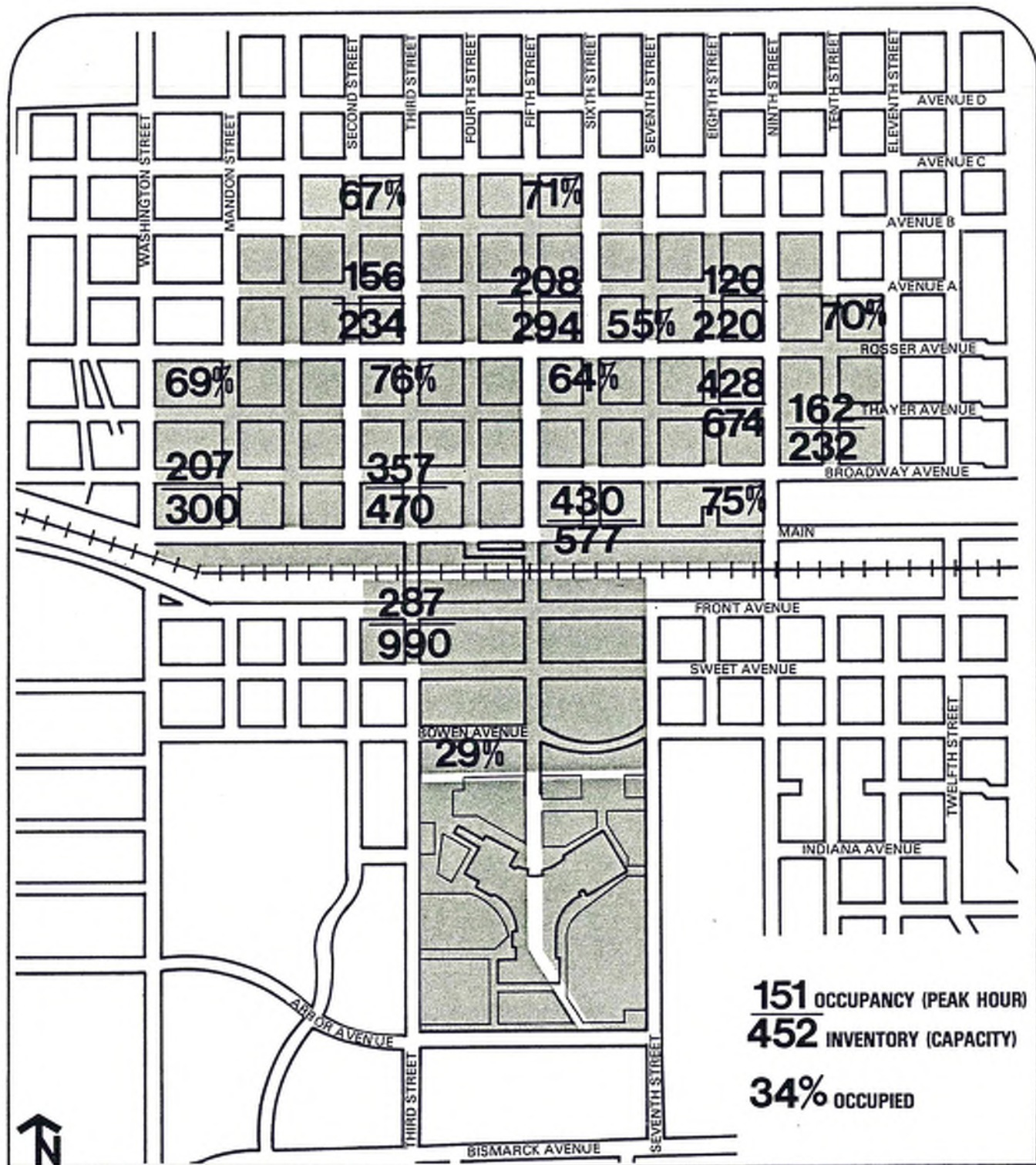
DIRECTION OF APPROACH

Direction	Percent
North	2
Northeast	27
East	2
Southeast	8
South	3
Southwest	11
West	12
Northwest	34
Unknown	1



BISMARCK PARKING

**FIGURE SIX
OFF-STREET PARKING**



BISMARCK PARKING

FIGURE SEVEN
PUBLIC PARKING

Table 10 shows the trips from Bismarck, trips from Mandan, and trips from other areas. Eighty percent of the total trips to the downtown area originate within the City of Bismarck, with 12 percent coming from the Mandan area.

TABLE 10
ORIGIN CITY

City	Percent
Bismarck	80
Mandan Area	12
Other	7
Unknown	1

TRIP PURPOSE

Table 11 shows the trip purpose of the vehicles parked in the study area during the peak hour. The predominate trip purpose is for work, which is nearly 80 percent of all of the trips in the study area. Caution must be used in looking at this table because it does not show the total number of trips for each trip purpose on a daily basis, but only on the peak-hour basis. The short-term trips (all of those except work), would show a higher percent on a daily basis than during the peak hour because several vehicles for the short-term trips could occupy the same parking space during a day, while only one work trip vehicle would occupy a space. Although shopping only shows a four percent occurrence during the peak hour, it can be anticipated that as much as ten percent or 12 percent of the total trips on a daily basis into the downtown area would be for shopping. The significance of the results of Table 11 is to show that the main parking problem in downtown Bismarck is to accommodate the people that work in the area, and the results of the parking study must satisfactorily take care of these vehicles.

TABLE 11
TRIP PURPOSE IN PEAK PARKING HOUR

Purpose	Percent
Work	79
Business	6
Medical	5
Visit Hospital	2
Shopping	4
Recreational	1
School	1
Other	2

PARKING DURATION

Table 12 shows the length of time vehicles are parked in the study area. The high percentage of vehicles parked over four hours corresponds with the high percentage of trips for work in the study area. This parking duration only represents the vehicles that were noted in the study area during the peak hour. However, it can be assumed that the parking duration shown at this time is representative of vehicles parked within the study area at any time during the day.

TABLE 12
PARKING DURATION

Time	Percent
Less than one-half hour	4
One-half to 1 hour	7
1 hour to 2 hours	6
2 hours to 4 hours	6
Over 4 hours	77

Table 13 shows the parking violations that were noted from the postcard survey. Although people were not asked where they parked, this information was obtained from the serial number of the postcard. Therefore, the parking limits can be noted and cross-checked against the length of time which the people indicated that they parked. The percentage of violations is very high in all categories and indicates that there may be a problem of enforcing the time limits that exist today.

TABLE 13
VIOLATIONS AT CURB SPACES

Time Limit	Percent Violations
Less than 1 hour	71
1 hour	48
2 hours	47
All spaces	49

WALKING DISTANCE

Table 14 shows the distance people walked from their car to their final destination. This information was obtained by computing the distance between the block in which an automobile was parked and the block where the people walked after parking.

TABLE 14
WALKING DISTANCE

Distance	Percent
Less than 1 block	33
1 to 2 blocks	33
2 to 3 blocks	19
3 to 4 blocks	8
4 to 5 blocks	3
Over 5 blocks	4

Two-thirds of the people in the study area walked two blocks or less, and nearly 90 percent walked less than three blocks. This is typical of a town the size of Bismarck and indicates that although adequate parking may exist in the study area, it is not all in an acceptable location. An example of this is the excess parking which occurs around the Civic Center during a normal business day which is available for employees in the downtown area. However, the distance of this parking from the downtown area does not make it attractive and, therefore, it is not extensively used by people working in the area.

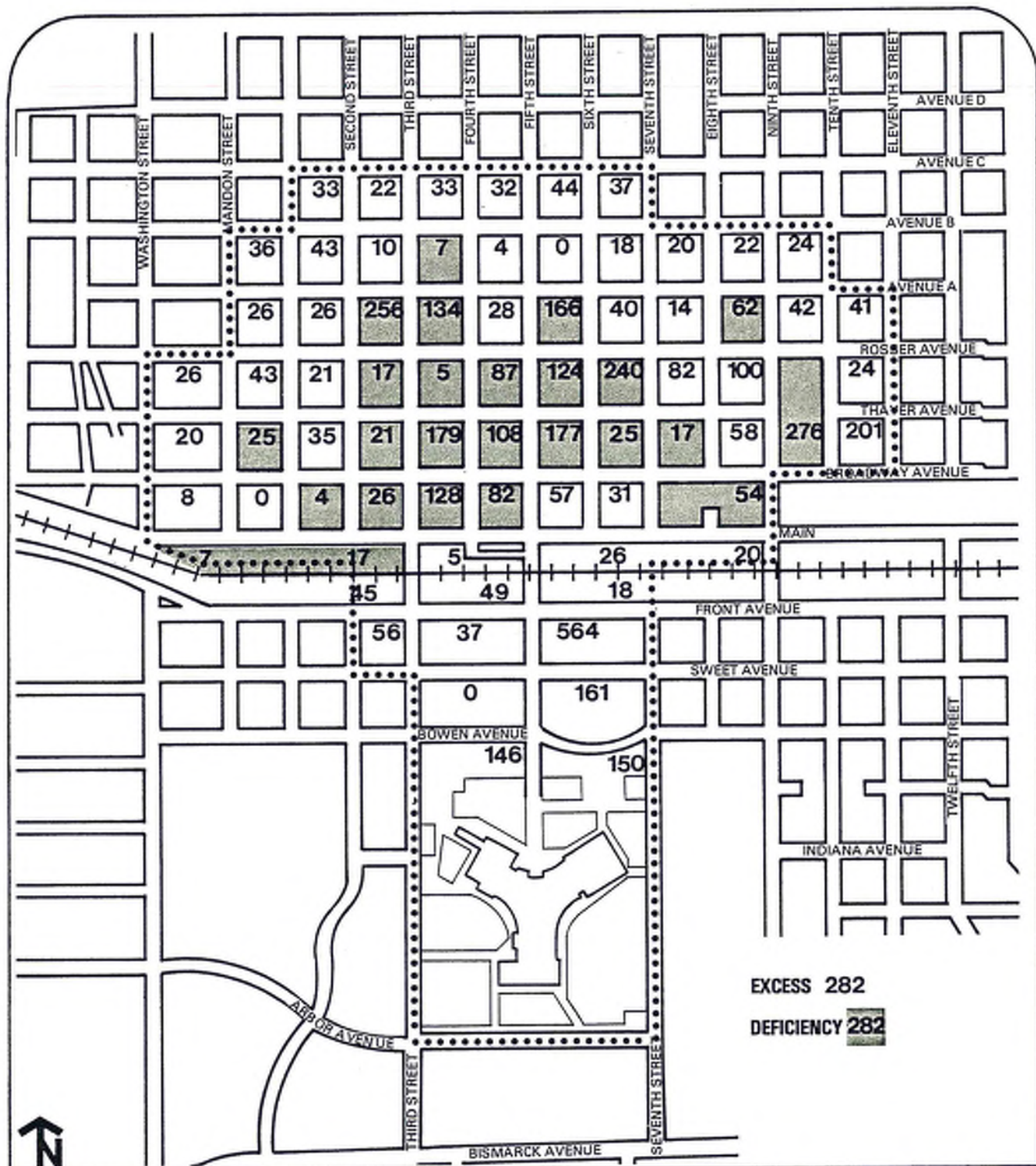
FUTURE PARKING DEMAND

Information from the postcard survey indicated where people desire to go after parking their car. Most people, if given the choice, would park their car in the same block in which they work or shop. Therefore, the demand for parking can be considered the block to which people walked after parking their car. This information can help to note parking excess and deficiencies, and also to help plan new facilities. Although it is impossible to provide all of the parking within a block that people would like to have occur within that block, it is a useful tool to help locate new parking facilities.

In the analysis of parking demand, it is useful to look at long-term parking demands and short-term parking demands. Long-term parking demand is generally the demand created by people working in the downtown area, while the short-term parking demand is that demand created by all other trip purposes. Generally speaking, employees will accept a further walking distance than will shoppers or people downtown for personal business reasons. Therefore, the demand for long-term parking and short-term parking can help in locating different types of parking facilities.

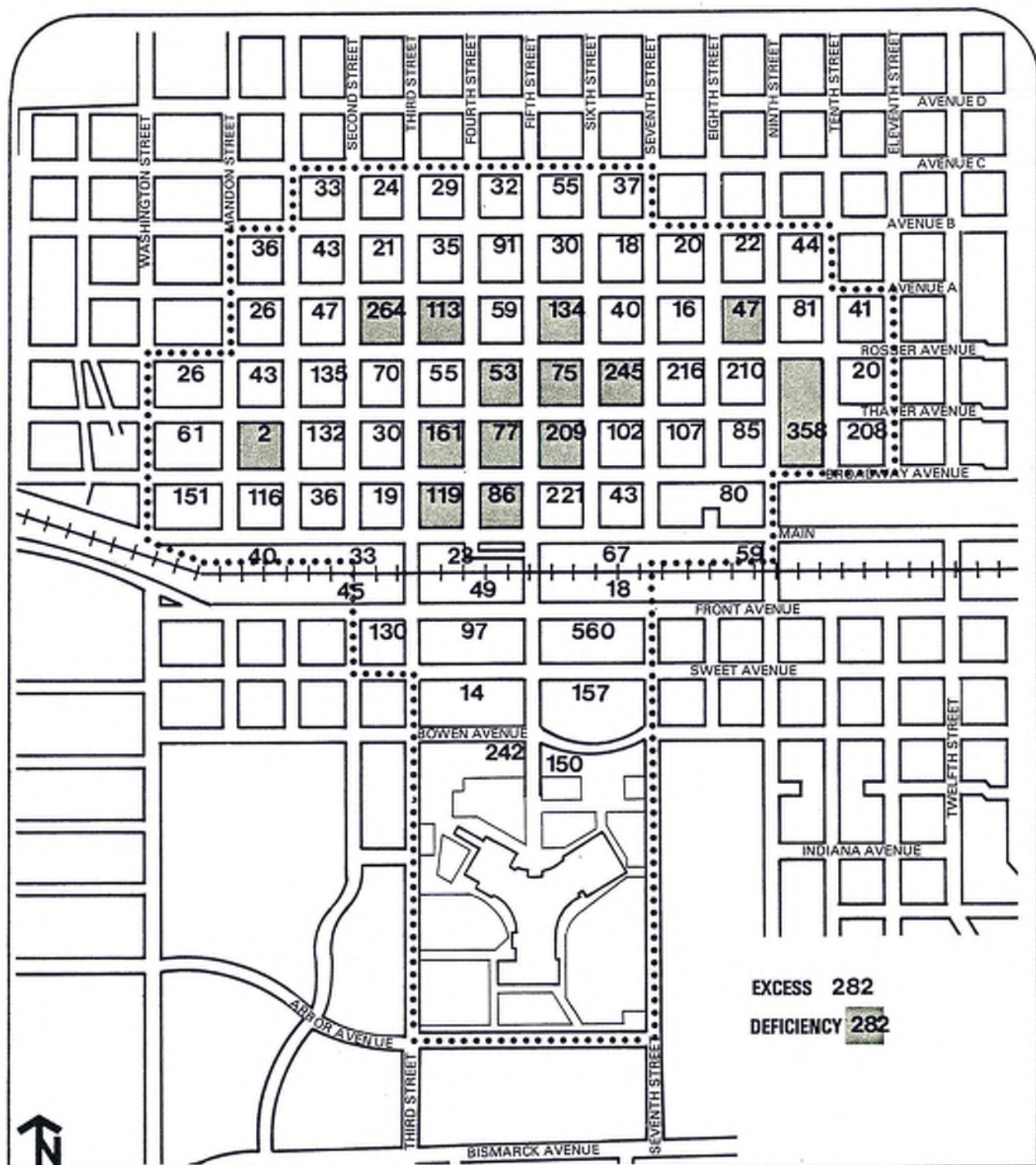
Appendix Table 8 shows the 1977 parking inventory, parking demand, and the excess and/or deficiency of parking spaces for each block in the study area. Parking deficiencies are those areas where the demand exceeds the inventory and are noted with a minus sign in front of the number. The data is noted by long-term parking, short-term parking, and total parking for each block.

Figures 8, 9 and 10 show the blocks with parking deficiencies for long-term parking, short-term parking and total parking respectively. These numbers are based on the inventory and demand information obtained in August, 1977. These figures support the fact that the majority of the parking problem in downtown Bismarck is that of satisfying the demand created by employees in the study area. The short-term parking deficiencies are small enough to be satisfied in blocks adjacent to the deficient areas. However, the long-term parking deficiencies, as shown in Figure 8, cannot be satisfied in adjacent blocks and must be satisfied in other areas. The information shown in Figures 8, 9 and 10 does not take into account where people are parking cars at the present time. The information in these figures is a combination of the location of the types of parking that exists, that is those with a time limit and those without a time limit, and the location of where people would like to park as noted from the postcard survey. Although a short-term parking problem exists in the core of the downtown area today, it is not caused by a lack of short-term parking spaces in relation to the short-term parking demand. Rather, it is caused by the use of some of the short-term parking spaces by long-term parkers.



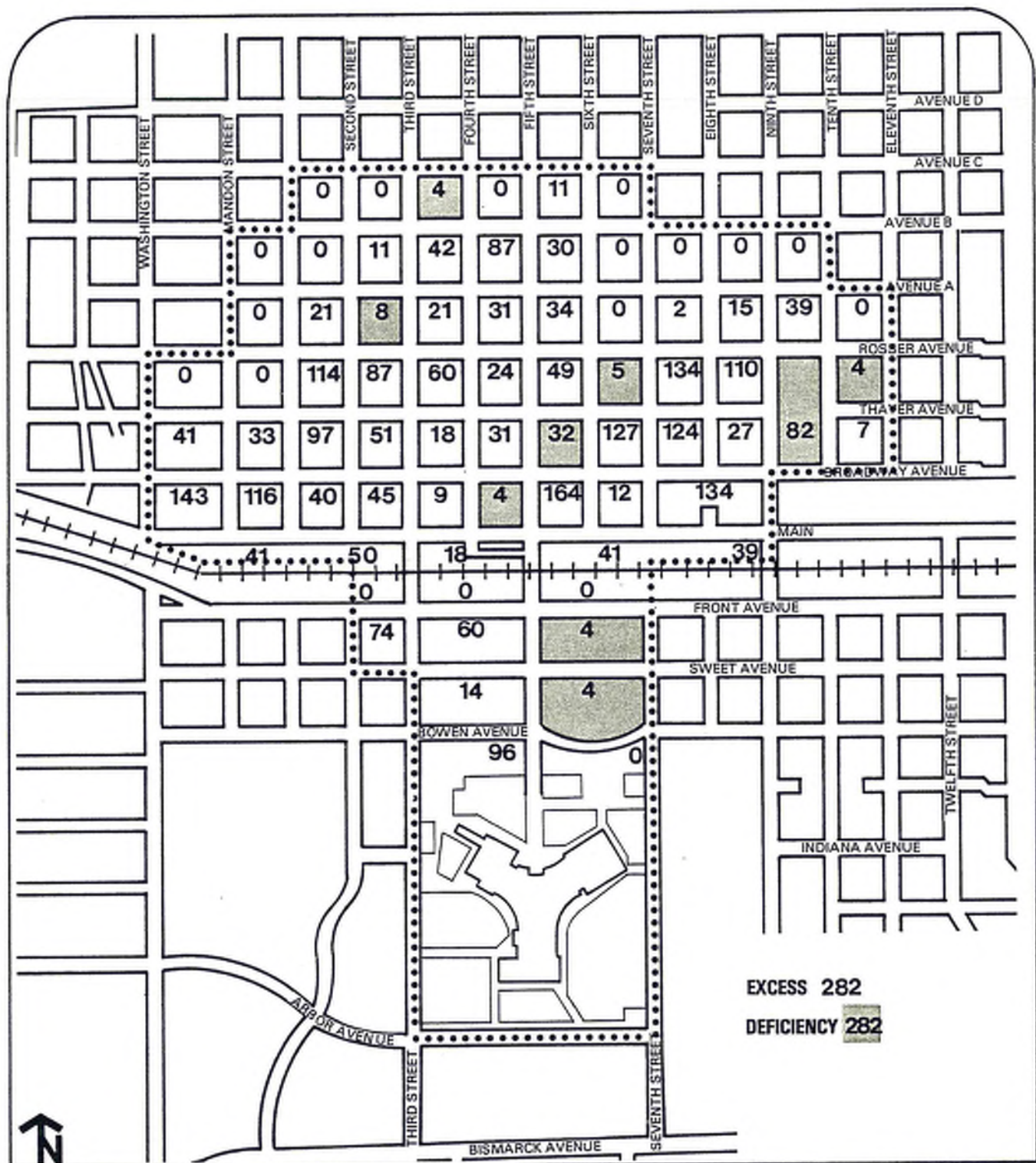
BISMARCK PARKING

FIGURE EIGHT
1977 LONG-TERM PARKING EXCESS AND/OR DEFICIENCY



BISMARCK PARKING

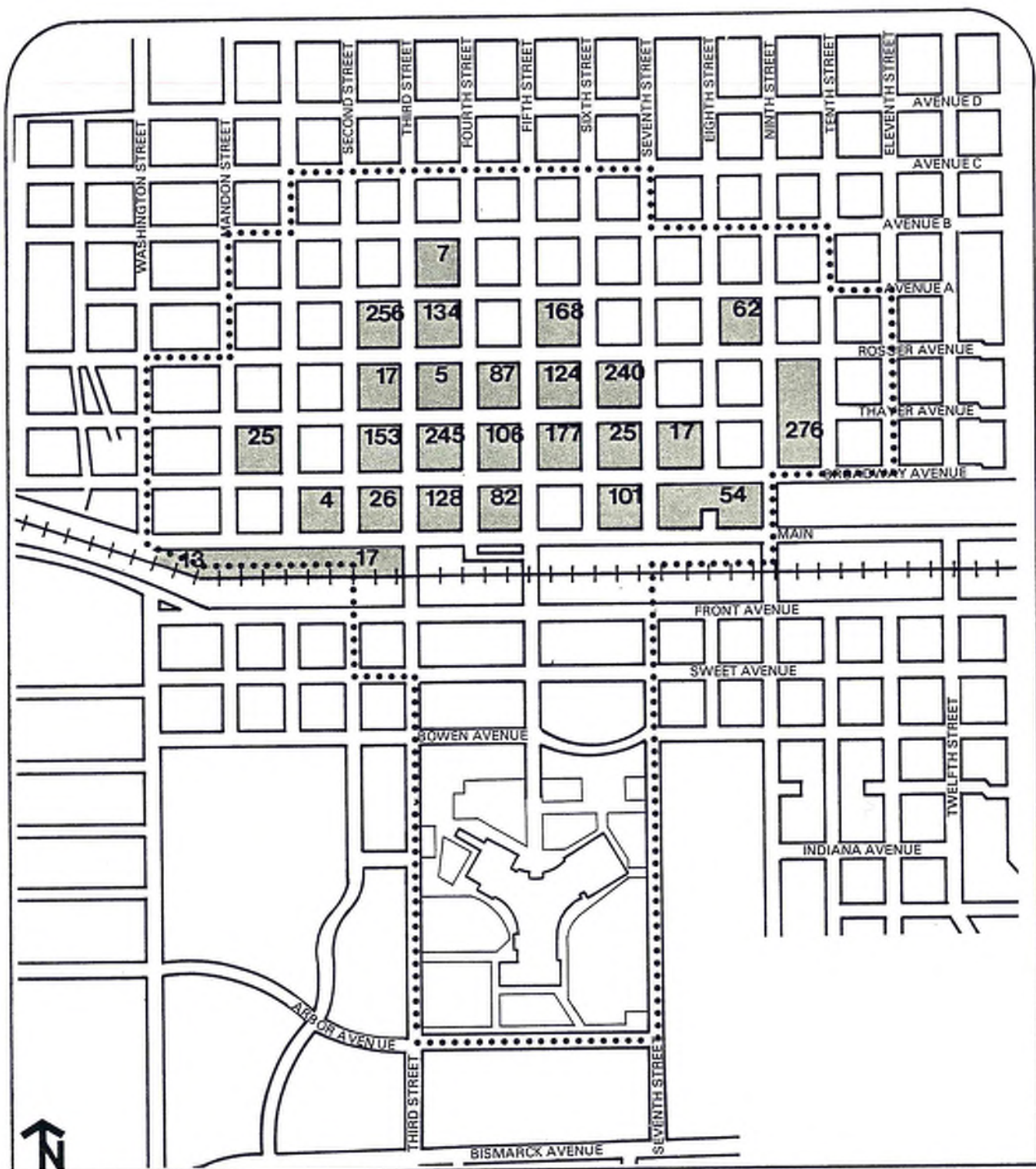
FIGURE TEN
1977 TOTAL PARKING EXCESS AND/OR DEFICIENCY



BISMARCK PARKING

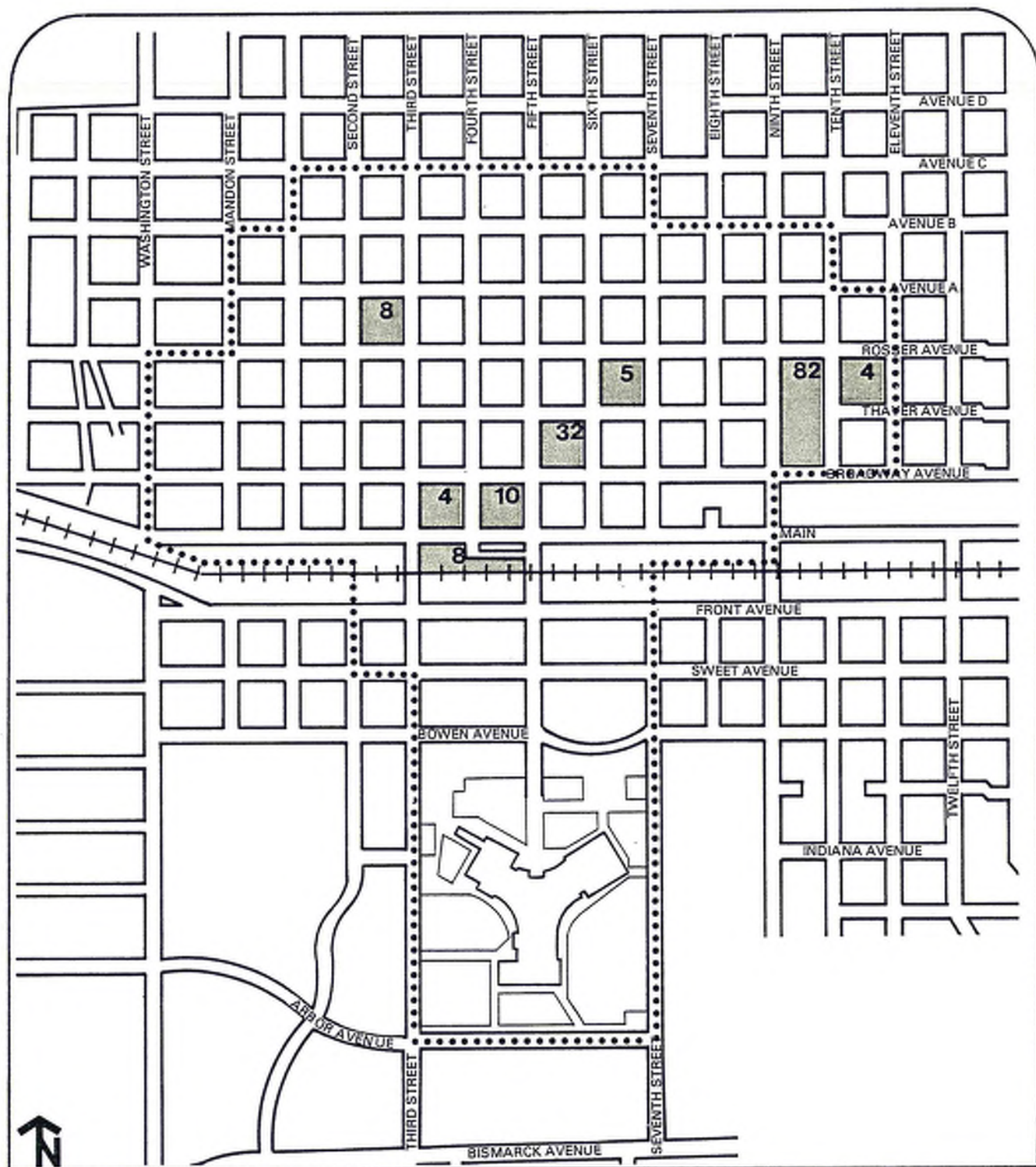
FIGURE NINE
1977 SHORT-TERM PARKING EXCESS AND/OR DEFICIENCY

The future parking demand was estimated by anticipating the land use changes that will occur within the next ten years. This information was obtained from the Parking Planning Committee members at the meeting on October 12, 1977. In addition, parking spaces on Main Avenue, between Ninth Street and Washington Street, were removed from the inventory according to plans currently being considered by the City of Bismarck. The resulting change in parking inventory and demand are shown in Appendix Table 9. The only blocks shown are those blocks that have values different from the information in Appendix Table 8. The parking deficiencies for long-term parking, short-term parking and total parking in 1987 are shown in Figures 11, 12 and 13 respectively. The information shown in these figures indicates the future parking problem will be satisfying the long-term parking demands created by employees in the downtown area. The short-term parking deficiencies shown in Figure 12 can be satisfied in adjacent blocks if the long-term parking demand is satisfied in areas adjacent to the central business district.



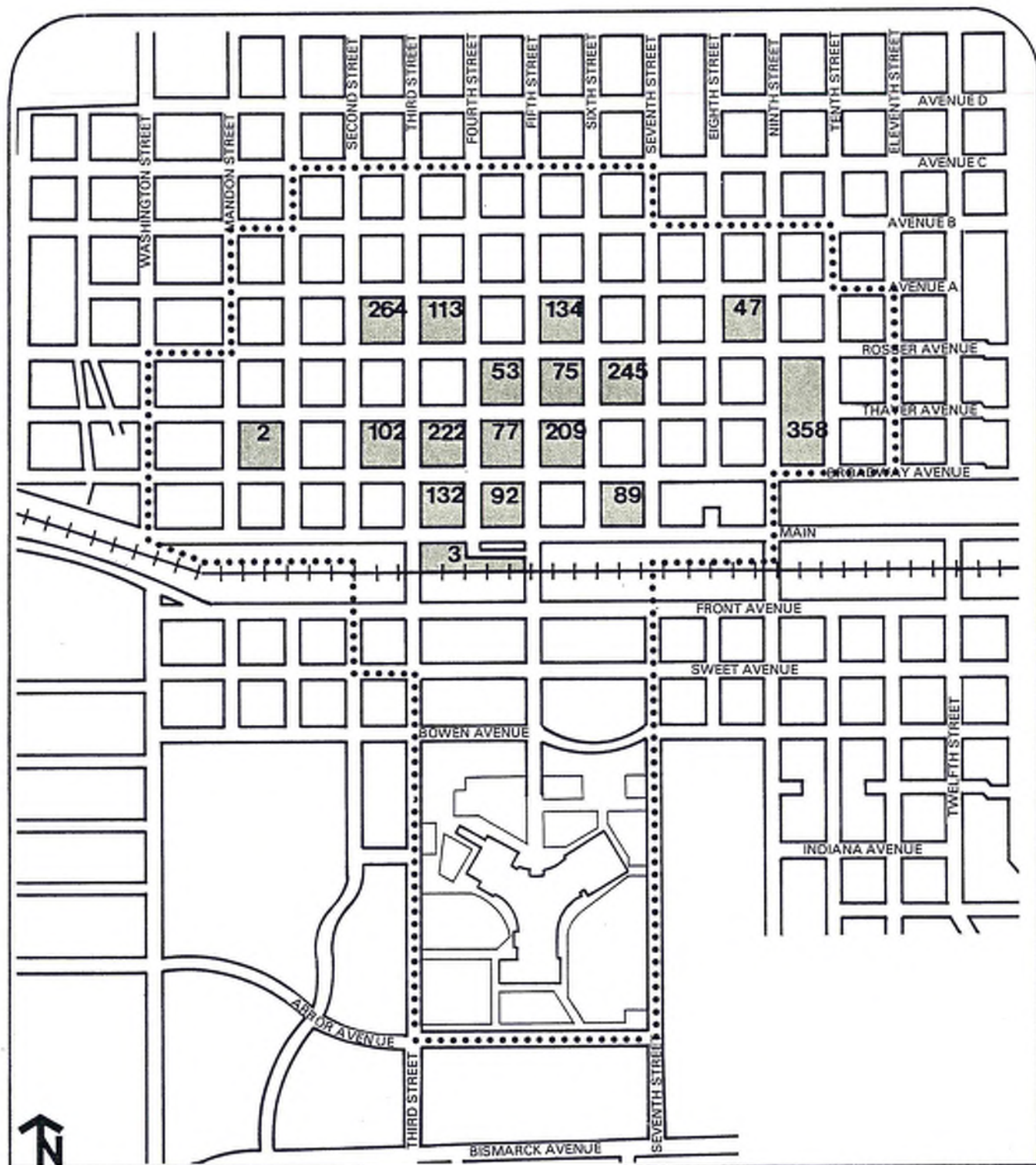
BISMARCK PARKING

FIGURE ELEVEN
1987 LONG-TERM PARKING DEFICIENCIES



BISMARCK PARKING

FIGURE TWELVE
1987 SHORT-TERM PARKING DEFICIENCIES



BISMARCK PARKING

**FIGURE THIRTEEN
1987 TOTAL PARKING DEFICIENCIES**

DEVELOPING PUBLIC PARKING POLICY

In the previous chapter it was estimated, based on a number of assumptions, the number of parking spaces that will be required in some future year. The assumptions include changes in land use, modification to the existing street system, and alteration of the existing parking supply.

The key to the solution of parking is not to re-estimate the number of parking spaces every time an assumption changes. The key is to select a set of policies which establish a framework to guide the development of parking in a flexible manner, and which do not need to be changed as each new development proposal comes forth. The numbers are important only to implement policies.

In order to develop a central area parking program, a number of policies should be adopted. These policies are needed both to establish a framework for the development of a permanent parking program and to further refine parking space needs and financial requirements. The policies needed include general community policies on future growth and redevelopment, land-use arrangements, air quality, pedestrian space, and regional accessibility; along with some specific parking policies, including the role that government will assume in planning, locating, managing, operating, and financing the parking system. This chapter outlines some planning policy options, along with some general objectives to be used in the development of a parking policy plan.

POLICY ON ROLE OF GOVERNMENT IN PLANNING

There are basically three ways in which the development of new parking facilities is undertaken: by private enterprise, by private enterprise with guidelines provided by government, and by government itself. Under a "private enterprise" system, the parking spaces are located, built and operated as needed by businesses, developers, and property owners. The municipality only checks for compliance with zoning code regulations. Where private enterprise is supplemented with guidelines by government, the municipality provides guidelines (usually in the form of an established parking plan) for locating parking facilities to obtain the maximum benefit from an overall land use and traffic standpoint. Finally, government can take over the complete responsibilities for determining where new permanent facilities are required.

Private Enterprise. The planning for parking facilities by the private sector has the following characteristics:

1. Strengths

- a. Generally provides parking facilities closest to trip destinations.
- b. Does not require public funds for planning.

2. Weaknesses

- a. May not accommodate small business establishments.
- b. May not complement overall land-use development plan.
- c. May not be consistent with the transportation plan.
- d. Implies private implementation of plans which may not be feasible.

Private Enterprise with Government Guidelines. A combination of public and private planning has the following characteristics:

1. Strengths

- a. Would tend to be complementary with overall development plan.
- b. Would tend to be consistent with the transportation plan.
- c. May provide best parking locations from a user standpoint.

2. Weaknesses

- a. Relies heavily on a "spirit of cooperation."
- b. Government has no direct control over parking plans which do not conform with an informally agreed to plan.
- c. Because government has only an informal role, this approach does not have the power of eminent domain to help locate parking facilities in the optimum location.

Governmental Agency. Concentrating the planning for parking within a governmental agency has the following characteristics:

1. Strengths

- a. Power of eminent domain.
- b. Can control specific land development plans to ensure compliance with overall land use plan.
- c. Can assure that parking facility locations complement the overall transportation plan.
- d. Probably can produce best overall estimate of demand.

2. Weaknesses

- a. May not put parking facilities in "most profitable" locations in terms of repaying the bonds.
- b. Locations may change as "politics" change.

LOCATIONAL POLICY

A statement must be made as to 1) the most desirable locations for building new facilities for long-term parking demand, 2) the role that on-street parking will have with respect to other competing uses for that space, and, 3) how parking facilities should be grouped, if at all.

It is possible that all the following locations could be considered in the development of policies pointing out the best location for parking in the Central Area.

1. On-Street
 - a. On existing streets with no parking regulations to supervise use.
 - b. On existing streets with parking regulations to supervise use.
2. Off-Street (surface lots or garages)
 - a. Randomly located throughout the central area.
 - b. Grouped around compatible land use areas (e.g., hotel - restaurant).
 - c. Grouped within land use areas (e.g., parking facilities in middle of an office complex).
 - d. On the fringe of the central area.
3. Combination of all locations.

PARKING FACILITY FINANCING OPTIONS

Financing is perhaps one of the most important elements in a parking program. Many types of financial arrangements are possible and have been used to finance successful municipal parking systems.

Parking facilities can be financed entirely by private enterprise, entirely by public agencies, or a combination of these two. The alternate methods include the following:

1. General revenue financing by either private enterprise or public agency where annually an amount is established in the capital improvement section of the annual budget to support parking facilities.
2. Parking revenue financing where all net revenue from parking facilities in the system are pledged for capital improvements. The actual financing can be on a pay-as-you-go basis or revenue bonds can be issued.
3. Local parking revenue bonds where local businessmen with a direct interest in the improvement buy the bonds. This financing plan can be carried out either by private enterprise or a joint effort of private enterprise and public agency.
4. Parking authority bonds where a parking authority is established by a governmental agency and given power to issue revenue bonds. Revenues from the authority's facilities are used to retire the bonds.

5. General obligation bonds where the full faith and credit of a governmental agency are pledged to make up a deficit of revenues to retire the bonds. Only a governmental agency may use this type of financing.
6. Assessment districts are commonly used by a governmental agency to levy an assessment against property to cover the entire debt or to make up the difference between the net revenue and the bond's indebtedness on the basis that the improvement benefits the larger area.
7. Tax increment financing where the governmental unit authorizes the creation of development districts to promote development programs and use the tax increment created to finance development programs including parking facilities.
8. Federal Highway funds where a particular parking facility meets requirements of the 1973 Federal Highway Act.

MANAGEMENT AND OPERATION OF PARKING FACILITIES

Parking facilities can be managed by private enterprise, government, or some combination. Private enterprise can create a special purpose facility, a business association or a commercial enterprise. A special purpose facility is operated in a manner that allows only employees or customers of a specific business to use the parking garage. In a business association, one or more business associates may operate a parking facility which allows general parking. Finally, private enterprise can operate a parking facility specifically as a business enterprise. This type of facility is a commercial enterprise in itself and is managed with its central function being to bring a return on the investment.

Government has three major methods for operating municipal parking facilities. First, a municipal department responsible for parking programs can be established. This could be a separate department (e.g., a parking bureau), or it could be a function within another department (e.g., traffic engineering or public works). This department would have the authority to establish a full staff with the same level of responsibility and authority as other municipal departments.

Second, a municipal parking commission or parking board can be established to manage municipal parking facilities. This would generally be composed of civic-minded citizens who serve without pay or whose role is primarily an advisory one. This type of organization gives representation to local citizens interested in parking programs.

Finally, the City could create a parking authority. Generally, parking authorities are directed by a board appointed by government and have more authority than a parking commission. Public agencies established to manage parking facilities could have authority and responsibility both to manage municipal facilities and to establish general policies for private facilities.

FACTORS INVOLVED IN POLICY DEVELOPMENT

Several factors must be considered before a decision can be made regarding how a parking plan can best be developed. Among these are:

1. **Size and Economic Characteristics of the CBD.** What firms are large enough to develop and/or operate their own parking facilities? Are these the firms that need to develop and/or operate parking facilities? Will any hardships result to firms unable to do this? If so, what are the consequences of the hardships?
2. **Business, Labor, Political, and Civic Interests.** How do these people view the existing parking facilities? Is there a desire to work together on the parking problem or do most groups want to provide their own facilities? Can the business community really cope with the problem?
3. **Status of Existing Facilities.** Who owns the existing parking facilities? What types of users do they serve? Who pays for them? How will they relate to new facilities? How does their location relate to future development plans?
4. **Consistency with Overall Land-use Plans.** Which type of management will allow for parking facility development most complementary to the overall land-use plans of the CBD? What are the results of allowing facilities which are not complementary to the overall plan? Will the overall plan require some facilities which need to be subsidized? If so, how does this affect the management of the facility or facilities?
5. **Parking Rates.** How much are people willing to pay for parking? Should any free parking be provided? If so, for whom? Should any "low cost" parking be provided? If so, for whom? Should any reserved or special use parking be provided? If so, how much should it cost?

OBJECTIVES TO BE USED IN POLICY DEVELOPMENT

By identifying and applying certain objectives in the development of parking policies, the resulting parking system can be made to closely match the parking needs and, more importantly, help to mold land-use and circulation patterns in a positive fashion. The following objectives may be identified:

1. All parking facilities should be considered as part of a single parking system.
2. Coordination between parking facilities within the area should be maintained and improved, and a management structure established to assure efficiency, consistency and financial viability.
3. A time-stage strategy should be followed in developing parking facilities in accordance with future needs.
4. To the maximum extent possible, multi-use parking facilities should be contemplated.

5. To the extent possible, parking facilities should be located in accordance with user direction of approach and access capacity of approaching roadways to intercept parkers and thereby minimize internal circulation.
6. A unified method of control for monthly, daily, and hourly parkers should be selected to enhance attractiveness, efficiency of use, and net revenue generation.
7. There should be sufficient space to accommodate the parking requirements during normal and peak seasonal days under current conditions with sufficient reserve to meet growing demands over the next few years until the next stage of the improvement program will be implemented.
8. Parking facilities for retail must be located conveniently to the concentration of walking destinations. Ideally, most patrons should be able to park within one to one and one-half blocks of their destination.
9. Ideally, parking would be free to all users so that the downtown parking system would be fully as attractive as competitive facilities in regional major centers. If it is not possible to provide free parking, then all efforts should be made to provide parking at the absolute minimum cost to users.
10. It is desirable to conserve land by devoting the minimum amount to parking. There are two reasons for this. First, if the area of the CBD is minimized, it retains its compact format and thereby minimizes required walking distances. Second, by minimizing the amount of area devoted to public parking facilities, the tax base is strengthened.
11. Adequate design criteria should be established to ensure parking facilities which are aesthetically pleasing, generously designed so that the parking and un-parking maneuver is easy; properly signed so that they are easy to find, and properly located so that they intercept traffic as it approaches the downtown area.

PARKING LOCATION ALTERNATIVES

PARKING PRINCIPLES

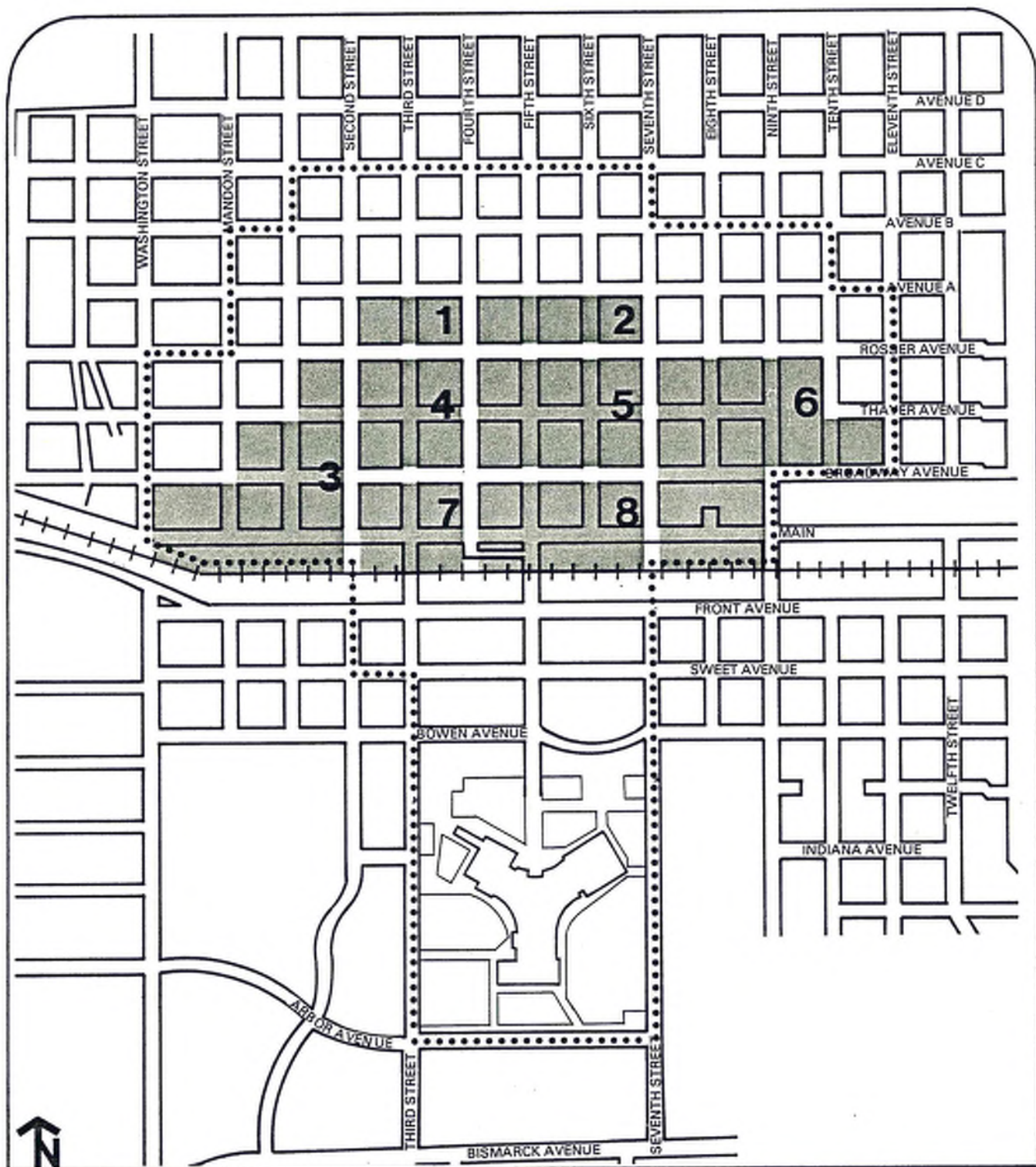
By identifying and applying certain principles in the development of the parking plan, the resulting parking system can be made to closely match the parking needs. The following principles have guided the development of alternatives:

1. All parking facilities should be considered as part of a single parking system.
2. A time-stage strategy should be followed in developing parking facilities in accordance with future needs. An initial step could be the provision of a parking lot which could then be built into a parking ramp as demand warrants.
3. To the extent possible, parking facilities should be located in accordance with user direction of approach and access capacity of approaching roadways to intercept parkers and thereby minimize internal circulation.
4. Parking facilities for short-term use (i.e., shoppers) must be located conveniently to the concentration of walking destinations. Ideally, most patrons should be able to park within one or two blocks of their destination.
5. Parking facilities for long-term use (i.e., employee) can be located farther away than short-term. Most employees should be able to park within two or three blocks of their destination.

DEVELOPING PARKING ALTERNATIVES

It is impractical to supply enough parking spaces in each block to meet the demand created therein. Therefore, in order to help determine where future parking should be located, and how much is needed, zones were established of reasonable size and shape so that parking demands within zones might be met. The limits of the zones exclude the primarily residential sections of the City because parking on these streets by downtown employees is not considered desirable by residents of the area.

Figure 14 shows the boundaries of the eight zones, and Table 15 shows the 1987 short-term parking supply and demand, and the 1987 long-term parking excess and/or deficiency, for each zone. The numbers represent the difference between the 1987 demand and the 1977 supply taking into account the land use and parking changes noted in Chapter 3. The demand was inflated by fifteen percent to represent a parking system that will have a fifteen percent vacancy, which is



BISMARCK PARKING

**FIGURE FOURTEEN
ANALYSIS AREA BOUNDARIES**

considered essential for the downtown area to retain its viability. Parking occupancies greater than this give the impression of "being crowded," and this tends to have a negative impact on the area.

TABLE 15
1987 PARKING SUPPLY AND DEMAND BY ZONES

Zone No.	1987 Short-term Demand*	On-Street Spaces	Off-Street Customer	Short-term Excess and/or Deficiency	Long-term Excess and/or Deficiency
1	67	59	18	+10	-390
2	71	97	64	+90	-100
3	62	173	433	+544	+5
4	69	129	116	+176	-420
5	374	232	212	+70	-761
6	120	262	242	+384	+114
7	180	67	110	-3	-149
8	107	57	64	+14	-100
Totals	1,050	1,076	1,259	1,285	-1,801

*Demand Inflated By 15 Percent.

SHORT TERM PARKING

The information shown in Table 15 indicates there is a surplus of short-term parking spaces in nearly every zone. As shown in Chapter 2, however, many long-term parkers are using these spaces which makes it appear that there is a shortage of short-term spaces.

If the long-term parkers can be removed from these spaces, there will be more than enough room for people wanting to park downtown for relatively short time periods.

There are several ways that short-term parking spaces can be regulated. In the business area, on-street parking could be prohibited from 6:00 a.m. to 9:00 a.m. so that employees will be in the downtown area before parking is allowed on the street. After 9:00 a.m., short-term parkers would be allowed to use the area while shopping, visiting medical facilities, and/or for personal business trips. For public off-street parking facilities, the cost of parking all day in the core area could be increased enough to discourage long-term parkers from using the facilities while retaining a relatively low cost fee for one and two-hour parking to encourage parkers to use the facilities.

Another way of enforcing the use of on-street short-term parking would be to have a strict enforcement program established and be sure that repeat tickets are given to vehicles found parked in the study area for long periods of time. All tickets could have the same cost or, to not penalize the short-term parker that might exceed the parking limit, the initial ticket could be a minimal charge while repeat tickets are relatively expensive, say \$5.00 each. This would then discourage people from parking in the study area longer than the parking limit posted for the parking spaces.

LONG-TERM PARKING

One of the major problems with long-term parking is the employee parking in residential areas near the central business district. This problem is not unique with the City of Bismarck but it is a problem that exists around most central business districts and the urban commercial areas. The annoyance is that people on these streets cannot use the parking spaces in front of their house for their own use or for use by people visiting them during the day. Generally speaking, there is not enough off-street parking in these older neighborhoods to satisfy the demands of the residents, so a conflict exists between the residents and the people employed in the downtown who are seeking free parking near the CBD. Several methods are available to control this parking. One of them would be posting no parking from 8:00 a.m. to 9:00 a.m. so that employees will be in the downtown area before parking is permitted. The problem with this type of arrangement is that many residential users would have to get up to move their automobiles early in the morning and the inconvenience to the residents of the area may be more than the convenience provided by not having employees parking on the streets.

A method that has been used in some cities is to issue permits for parking to residents of the area and have a strict enforcement program to issue tickets to all vehicles parking within the area without a permit. After an initial enforcement effort, this program usually proves to be monitored by residents who can recognize a vehicle parked in the area illegally. Generally speaking, these permits are for a time period, say 8:00 a.m. to 6:00 p.m., so that during the evening when there is no parking demand, visitors to the residential area can park legally and not be issued tickets. The U.S. Supreme Court has ruled that special use parking such as this is allowable on public streets.

A third method that has been used in some cities is to have alternate side parking on the street and have a switch-over time of 9:00 a.m. or 10:00 a.m. This allows any resident in the area to move a car from one side of the street to the other in the middle of the day, but would require an employee to move their car during working hours. This would discourage long-term parking, but it may also be a nuisance to the residents of the area.

Although there are enough parking spaces to meet the long-term parking demand in downtown Bismarck, many of these spaces are surplus, privately-owned lots for customers of particular business establishments, or public spaces around the Civic Center south of the Burlington Northern Railroad tracks. The private customer spaces are currently not available for employees, and the barrier created by Main

Avenue and the railroad tracks makes the Civic Center parking "too far away." In order to provide parking for long-term users (employees), one or more of the following actions could be initiated:

1. Enforce short-term parking as previously outlined so there will be an adequate supply of public short-term parking spaces. Then have many of the short-term private lots converted to long-term parking.
2. The City could buy some of the existing private customer lots that won't be needed for short-term parking, and convert them to public long-term parking.
3. Provide a shuttle bus service to and from the Civic Center and the downtown area. This might be for anyone working in the downtown area or, to minimize the cost of the service, it might be between the Civic Center and two or three large employers on the west side of the CBD. The west side of the CBD is suggested because this is the most distant from the Civic Center lot and some employees in the eastern side of downtown may walk to the Civic Center lot.
4. Additional parking lots by the hospitals and the northwest area of the CBD could be provided for employee parking. These lots will require the addition of more land and buildings to provide the needed spaces for employees around the fringe of the downtown area.
5. Establish a car pool and van pool program for employees in the downtown area. Many examples of van pooling have proven successful, but nearly all of them occur where there is a single employer. Very few cases of car pooling have proven successful except during fuel emergency situation. The success of these programs in downtown Bismarck is questionable because of the short distance between downtown and the home of most of the employers. It might be successful for those living beyond the city limits, but as shown in the existing conditions report, only 20 percent of all people coming into the downtown area during peak hours are from outside of the City of Bismarck. These programs, in order to be successful, not only have to be more economical than driving a car, they also have to be more convenient, and one of the greatest measures of convenience to most people is time. This would have to be examined thoroughly before a program is initiated in Bismarck.

Most business establishments will be reluctant to convert their customer parking to employee parking. Even if it could be proven that adequate short-term parking exists within one or two blocks of all retail-commercial establishments, the provision of customer parking adjacent to a store has always been considered "the goal." As business has opened in suburban areas, this type of parking has been considered one of the success factors. Therefore, items one and two above probably can't be initiated, although some discussion of these ideas should be generated with downtown business people and land owners.

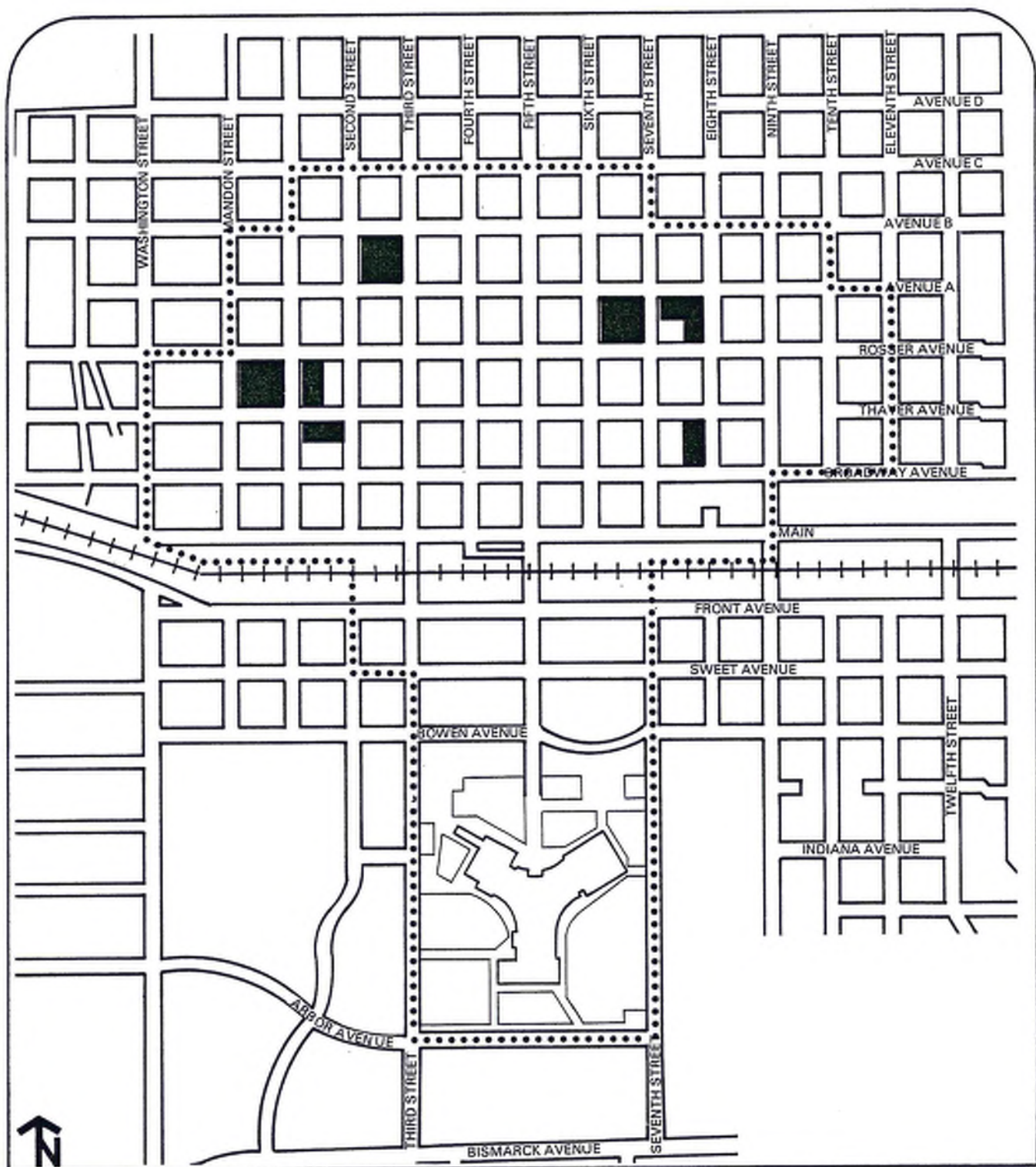
A shuttle bus service to and from the Civic Center would have to provide good service in order to be a success. Headways of five minutes or less, and weather-proof shelters at the parking lots, would have to be provided. Eight to twelve passenger vans should be used, and a minimum of three would have to be used to

maintain five-minute headways. In order to minimize costs, drivers should be people that can be gainfully employed during other hours of the day, or part-time personnel that will accept pay for only the hours worked. The estimated cost for this service is \$100 per month depreciation, \$50 per month for insurance and license fees, and \$300 per month operating expense (including drivers wages). This is a total of \$450 per month. If the vehicles could be used during other hours of the day, the fixed costs to this program could be minimized. If a program such as this is initiated, it should be by the City of Bismarck or an organization such as the Chamber of Commerce. The cost of the shuttle bus service will have to be subsidized because the users of the system will have to ride free or, at the maximum, pay a very nominal fare such as five or ten cents, in order to make the service successful.

The future of public transportation in Bismarck, and its effect on long-term parking, was discussed. In towns the size of Bismarck where public transit exists, less than ten percent of the trips occur by this mode of travel. Therefore, public transit was not considered a viable alternative to reduce the required number of parking spaces.

Because most traffic approaches downtown from the north, providing employee parking in the northeast and northwest portions of the study area will intercept the majority of the traffic before it crosses downtown. Figure 15 shows the location of the parking alternatives examined during this study.

The portion of the analysis area north of Broadway has a long-term parking deficiency of approximately 1,500 spaces. A parking lot on each of the seven sites shown on Figure 15 would provide 1,400 new parking spaces, which would be adequate, along with the existing spaces, to satisfy the 1987 parking demand.



BISMARCK PARKING

**FIGURE FIFTEEN
PARKING LOCATION ALTERNATIVES**

RECOMMENDED PARKING PLAN

In Chapter 5, various alternatives for satisfying the short-term and long-term parking demands were examined. After studying the various alternatives, the following plans are recommended to be implemented in the order shown.

1. Investigate the possibility of establishing a van pool program. During the study, the names of four different companies providing van pool programs were submitted, and it is recommended that one or more of these companies be contacted to see if there is any interest in establishing and setting up a van pool program in the City of Bismarck. These people, if interested could work with the Parking Authority to administer, initiate, and publicize the program during its inception.
2. Establish a car pool program. This program can be initiated by the Parking Authority, by the Chamber of Commerce, or by individual employers in town. This is a very low cost way to increase vehicle occupancy, but does require a considerable amount of publicity in order to see any fruitful results.
3. The next project that should be implemented is the construction of a parking lot on Block 14 north of the Post Office and Federal Building. It is anticipated that an agreement could be worked out with the federal government, and perhaps the entire lot could be leased to them with a long-term agreement to pay off the bonded indebtedness which the City would incur from building this parking facility.
4. The Bismarck Hospital has begun to acquire the east half of Block 34. The next phase of the parking program would be to use the entire east half of Block 34, which is more land than the Bismarck Hospital has acquired, to provide approximately 150 parking spaces. This could be undertaken by the City and leased to the hospital with a guaranteed annual income necessary to pay off the bonded indebtedness of the facility along with maintenance and operational costs.
5. After these two facilities have been constructed, parking regulations on residential streets near the central business district, and parking regulations on streets within the central business district, could be initiated. The regulations would prohibit all day parkers from using the streets in and near downtown and force them to use the parking facilities that have been provided for their use. It is important that these regulations not be initiated before the parking lots in Blocks 14 and 34 (or a comparable number of

spaces) are provided for their use. However, once these spaces have been provided, these regulations should be initiated in order to allow the residents in the residential area to use the streets for their use, and to allow the short-term parkers to use the on-street parking spaces in the downtown area.

6. Consolidate some of the existing off-street parking lots to better utilize the space. Several blocks have two or three different parking lots adjacent to each other, and a study of these lots may show that the number of parking spaces could be increased by removing the barriers and redesigning the parking lots.
7. Increase the number of parking spaces by re-striping many of the parking lots in the area to provide 25 percent or 30 percent compact vehicle stalls. The trend toward compact cars is growing dramatically and the existing parking spaces have been laid out to accommodate what used to be considered a standard-size automobile. However, as automobile efficiency required by the Federal Government becomes more and more stringent, large cars will become obsolete. Therefore, parking spaces can be made smaller to accommodate compact cars. In most metropolitan areas today, about 40 percent of all vehicles on the road are considered compact or sub-compact vehicles. An increase in parking of 10 to 15 percent can be realized by striping approximately one-third of all of the spaces for compact cars.
8. Within the central business district it is suggested that a uniform on-street parking time limit be established. This time limit should be one that could be effectively enforced. It appears that the present 60-minute time limit, although desirable from a retailing standpoint, is not enforceable; and maybe this should be increased to 90 minutes or two hours in order to be enforced effectively. One exception to this uniform on-street parking limit is to maintain a short time limit near the Post Office of perhaps 20 to 30 minutes, which may be necessary for the large turn-over in parking that is required at this location.
9. Work with the business people and land owners to see if some of the customer parking lots can be used for employee parking. The operation and maintenance of these facilities might become an obligation of the City to minimize the costs to the land owners.
10. Establish a shuttle bus service between the Civic Center parking lots and some key points in the downtown area. The cost of providing this service could be covered by increased parking fees in all municipal parking lots.
11. As Bismarck develops and the parking demand increases, the next parking lot that should be built would be in the east half of Block 66, which would provide 150 spaces.
12. The remaining parking facilities might be constructed in this order: 1) Block 42, which would provide 150 spaces. 2) The north 125 feet of Block 45, which would provide 125 spaces. 3) All of Block 41, which would provide approximately 300 spaces. 4) All of Block 35 with the exception of the

church in the southwest corner, which would provide 225 spaces. No time frame can be put on these last parking lots because it would depend upon the rate of development within the downtown area. However, the City should monitor the use of parking spaces and check occupancy rates, and if the occupancy rises above 80 percent, new parking facilities should be considered.

FINANCIAL ANALYSIS

EXISTING SYSTEM

A review of the existing parking system income and expense records reveals there are no surplus funds available for parking system expansion. Table 16 is a summary of the parking system income and expenses for the past six years.

TABLE 16
SUMMARY OF PARKING SYSTEM INCOME AND EXPENSES

	1972	1973	1974	1975	1976	1977*
<u>Income</u>	\$42,023	\$47,108	\$49,527	\$ 53,844	\$ 73,509	\$17,104
<u>Expenses</u>						
Interest	\$1,676	\$50,350	\$60,806	\$ 92,753	\$ 85,203	\$25,686
Maintenance	305	5,283	5,029	3,632	11,351	104
Operation	4,016	3,798	3,808	4,910	3,910	2,046
Other	1,223	907	6,570	151	2,235	65
Total	\$7,220	\$60,338	\$76,213	\$101,446	\$102,699	\$27,901

*1-1-77 through 8-31-77.

During the past five years, income has not been sufficient to meet the interest on the bonds. Unless parking rates are increased, this condition will prevail for several more years because, as of August 31, 1977, the parking bonds outstanding were over \$2,700,000.

SYSTEM EXPANSION

Table 17 shows the estimated cost to provide the additional parking spaces shown in Figure 15. Only the east half of Block 34 was used in the analysis because of the cost of acquiring the entire block. The entire block is estimated at approximately \$1,200,000 with the east half of the block estimated at \$300,000. Therefore, it did not appear financially feasible to acquire the west half of the block for parking. In Block 35, the church at the corner of Rosser Avenue and Seventh Street has been excluded.

TABLE 17
PARKING LOT COSTS

Block No. (1)	No. Spaces	Land Cost (2)	Construction Cost (3)	Fees (10%)	Total Cost
014	300	\$ 692,000	\$210,000	\$21,000	\$ 923,000
041	300	564,000	210,000	21,000	795,000
W 1/2 042	150	348,000	105,000	10,500	463,500
N 125' 045	125	345,000	87,500	8,750	441,250
E 1/2 034	150	300,000	105,000	10,500	415,500
035	225	654,000	157,500	15,750	827,250
E 1/2 066	150	375,000	105,000	10,500	490,500
Totals	1,400	\$3,278,000	\$980,000	\$98,000	\$4,356,000

- (1) See Figure 1
 (2) From City Auditor
 (3) \$700 per space

The cost of building a 550 space parking garage on Block 035, and an 875 space garage on Block 041, was estimated to be \$6,700,000. If these parking garages were constructed, the other areas shown in Figure 15 for parking could remain on the tax roll and, over a twenty year period (the life of the bonds), return an estimated \$590,000 in taxes. If the cost of constructing the garages is reduced by this amount and compared to the estimated cost of building the parking lots, the parking garage costs are approximately \$1,500,000 more than the costs of building the parking lots. Therefore, the parking garages are not considered economically feasible.

Table 18 shows the annual costs of providing parking on the seven lots shown in Figure 15. The costs are shown for both a 15-year and a 20-year financing period. The construction cost has been estimated at \$700 per space. The maintenance and operation (M & O) costs have been estimated at \$50 per space per year. The M & O costs include such things as pavement patching and seal coating, snow plowing, cleaning, paint striping, and the cost of equipment to maintain the parking facilities. This cost is not high enough to include labor costs if attendant parking is required.

TABLE 18
PARKING LOT ANNUAL COSTS

Item	15 Years	20 Years
Land	\$218,550	\$163,900
Construction	65,330	49,000
Fee	6,550	4,900
Maintenance and Operation	70,000	70,000
Total	\$360,430	\$287,800

Table 19 shows the annual payment required to finance these parking improvements for both a 15-year period and a 20-year period. According to the Deputy City Auditor, bonds could be sold at a five percent interest rate which would require the full faith and obligation of the City of Bismarck. Parking revenue bonds would have a higher interest rate which would be about 7½ percent or 8 percent. In today's bond market, it may be impossible to market parking revenue bonds. Therefore, a general obligation type bond has been considered in the analysis.

TABLE 19
ANNUAL FINANCING PAYMENT

Item	15 Years	20 Years
Bond Issue	\$4,500,000	\$4,500,000
Interest Rate	5%	5%
Annual Payment	\$ 433,540	\$ 361,100

Table 20 shows the income required to retire the bonds and the fee that would be required for both a 15-year and a 20-year financing arrangement. An estimated fee of \$1.75 per day per space for a 15-year retirement schedule, and \$1.50 per space per day for a 20-year retirement schedule would be required. These costs do not include any inflation that will occur over the next 15 or 20 years. However, it is anticipated that the fee would increase enough to offset the effects of inflation, so the fee shown is only the fee that would be required during the first few years of operation.

TABLE 20
INCOME AND FEE ESTIMATE

Item	15 Years	20 Years
Debt Coverage Ratio	1.20	1.20
Net Income	\$520,250	\$433,320
Gross Income	\$590,250	\$503,320
Annual Income Per Space	\$ 420	\$ 360
Daily Fee Required*	\$ 1.75	\$ 1.50

*Assuming 250 working days per year, and all spaces used for long-term parking.

These parking costs are much higher than the existing rates, so it may be necessary to establish assessment districts for these parking facilities. An area wide assessment was reviewed for the existing and proposed facilities, but according to North Dakota Code Section 40-23-23, the assessment districts already established can not be modified in a bond recall. Therefore, assessments for new facilities should be made on the same basis as existing parking bonds except where a new facility is leased to a single user such as the Post Office, Federal Government, or a hospital. In these cases, the entire cost should be assessed to the single user.

In parking lots open to the general public, a minimum rate of fifty cents per day should be established to help reduce the amount of assessment required. This fee is in line with existing parking fees in downtown Bismarck, and these fees should be escalated in the future to reflect the inflationary trend.

TECHNICAL APPENDIX

APPENDIX TABLE 1
EXISTING ON-STREET PARKING SPACE

District No.	No Limit	10 Minutes	1 Hour	2 Hour	Total Spaces
01	196	16	11	11	234
02	155	-	96	43	294
03	220	-	-	-	220
04	119	-	111	70	300
05	-	-	271	26	297
06	48	4	164	98	314
07	221	4	7	-	232
08	12	-	137	-	149
09	114	-	-	6	120
10	-	-	-	-	-
11	-	-	-	-	-
Totals	1,085	24	797	254	2,160

APPENDIX TABLE 2
EXISTING PARKING INVENTORY AND OCCUPANCY BY BLOCK

Block No.	Inventory	Occupancy	Percent Occupied
010	33	12	36
011	22	21	95
012	36	12	33
013	47	38	81
014	21	20	95
015	30	20	67
016	47	28	60
017	104	83	80
Dist. 1	340	234	69
020	37	33	89
021	36	25	69
022	68	31	46
023	48	25	52
024	108	67	62
025	64	44	69
026	160	109	68
027	180	124	69
028	101	58	57
Dist. 2	802	516	64
030	41	14	34
031	22	10	45
032	24	6	25
033	26	11	42
034	44	34	77
035	41	29	71
036	121	84	69
Dist. 3	319	188	59
040	26	20	69
041	47	41	87
042	135	54	40
043	61	34	56
044	23	15	65
045	161	126	78
046	155	104	67
047	120	75	63
048	40	17	43
Dist. 4	768	486	63

APPENDIX TABLE 2
EXISTING PARKING INVENTORY AND OCCUPANCY BY BLOCK (Continued)

Block No.	Inventory	Occupancy	Percent Occupied
050	105	57	54
051	160	101	63
052	184	146	79
053	56	49	88
054	69	60	87
055	145	98	68
056	82	71	87
057	90	70	78
058	30	23	77
Dist. 5	921	675	73
060	88	89	101
061	49	31	63
062	229	166	72
063	210	98	47
064	125	104	83
065	136	74	54
066	124	76	61
067	98	58	59
Dist. 6	1,059	696	66
070	44	21	48
071	94	90	96
072	41	27	66
073	90	97	108
074	24	16	67
075	208	131	63
Dist. 7	501	382	76
080	55	38	69
081	140	117	84
082	354	270	76
083	52	44	85
084	150	104	69
085	93	60	65
086	59	35	59
087	53	29	55
Dist. 8	956	697	73

APPENDIX TABLE 2
EXISTING PARKING INVENTORY AND OCCUPANCY BY BLOCK (Continued)

Block No.	Inventory	Occupancy	Percent Occupied
090	53	43	81
091	53	47	89
092	26	25	96
093	155	119	77
094	147	83	56
095	564	143	25
096	55	42	76
097	170	42	25
098	246	60	24
099	1,508 (lot being resurfaced)		
Dist. 9	1,469	604	41
100	520	209	40
101	93	11	12
102	95	68	72
103	500	229	46
104	420	98	23
105	133	32	24
Dist. 10	1,761	647	37
110	166	39	23
111	93	13	14
112	255	212	83
113	230	17	7
114	1,000	256	26
Dist. 11	1,744	537	31
Totals	10,640	5,662	53

APPENDIX TABLE 3
EXISTING ON-STREET PARKING INVENTORY AND OCCUPANCY

Block No.	No Limit		10 Minutes		1 Hour		2 Hour		NP OCC	LZ OCC	Total	
	INV	*OCC	INV	*OCC	INV	*OCC	INV	*OCC			INV	OCC
010	33	12	-	-	-	-	-	-	-	-	33	12
011	22	21	-	-	-	-	-	-	-	-	22	21
012	36	12	-	-	-	-	-	-	-	-	36	12
013	47	38	-	-	-	-	-	-	-	-	47	38
014	10	10	-	-	-	-	11	10	-	-	21	20
015	15	16	-	-	-	-	-	-	-	-	15	16
016	26	20	-	-	11	3	-	-	-	-	37	23
017	7	6	16	6	-	-	-	-	2	-	23	14
Dist. 1	196	135	16	6	11	3	11	10	2	-	234	156
020	37	33	-	-	-	-	-	-	-	-	37	33
021	36	25	-	-	-	-	-	-	-	-	36	25
022	38	28	-	-	-	-	-	-	-	-	38	28
023	6	7	-	-	-	-	20	12	-	-	26	19
024	13	12	-	-	9	7	9	6	-	-	31	25
025	25	21	-	-	4	3	-	-	-	-	29	24
026	-	-	-	-	26	9	10	11	-	-	36	20
027	-	-	-	-	39	26	-	-	-	-	39	26
028	-	-	-	-	18	8	4	0	-	-	22	8
Dist. 2	155	126	-	-	96	53	43	29	-	-	294	208
030	33	10	-	-	-	-	-	-	-	-	33	10
031	22	10	-	-	-	-	-	-	-	-	22	10
032	24	6	-	-	-	-	-	-	-	-	24	6
033	26	11	-	-	-	-	-	-	-	-	26	11
034	36	27	-	-	-	-	-	-	-	-	36	27
035	31	21	-	-	-	-	-	-	-	-	31	21
036	48	35	-	-	-	-	-	-	-	-	48	35
Dist. 3	220	120	-	-	-	-	-	-	-	-	220	120
040	23	14	-	-	-	-	-	-	-	-	23	14
041	47	41	-	-	-	-	-	-	-	-	47	41
042	21	14	-	-	-	-	15	16	-	-	36	30
043	20	16	-	-	-	-	10	4	-	-	30	20
044	-	-	-	-	14	8	9	7	-	-	23	15
045	-	-	-	-	26	17	8	8	-	-	34	25
046	8	7	-	-	20	15	10	6	-	-	38	28
047	-	-	-	-	18	8	18	11	-	-	36	19
048	-	-	-	-	33	15	-	-	-	-	33	15
Dist. 4	119	92	-	-	111	63	70	52	-	-	300	207
050	-	-	-	-	16	8	18	20	-	-	34	28
051	-	-	-	-	32	23	-	-	-	-	32	23
052	-	-	-	-	24	23	-	-	-	-	24	23
053	-	-	-	-	23	19	8	8	-	-	31	27
054	-	-	-	-	32	28	-	-	-	-	32	28
055	-	-	-	-	52	53	-	-	-	1	52	54
056	-	-	-	-	30	32	-	-	-	-	30	32
057	-	-	-	-	37	33	-	-	-	-	37	33
058	-	-	-	-	25	18	-	-	-	-	25	18
Dist. 5	-	-	-	-	271	237	26	28	-	1	297	266
060	-	-	-	-	14	12	12	10	-	-	26	22
061	-	-	-	-	23	5	26	21	-	5	49	31
062	12	0	-	-	-	-	32	19	-	-	44	19
063	25	17	-	-	-	-	10	9	-	-	35	26
064	-	-	-	-	55	54	-	-	-	-	55	54
065	-	-	4	1	22	12	-	-	(2 alley)	-	26	15
066	-	-	-	-	38	18	10	10	-	-	48	28
067	11	8	-	-	12	4	8	2	-	-	31	14
Dist. 6	48	25	4	1	164	105	98	71	2	5	314	209

*Peak hour occupancy at 3:00 p.m.

APPENDIX TABLE 3
EXISTING ON-STREET PARKING INVENTORY AND OCCUPANCY (Continued)

Block No.	No Limit		10 Minutes		1 Hour		2 Hour		NP OCC	LZ OCC	Total	
	INV	*OCC	INV	*OCC	INV	*OCC	INV	*OCC			INV	OCC
070	44	21	-	-	-	-	-	-	-	-	44	21
071	42	38	-	-	-	-	-	-	-	-	42	38
072	41	27	-	-	-	-	-	-	-	-	41	27
073	34	28	4	3	-	-	-	-	6	-	38	37
074	24	16	-	-	-	-	-	-	-	-	24	16
075	36	16	-	-	7	7	-	-	-	-	43	23
Dist. 7	221	146	4	3	7	7	-	-	6	-	232	162
080	-	-	-	-	22	11	-	-	-	-	22	11
081	-	-	-	-	26	19	-	-	-	-	26	19
082	-	-	-	-	23	24	-	-	(1 alley)	-	24	24
083	-	-	-	-	17	13	-	-	-	-	17	13
084	-	-	-	-	30	8	-	-	-	-	30	8
085	-	-	-	-	8	6	-	-	-	-	8	6
086	-	-	-	-	-	-	-	-	-	-	-	-
087	12	6	-	-	11	5	-	-	5	-	28	16
Dist. 8	12	6	-	-	137	86	-	-	6	-	149	98
090	13	13	-	-	-	-	-	-	-	-	13	13
091	-	-	-	-	-	-	-	-	-	-	-	-
092	-	-	-	-	-	-	-	-	1	-	-	1
093	20	21	-	-	-	-	6	5	-	-	26	26
094	42	34	-	-	-	-	-	-	-	-	42	34
095	14	11	-	-	-	-	-	-	1	-	14	12
096	25	18	-	-	-	-	-	-	-	-	25	18
097	-	-	-	-	-	-	-	-	-	5	-	5
098	-	-	-	-	-	-	-	-	-	-	-	-
099	-	-	-	-	-	-	-	-	-	-	-	-
Dist. 9	114	97	-	-	-	-	6	5	2	5	120	109
100	-	-	-	-	-	-	-	-	-	-	-	-
101	-	-	-	-	-	-	-	-	-	-	-	-
102	-	-	-	-	-	-	-	-	-	-	-	-
103	-	-	-	-	-	-	-	-	-	-	-	-
104	-	-	-	-	-	-	-	-	-	-	-	-
105	-	-	-	-	-	-	-	-	-	-	-	-
Dist. 10	-	-	-	-	-	-	-	-	-	-	-	-
110	-	-	-	-	-	-	-	-	-	-	-	-
111	-	-	-	-	-	-	-	-	-	-	-	-
112	-	-	-	-	-	-	-	-	-	-	-	-
113	-	-	-	-	-	-	-	-	-	-	-	-
114	-	-	-	-	-	-	-	-	-	-	-	-
Dist. 11	-	-	-	-	-	-	-	-	-	-	-	-
Total for Illegally Parked Cars									18	11		
Totals	1,085	747	24	10	797	554	254	195			2,160	1,535

APPENDIX TABLE 4
OFF-STREET GENERAL PUBLIC PARKING INVENTORY AND OCCUPANCY

Block No.	<u>Garage</u>		<u>Lot</u>		<u>Total</u>	
	Inv.	Occ.	Inv.	Occ.	Inv.	Occ.
010	-	-	-	-	-	-
011	-	-	-	-	-	-
012	-	-	-	-	-	-
013	-	-	-	-	-	-
014	-	-	-	-	-	-
015	-	-	-	-	-	-
016	-	-	-	-	-	-
017	-	-	-	-	-	-
Dist. 1	-	-	-	-	-	-
020	-	-	-	-	-	-
021	-	-	-	-	-	-
022	-	-	-	-	-	-
023	-	-	-	-	-	-
024	-	-	-	-	-	-
025	-	-	-	-	-	-
026	-	-	-	-	-	-
027	-	-	-	-	-	-
028	-	-	-	-	-	-
Dist. 2	-	-	-	-	-	-
030	-	-	-	-	-	-
031	-	-	-	-	-	-
032	-	-	-	-	-	-
033	-	-	-	-	-	-
034	-	-	-	-	-	-
035	-	-	-	-	-	-
036	-	-	-	-	-	-
Dist. 3	-	-	-	-	-	-
040	-	-	-	-	-	-
041	-	-	-	-	-	-
042	-	-	-	-	-	-
043	-	-	-	-	-	-
044	-	-	-	-	-	-
045	-	-	-	-	-	-
046	-	-	-	-	-	-
047	-	-	-	-	-	-
048	-	-	-	-	-	-
Dist. 4	-	-	-	-	-	-

APPENDIX TABLE 4
OFF-STREET GENERAL PUBLIC PARKING INVENTORY AND OCCUPANCY (Continued)

Block No.	Garage		Lot		Total	
	Inv.	Occ.	Inv.	Occ.	Inv.	Occ.
050	-	-	-	-	-	-
051	-	-	70	35	70	35
052	-	-	57	37	57	37
053	-	-	-	-	-	-
054	-	-	-	-	-	-
055	46	19	-	-	46	19
056	-	-	-	-	-	-
057	-	-	-	-	-	-
058	-	-	-	-	-	-
Dist. 5	46	19	127	72	173	91
060	-	-	-	-	-	-
061	-	-	-	-	-	-
062	-	-	185	147	185	147
063	-	-	175	72	175	72
064	-	-	-	-	-	-
065	-	-	-	-	-	-
066	-	-	-	-	-	-
067	-	-	-	-	-	-
Dist. 6	-	-	360	219	360	219
070	-	-	-	-	-	-
071	-	-	-	-	-	-
072	-	-	-	-	-	-
073	-	-	-	-	-	-
074	-	-	-	-	-	-
075	-	-	-	-	-	-
Dist. 7	-	-	-	-	-	-
080	-	-	-	-	-	-
081	-	-	76	62	76	62
082	317	239	-	-	317	239
083	-	-	35	31	35	31
084	-	-	-	-	-	-
085	-	-	-	-	-	-
086	-	-	-	-	-	-
087	-	-	-	-	-	-
Dist. 8	317	239	111	93	428	332

APPENDIX TABLE 4
OFF-STREET GENERAL PUBLIC PARKING INVENTORY AND OCCUPANCY (Continued)

Block No.	<u>Garage</u>		<u>Lot</u>		<u>Total</u>	
	Inv.	Occ.	Inv.	Occ.	Inv.	Occ.
090	-	-	-	-	-	-
091	-	-	-	-	-	-
092	-	-	-	-	-	-
093	-	-	-	-	-	-
094	-	-	-	-	-	-
095	-	-	550	131	550	131
096	-	-	-	-	-	-
097	-	-	170	37	170	37
098	-	-	150	10	150	10
099	-	-	(lot being resurfaced)		-	-
Dist. 9	-	-	870	178	870	178
100	-	-	-	-	-	-
101	-	-	-	-	-	-
102	-	-	-	-	-	-
103	-	-	-	-	-	-
104	-	-	-	-	-	-
105	-	-	-	-	-	-
Dist. 10	-	-	-	-	-	-
110	-	-	-	-	-	-
111	-	-	-	-	-	-
112	-	-	-	-	-	-
113	-	-	-	-	-	-
114	-	-	-	-	-	-
Dist. 11	-	-	-	-	-	-
Totals	363	258	1,468	562	1,831	820

APPENDIX TABLE 5
EMPLOYEE PARKING INVENTORY AND OCCUPANCY

Block No.	Garage		Lot		Total	
	Inv.	Occ.	Inv.	Occ.	Inv.	Occ.
010	-	-	-	-	-	-
011	-	-	-	-	-	-
012	-	-	-	-	-	-
013	-	-	-	-	-	-
014	-	-	-	-	-	-
015	-	-	-	-	-	-
016	-	-	-	-	-	-
017	-	-	81	69	81	69
Dist. 1	-	-	81	69	81	69
020	-	-	-	-	-	-
021	-	-	-	-	-	-
022	-	-	-	-	-	-
023	-	-	-	-	-	-
024	-	-	-	-	-	-
025	-	-	-	-	-	-
026	-	-	106	78	106	78
027	-	-	129	94	129	94
028	-	-	27	25	27	25
Dist. 2	-	-	262	197	262	197
030	-	-	-	-	-	-
031	-	-	-	-	-	-
032	-	-	-	-	-	-
033	-	-	-	-	-	-
034	-	-	-	-	-	-
035	-	-	-	-	-	-
036	-	-	-	-	-	-
Dist. 3	-	-	-	-	-	-
040	-	-	-	-	-	-
041	-	-	-	-	-	-
042	-	-	-	-	-	-
043	-	-	-	-	-	-
044	-	-	-	-	-	-
045	-	-	64	42	64	42
046	-	-	-	-	-	-
047	-	-	-	-	-	-
048	-	-	-	-	-	-
Dist.	-	-	64	42	64	42

APPENDIX TABLE 5
EMPLOYEE PARKING INVENTORY AND OCCUPANCY (Continued)

Block No.	Garage		Lot		Total	
	Inv.	Occ.	Inv.	Occ.	Inv.	Occ.
050	-	-	-	-	-	-
051	-	-	38	27	38	27
052	-	-	90	73	90	73
053	-	-	-	-	-	-
054	-	-	37	32	37	32
055	47	25	-	-	47	25
056	-	-	28	20	28	20
057	-	-	5	5	5	5
058	-	-	5	5	5	5
Dist. 5	47	25	203	162	250	187
060	-	-	-	-	-	-
061	-	-	-	-	-	-
062	-	-	-	-	-	-
063	-	-	-	-	-	-
064	-	-	43	33	43	33
065	-	-	-	-	-	-
066	-	-	-	-	-	-
067	-	-	52	37	52	37
Dist. 6	-	-	95	70	95	70
070	-	-	-	-	-	-
071	-	-	-	-	-	-
072	-	-	-	-	-	-
073	-	-	52	60	52	60
074	-	-	-	-	-	-
075	-	-	165	108	165	108
Dist. 7	-	-	217	168	217	168
080	-	-	-	-	-	-
081	-	-	-	-	-	-
082	-	-	-	-	-	-
083	-	-	-	-	-	-
084	-	-	-	-	-	-
085	-	-	35	24	35	25
086	-	-	20	11	20	11
087	-	-	-	-	-	-
Dist. 8	-	-	55	36	55	36

APPENDIX TABLE 5
EMPLOYEE PARKING INVENTORY AND OCCUPANCY (Continued)

Block No.	<u>Garage</u>		<u>Lot</u>		<u>Total</u>	
	Inv.	Occ.	Inv.	Occ.	Inv.	Occ.
090	-	-	40	30	40	30
091	-	-	53	47	53	47
092	-	-	26	24	26	24
093	-	-	61	41	61	41
094	-	-	45	26	45	26
095	-	-	-	-	-	-
096	-	-	-	-	-	-
097	-	-	-	-	-	-
098	-	-	-	-	-	-
099	-	-	-	-	-	-
Dist. 9	-	-	225	168	225	168
100	-	-	-	-	-	-
101	-	-	-	-	-	-
102	-	-	-	-	-	-
103	-	-	-	-	-	-
104	-	-	-	-	-	-
105	-	-	-	-	-	-
Dist. 10	-	-	-	-	-	-
110	-	-	-	-	-	-
111	-	-	-	-	-	-
112	-	-	-	-	-	-
113	-	-	-	-	-	-
114	-	-	-	-	-	-
Dist. 11	-	-	-	-	-	-
Totals	47	25	1,202	912	1,249	937

APPENDIX TABLE 6
OFF-STREET CUSTOMER PARKING INVENTORY AND OCCUPANCY

Block No.	Garage		Lot		Total	
	Inv.	Occ.	Inv.	Occ.	Inv.	Occ.
010	-	-	-	-	-	-
011	-	-	-	-	-	-
012	-	-	-	-	-	-
013	-	-	-	-	-	-
014	-	-	-	-	-	-
015	-	-	-	-	-	-
016	-	-	10	5	10	5
017	-	-	-	-	-	-
Dist. 1	-	-	10	5	10	5
020	-	-	-	-	-	-
021	-	-	-	-	-	-
022	-	-	20	3	20	3
023	-	-	22	6	22	6
024	-	-	77	42	77	42
025	-	-	35	20	35	20
026	-	-	18	11	18	11
027	-	-	12	4	12	4
028	-	-	52	25	52	25
Dist. 2	-	-	236	111	236	111
030	-	-	-	-	-	-
031	-	-	-	-	-	-
032	-	-	-	-	-	-
033	-	-	-	-	-	-
034	-	-	-	-	-	-
035	-	-	10	8	10	8
036	-	-	65	47	65	47
Dist. 3	-	-	75	55	75	55
040	-	-	-	-	-	-
041	-	-	-	-	-	-
042	-	-	99	24	99	24
043	-	-	31	14	31	14
044	-	-	-	-	-	-
045	-	-	63	59	63	59
046	-	-	117	76	117	76
047	-	-	84	56	84	56
048	-	-	7	2	7	2
Dist. 4	-	-	401	231	401	231

Note: includes Kirkwood Plaza customer parking.

APPENDIX TABLE 6
OFF-STREET CUSTOMER PARKING INVENTORY AND OCCUPANCY (Continued)

Block No.	Garage		Lot		Total	
	Inv.	Occ.	Inv.	Occ.	Inv.	Occ.
050	-	-	71	29	71	29
051	-	-	20	16	20	16
052	-	-	13	13	13	13
053	-	-	25	22	25	22
054	-	-	-	-	-	-
055	-	-	-	-	-	-
056	-	-	24	19	24	19
057	-	-	48	32	48	32
058	-	-	-	-	-	-
Dist. 5	-	-	201	131	201	131
060	-	-	62	67	62	67
061	-	-	-	-	-	-
062	-	-	-	-	-	-
063	-	-	-	-	-	-
064	-	-	27	17	27	17
065	-	-	110	59	110	59
066	-	-	76	48	76	48
067	-	-	7	3	7	3
Dist. 6	-	-	282	194	282	194
070	-	-	-	-	-	-
071	-	-	52	52	52	52
072	-	-	-	-	-	-
073	-	-	-	-	-	-
074	-	-	-	-	-	-
075	-	-	-	-	-	-
Dist. 7	-	-	52	52	52	52
080	-	-	33	27	33	27
081	-	-	38	36	38	36
082	-	-	14	6	14	6
083	-	-	-	-	-	-
084	-	-	120	96	120	96
085	-	-	50	29	50	29
086	-	-	39	24	39	24
087	-	-	30	13	30	13
Dist. 8	-	-	324	231	324	231

APPENDIX TABLE 6
OFF-STREET CUSTOMER PARKING INVENTORY AND OCCUPANCY (Continued)

Block No.	Garage		Lot		Total	
	Inv.	Occ.	Inv.	Occ.	Inv.	Occ.
090	-	-	-	-	-	-
091	-	-	-	-	-	-
092	-	-	-	-	-	-
093	-	-	68	52	68	52
094	-	-	60	23	60	23
095	-	-	-	-	-	-
096	-	-	30	24	30	24
097	-	-	-	-	-	-
098	-	-	96	50	96	50
099	-	-	-	-	-	-
Dist. 9	-	-	254	149	254	149
100	-	-	520	209	520	209
101	-	-	93	11	93	11
102	-	-	95	68	95	68
103	-	-	500	229	500	229
104	-	-	420	98	420	98
105	-	-	133	32	133	32
Dist. 10	-	-	1,761	647	1,761	647
110	-	-	166	39	166	39
111	-	-	93	13	93	13
112	-	-	255	212	255	212
113	-	-	230	17	230	17
114	-	-	1,000	256	1,000	256
Dist. 11	-	-	1,744	537	1,744	537
Totals	-	-	5,340	2,343	5,340	2,343

APPENDIX TABLE 7
RESIDENTIAL PARKING INVENTORY AND OCCUPANCY

Block No.	Garage		Lot		Total	
	Inv.	Occ.	Inv.	Occ.	Inv.	Occ.
010	-	-	-	-	-	-
011	-	-	-	-	-	-
012	-	-	-	-	-	-
013	-	-	-	-	-	-
014	-	-	-	-	-	-
015	-	-	15	4	15	4
016	-	-	-	-	-	-
017	-	-	-	-	-	-
Dist. 1	-	-	15	4	15	4
020	-	-	-	-	-	-
021	-	-	-	-	-	-
022	-	-	10	0	10	0
023	-	-	-	-	-	-
024	-	-	-	-	-	-
025	-	-	-	-	-	-
026	-	-	-	-	-	-
027	-	-	-	-	-	-
028	-	-	-	-	-	-
Dist. 2	-	-	10	0	10	0
030	-	-	8	4	8	4
031	-	-	-	-	-	-
032	-	-	-	-	-	-
033	-	-	-	-	-	-
034	-	-	8	7	8	7
035	-	-	-	-	-	-
036	-	-	8	2	8	2
Dist. 3	-	-	24	13	24	13
040	-	-	3	6	3	6
041	-	-	-	-	-	-
042	-	-	-	-	-	-
043	-	-	-	-	-	-
044	-	-	-	-	-	-
045	-	-	-	-	-	-
046	-	-	-	-	-	-
047	-	-	-	-	-	-
048	-	-	-	-	-	-
Dist. 4	-	-	3	6	3	6

APPENDIX TABLE 7
RESIDENTIAL PARKING INVENTORY AND OCCUPANCY (Continued)

Block No.	<u>Garage</u>		<u>Lot</u>		<u>Total</u>	
	Inv.	Occ.	Inv.	Occ.	Inv.	Occ.
050	-	-	-	-	-	-
051	-	-	-	-	-	-
052	-	-	-	-	-	-
053	-	-	-	-	-	-
054	-	-	-	-	-	-
055	-	-	-	-	-	-
056	-	-	-	-	-	-
057	-	-	-	-	-	-
058	-	-	-	-	-	-
Dist. 5	-	-	-	-	-	-
060	-	-	-	-	-	-
061	-	-	-	-	-	-
062	-	-	-	-	-	-
063	-	-	-	-	-	-
064	-	-	-	-	-	-
065	-	-	-	-	-	-
066	-	-	-	-	-	-
067	-	-	8	4	8	4
Dist. 6	-	-	8	4	8	4
070	-	-	-	-	-	-
071	-	-	-	-	-	-
072	-	-	-	-	-	-
073	-	-	-	-	-	-
074	-	-	-	-	-	-
075	-	-	-	-	-	-
Dist. 7	-	-	-	-	-	-
080	-	-	-	-	-	-
081	-	-	-	-	-	-
082	-	-	-	-	-	-
083	-	-	-	-	-	-
084	-	-	-	-	-	-
085	-	-	-	-	-	-
086	-	-	-	-	-	-
087	-	-	-	-	-	-
Dist. 8	-	-	-	-	-	-

APPENDIX TABLE 7
RESIDENTIAL PARKING INVENTORY AND OCCUPANCY (Continued)

Block No.	<u>Garage</u>		<u>Lot</u>		<u>Total</u>	
	Inv.	Occ.	Inv.	Occ.	Inv.	Occ.
090	-	-	-	-	-	-
091	-	-	-	-	-	-
092	-	-	-	-	-	-
093	-	-	-	-	-	-
094	-	-	-	-	-	-
095	-	-	-	-	-	-
096	-	-	-	-	-	-
097	-	-	-	-	-	-
098	-	-	-	-	-	-
099	-	-	-	-	-	-
Dist. 9	-	-	-	-	-	-
100	-	-	-	-	-	-
101	-	-	-	-	-	-
102	-	-	-	-	-	-
103	-	-	-	-	-	-
104	-	-	-	-	-	-
105	-	-	-	-	-	-
Dist. 10	-	-	-	-	-	-
110	-	-	-	-	-	-
111	-	-	-	-	-	-
112	-	-	-	-	-	-
113	-	-	-	-	-	-
114	-	-	-	-	-	-
Dist. 11	-	-	-	-	-	-
Totals	-	-	60	27	60	27

APPENDIX TABLE 8
1977 PARKING EXCESS AND/OR DEFICIENCY

Block No.	Inventory			Demand			Excess And/Or Deficiency		
	L.T.	S.T.	Total	L.T.	S.T.	Total	L.T.	S.T.	Total
010	33	0	33	-	-	-	33	-	33
011	22	0	22	-	-	-	22	-	22
012	36	0	36	-	-	-	36	-	36
013	47	0	47	4	-	4	43	-	43
014	10	11	21	-	-	-	10	11	21
015	30	0	30	4	-	4	26	-	26
016	26	21	47	-	-	-	26	21	47
017	88	16	104	344	24	368	-256	-8	-264
Dist.1	292	48	340	352	24	376	-60	24	-36
020	37	0	37	4	4	8	33	-4	29
021	36	0	36	4	-	4	32	-	32
022	48	20	68	4	9	13	44	11	55
023	6	42	48	13	-	13	-7	42	35
024	13	95	108	9	8	17	4	87	91
025	25	39	64	25	9	34	-	30	30
026	106	54	160	240	33	273	-134	21	-113
027	129	51	180	101	20	121	28	31	59
028	27	74	101	195	40	235	-168	34	-134
Dist.2	427	375	802	595	123	718	-168	252	84
030	41	0	41	4	-	4	37	-	37
031	22	0	22	4	-	4	18	-	18
032	24	0	24	4	-	4	20	-	20
033	26	0	26	4	-	4	22	-	22
034	44	0	44	4	-	4	40	-	40
035	31	10	41	17	8	25	14	2	16
036	56	65	121	118	50	168	-62	15	-47
Dist.3	244	75	319	155	58	213	89	17	106
040	26	0	26	-	-	-	26	-	26
041	47	0	47	4	-	4	43	-	43
042	21	114	135	-	-	-	21	114	135
043	20	41	61	-	-	-	20	41	61
044	0	23	23	25	-	25	-25	23	-2
045	64	97	161	29	-	29	35	97	132
046	8	147	155	-	4	4	8	143	151
047	0	120	120	-	4	4	-	116	116
048	0	40	40	4	-	4	-4	40	36
Dist.4	186	582	768	62	8	70	124	574	698
050	0	105	105	17	18	35	-17	87	70
051	78	82	160	83	22	105	-5	60	55
052	125	59	184	212	35	247	-87	24	-53
053	0	56	56	21	5	26	-21	51	30
054	37	32	69	216	14	230	-179	18	-161
055	47	98	145	155	67	222	-108	31	-77
056	28	54	82	54	9	63	-26	45	19
057	5	85	90	133	76	209	-128	9	-119
058	5	25	30	87	29	116	-82	-4	-86
Dist.5	325	596	921	978	275	1,253	-653	321	-332

APPENDIX TABLE 8
1977 PARKING EXCESS AND/OR DEFICIENCY (Continued)

Block No.	Inventory			Demand			Excess And/Or Deficiency		
	L.T.	S.T.	Total	L.T.	S.T.	Total	L.T.	S.T.	Total
060	0	88	88	124	39	163	-124	49	-75
061	0	49	49	240	54	294	-240	-5	-245
062	95	134	229	13	-	13	82	134	216
063	100	110	210	-	-	-	100	110	210
064	43	82	125	220	114	334	-177	-32	-209
065	0	136	136	25	9	34	-25	127	102
066	0	124	124	17	-	17	-17	124	107
067	71	27	98	13	-	13	58	27	85
Dist.6	309	750	1,059	652	216	868	-343	534	191
070	44	0	44	-	-	-	44	-	44
071	42	52	94	-	13	13	42	39	81
072	41	0	41	-	-	-	41	-	41
073	86	4	90	362	86	448	-276	-82	-358
074	24	0	24	-	4	4	24	-4	20
075	201	7	208	-	-	-	201	7	208
Dist.7	438	63	501	362	103	465	76	-40	36
080	0	55	55	17	5	22	-17	50	33
081	76	64	140	71	46	117	5	18	23
082	156	198	354	99	34	133	57	164	221
083	35	17	52	4	5	9	31	12	43
084	0	150	150	54	16	70	-54	134	80
085	35	58	93	9	17	26	26	41	67
086	20	39	59	-	-	-	20	39	59
087	12	41	53	13	-	13	-1	41	40
Dist.8	334	622	956	267	123	390	67	449	566
090	53	0	53	8	-	8	45	-	45
091	53	0	53	4	-	4	49	-	49
092	26	0	26	8	-	8	18	-	18
093	81	74	155	25	-	25	56	74	130
094	87	60	147	50	-	50	37	60	97
095	564	0	564	-	4	4	564	-4	560
096	25	30	55	25	16	41	-	14	14
097	170	0	170	9	4	13	161	-4	157
098	150	96	246	4	-	4	146	96	242
099	150	0	150	-	-	-	150	-	150
Dist.9	1,359	260	1,619	133	24	157	1,226	236	1,462
TOTALS	3,914	3,371	7,285	3,556	954	4,510	358	2,417	2,775

APPENDIX TABLE 9
1987 PARKING EXCESS AND/OR DEFICIENCY

Block No.	Inventory			Demand			Excess And/Or Deficiency		
	L.T.	S.T.	Total	L.T.	S.T.	Total	L.T.	S.T.	Total
046	8	137	145	-	4	4	8	133	144
047	0	111	111	-	4	4	0	107	107
048	0	32	32	4	-	4	-4	32	28
053	0	56	56	153	5	158	-153	51	-102
054	37	32	69	282	14	296	-245	18	-227
056	28	54	82	54	18	72	-26	36	10
057	5	85	90	133	89	222	-128	-4	-132
058	5	25	30	87	35	122	-82	-10	-92
080	0	33	33	17	5	22	-17	28	11
081	76	38	114	71	46	117	5	-8	-3
082	156	189	345	99	34	133	57	155	212
083	35	17	52	136	5	141	-101	12	-89
084	0	143	143	54	16	70	-54	127	73
085	35	50	85	9	17	26	26	33	59
087	0	30	30	13	-	13	-13	30	17



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