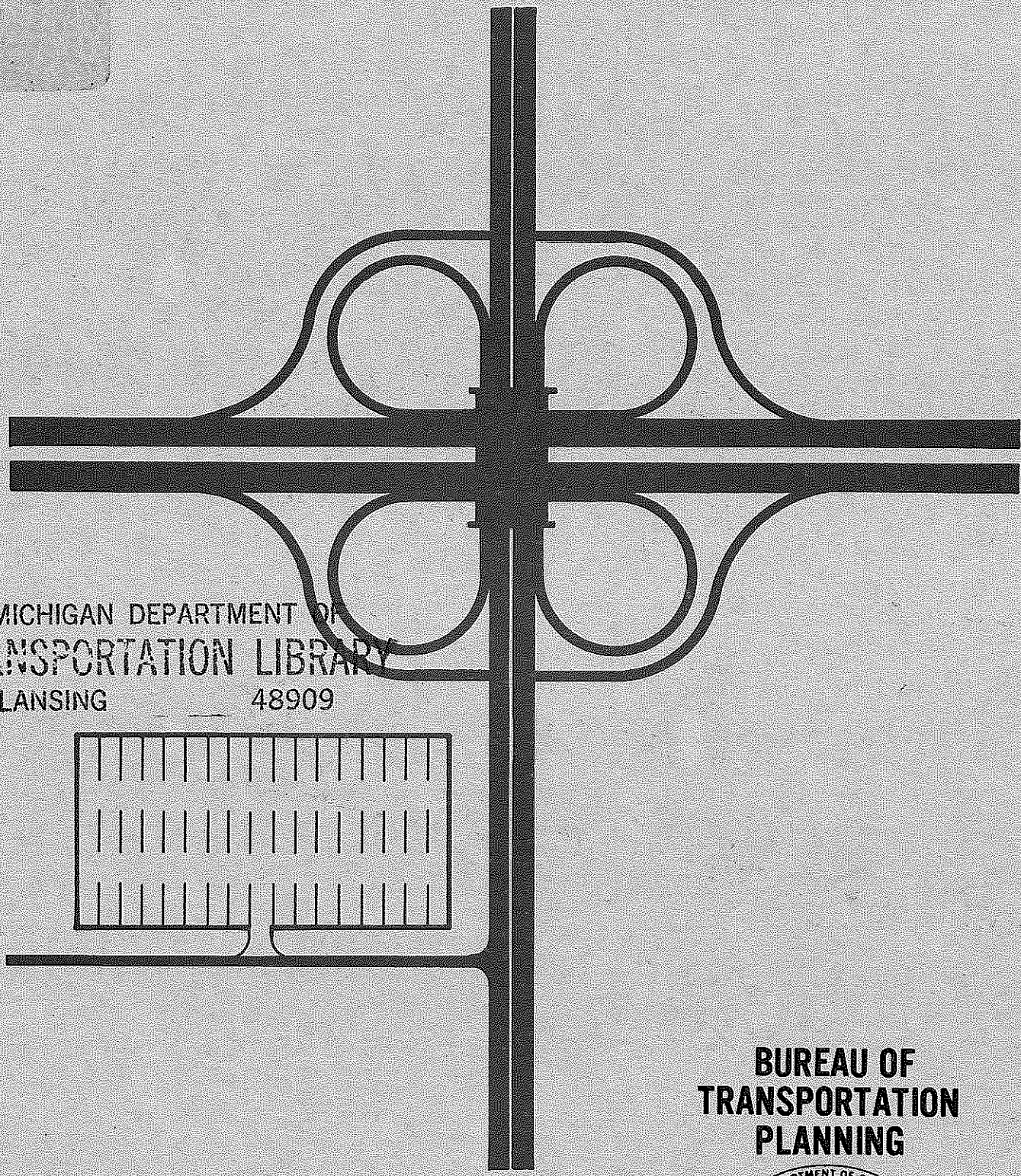


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RURAL CARPOOL PARKING IN MICHIGAN



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BUREAU OF
TRANSPORTATION
PLANNING



STATE OF MICHIGAN

MICHIGAN DEPARTMENT
OF
STATE HIGHWAYS AND TRANSPORTATION

RURAL CARPOOL PARKING IN MICHIGAN

JANUARY 1978

MICHIGAN DEPARTMENT OF
TRANSPORTATION LIBRARY
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**THIS REPORT WAS PREPARED BY THE PLANNING SECTION,
HIGHWAY PLANNING DIVISION OF THE BUREAU OF
TRANSPORTATION PLANNING IN COOPERATION WITH
THE FEDERAL HIGHWAY ADMINISTRATION.**

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CHAPTER 1

PROGRAM BACKGROUND

The concept of a rural carpool parking lot program came under consideration late in 1973 when the oil embargo caused increasing concern with energy conservation. The onset of the energy crisis led to the development of a number of ride sharing programs such as "park and ride" which provides for automobile parking at commuter transit stops, and the State Employees Carpool Program.

Reports from District Engineers indicated that groups of cars were being parked along State Highways at numerous locations throughout the state. Reports of this carpooling and possible safety problems prompted the Traffic and Safety Division of the Bureau of Highways to request information concerning the location of uncontrolled parking and possible sites for carpool parking lots. The information was then turned over to the Bureau of Transportation Planning which developed the pilot program of commuter carpool parking lots.

Prior to development of the pilot projects, it was necessary to determine the legality of such a program.

Article V, Section 28 of the Michigan Constitution of 1963 in part reads:

"There is hereby established a state highway commission, which shall administer the state highway department and have jurisdiction and control over all state trunkline highways and appurtenant facilities, and such other public works of the state, as provided by law."

Appurtenant facilities are those facilities that are related, in some measure, to state trunkline highways. Under Act 295, P.A. 1966, as amended, MCLA 1970 P.P. 213.361, the Michigan State Highway Commission may acquire land . . . to . . . provide for parking spaces

The Attorney General of the State of Michigan has informed the Department of State Highways and Transportation of the following:

1. The department can construct and maintain parking lots.
2. The department would not be liable for stolen property or damage to vehicles.
3. The department must either own or lease the property on which a parking lot is constructed; it cannot maintain a lot on private property.

Once the legal questions were resolved, additional information was requested from the districts including; exact site location, construction and maintenance cost estimates. A program of 51 possible sites throughout the state was developed with an estimated cost of \$90,000. The program was approved by the Commission on August 14, 1974. Among the recommendations adopted by the Commission were that:

1. The sites reported by the District Engineers be utilized as the locations for the lots.
2. Construction, including signing, would be the responsibility of the District Engineer.
3. Projects be financed completely with state funds; no federal aid would be used.
4. A program evaluation be conducted to determine lot usage, need for additional sites, and overall value of the program.

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Construction of the lots was executed by the various districts. The original lots were of a relatively small size (10-25 vehicles) and were gravel surfaced with appropriate signing. Since completion of the original construction program, several of the lots have been enlarged and surfaced, and a number of the original sites relocated to larger areas as the demand increased. Thirty-six lots were constructed by the end of 1975. Table 1 indicates lot construction since the program's inception in 1974.

STATEWIDE CARPOOL PARKING LOT PROGRAM					
LOT OPENINGS					
YEAR					
DISTRICT	1974	1975	1976	1977	PROG 1978
1	-	8	2	1	3
2	-	-	1	1	-
3	-	1	1	2	1
4	-	-	-	-	-
5	7	2	5	3	1
6	1	2	1	3	6
7	3	-	2	5	3
8	-	9	3	9	4
M	-	3	-	-	6
SUB- TOTAL	11	25	15	24	
TOTAL		36	51	75	
(1) INCLUDES INCOMPLETE-IN USE LOTS				AS OF JAN. 1, 1978	

TABLE 1

CHAPTER 2

PROGRAM GOAL

The goal of the carpool parking lot program as established and adopted is as follows:

GOAL: To encourage and facilitate carpooling for the purposes of energy conservation and the realization of the social, economic, and environmental benefits associated with reduced vehicle usage.

The main thrust behind creation of the program was fuel conservation. Fulfillment of this single purpose would largely justify the program.

However, reduced vehicle usage, in addition to fuel conservation, produces a broad range of benefits, most of which are extremely difficult to measure. These benefits include, but are not limited to, reduced air and noise pollution, less congested highways, reduced parking needs in urban areas, and safer carpool parking locations. The carpool parking lot program is of a very small scale when the reduction in vehicle usage resulting from carpooling is compared with the total number of vehicles in use throughout the state. For this reason, it is extremely difficult to measure the impact of the program in terms of its social, economic, and environmental benefits, other than fuel conservation.

The savings to an individual motorist (see Table 2) can amount to a significant amount each year. It does not require very many parked vehicles to justify the continuation of this program. The management of the department feels that this program has more than proven its worth and should be continued on an expanded basis.

SAMPLE SAVINGS FORMULA FOR CARPOOLING	
1 person per vehicle	Sample
# of miles from lot-work-lot	80
× 5 = miles per week	400
× 50 weeks = miles per year	20,000
÷ M.P.G. (15) = # of gallons used	1,333
× Cost of gasoline	×.60
= Gasoline cost of commuting to work	\$799.80
÷ Number in carpool	4
= Cost of carpooling per person	\$199.95
= Amount saved by carpooling per person	\$589.85

TABLE 2

CHAPTER 3

SITE CONSIDERATIONS

The following criteria are suggested as a guide in evaluating the feasibility of excess property parcels as potential carpool parking lots. Although the majority of the carpool parking lots are built on excess highway property, the same criteria would apply to sites where the leasing or buying of property is under consideration.

LOCATION

Determining the feasibility of a lot site should be based on the type of "commuter accommodation" that is under consideration and the parcels' proximity to an urban area. "Park and Ride" (transit) lots should be close enough to an urbanized area to receive bus service. Carpool parking lots should be far enough removed from urbanized areas to result in substantial fuel savings.

TOPOGRAPHY

The physical features of the parcel should be examined to ascertain the natural adaptability of the site for carpool parking. Adequate drainage is of prime importance in the site selection process.

COST OF CONSTRUCTION

The ratio of construction costs to anticipated usage should be considered in site evaluation. Any special maintenance costs necessary to keep the lot suitable for parking is another factor for consideration.

FUTURE UPGRADING OF THE ROADWAY

State and local plans for improvements to roadways which might require the use of the lot site should be considered. In other words, a carpool parking lot would probably be a proper interim use of land that is being held for future roadway improvement but the extent of development of the lot and the search for alternative sites should be based on the length of time before the roadway improvement is to be implemented.

ACCESS

The lot site must have access to a roadway and should not create any safety problems. Access should be obtained through purchase of an easement or additional land if the site is highly desirable for parking and existing access is not available.

PARCEL SIZE

The size of the parcel utilized for a lot site should be based on anticipated parking demand. An acre of land can provide parking spaces for approximately 100 vehicles (see Appendix F for examples of lot designs). In some instances, lots may be designed to hold less than the anticipated number of vehicles if available right-of-way is limited. In this case, additional smaller lots may be constructed in the same service area. This condition often occurs in freeway interchange areas where lot sizes may be dictated by the shape of excess highway property parcels.

LAND VALUE

The value of land if it were sold for another purpose should be given consideration. Valuable land should not be withheld from the tax rolls merely to benefit a few carpoolers. If a particular parcel of land does not have a high value, reserving such a parcel for parking purposes in order to conserve fuel may be in the best public interest.

ALTERNATE SITES

Other existing parking facilities (private lots, shopping centers) should be inventoried and analyzed before deciding to construct a parking lot at any given location.

These criteria are mentioned only as a guide and are not an exhaustive list. **Before weighing the above criteria, the key factor to consider is parking demand or potential demand.** A recommendation that a particular parcel be developed into a parking lot should include a justification for such recommendation. A carpool parking lot recommendation might be justified by observation of commuter parking in clear-vision areas or shoulders, survey results, public hearing testimony, etc.

CHAPTER 4

CONTINUING PROGRAM

The pilot program proved quite successful. Occupancy rates increased as the public became aware of the program and the resulting fuel savings. As demand increased, new lots were constructed, increasing the total capacity (see Table 3).

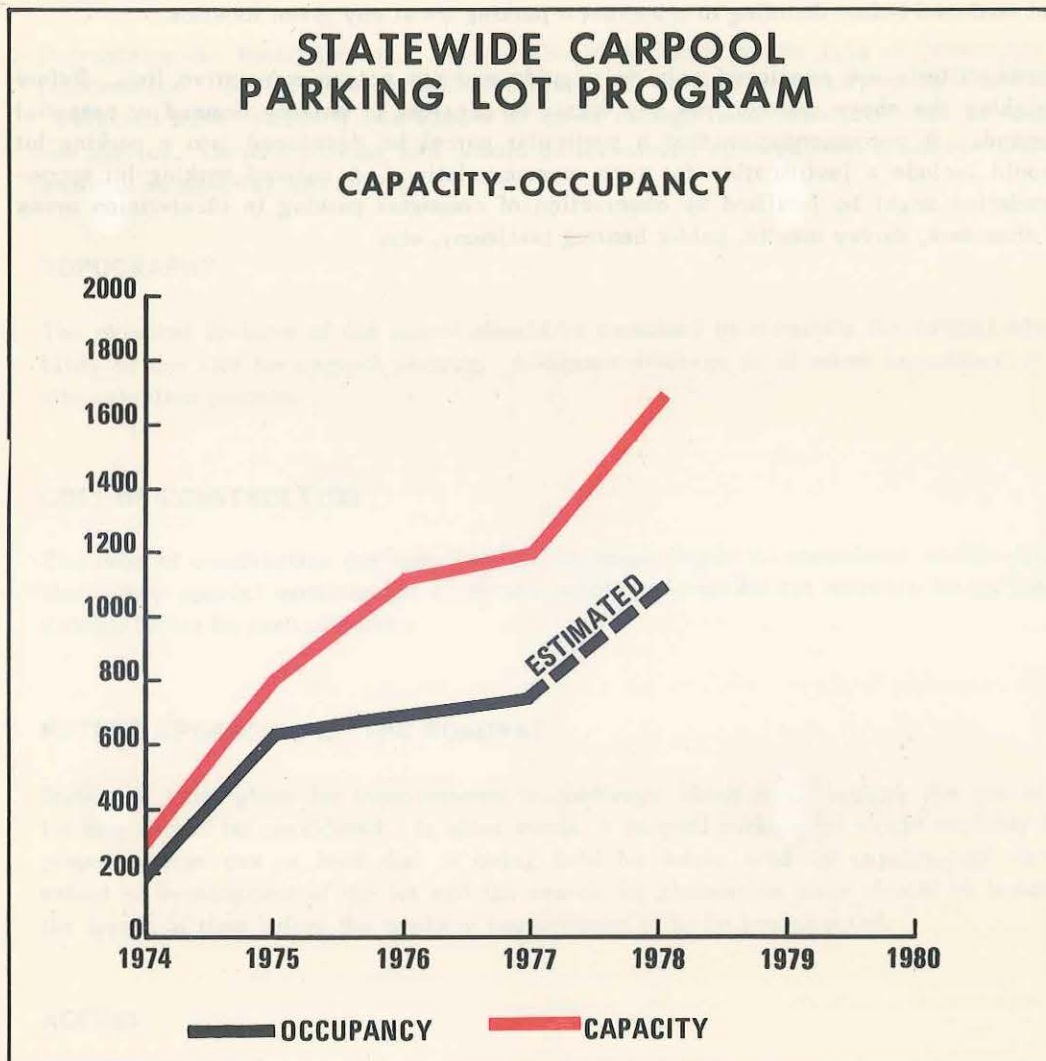


TABLE 3

The planning process for new lots begins with requests from the Department's District Offices, public agencies, Legislators, and individual citizens. These requests are reviewed by the Planning staff in accordance with the site selection criteria discussed earlier. If the request is justified, then funds are provided for construction.

All operating lots are continuously monitored to ascertain the amount and type of use and the physical condition of the facility. Appendix C contains a sample of the postcard survey form used to provide origin-destination and other user data and to solicit comments from lot users. Appendix D is a sample field survey form for evaluating the physical condition of the lot. Any significant problems are referred to the District Maintenance personnel for appropriate action.

The following are some additional items that should be taken into consideration in the planning and operation of the carpool parking lot program:

1. Lots should be properly maintained, including the provision of frequent snow removal, trash barrels, and legitimate entrances and exits. The lots should be designed to encourage parking in an orderly manner. The smaller lots generally have a gravel surface while the larger ones (over 50) may be paved, fenced, and possibly lighted.
2. Law enforcement agencies; the State Police, sheriff departments, and local police agencies should be requested to include these parking lots in their routine patrols.
3. All excess property should be reviewed with the potential for future use as a parking facility in mind.
4. All Engineering Route Location reports should be reviewed with the possibility of including parking areas within selected interchange areas on future freeways and/or areas adjacent to major intersections.
5. Major rest areas on both freeways and free access highways should **not** be used for parking lots. However, small rest areas could be considered if they are seldom used by tourists.
6. To prevent possible safety hazards to motorists, all construction should adhere to accepted geometric standards.
7. Newspaper publicity should be utilized to promote the use of the carpool lots. (See Appendix A for a sample press release.)
8. The possibility of lease arrangements with private businesses or individuals (such as abandoned gas stations, shopping centers, or unused land adjacent to roadway) should be investigated. Usually, private owners can recognize the advantage of carpoolers bringing in additional revenue. Generally, lease arrangements are not unreasonable, especially if the other party is another public agency.
9. Finally, a continuing field survey should be made of all freeway interchanges and major highway intersections. This survey should indicate whether suitable property is available for a carpool parking lot should the need arise. Also, it should be noted if there is any evidence of carpool parking in the area.

The preceding report is intended to provide insight into the carpool parking program as it exists in Michigan. Attached to this report are various samples of the forms, charts, design layouts, etc., that are used in the daily operation of the program.

Additional copies of this report may be obtained by contacting:

William J. Schram
Program Manager – Statewide Carpool Parking Lot Program
Highway Planning Division
Department of State Highways and Transportation
P.O. Box 30050
Lansing, Michigan 48909

APPENDICES

- A. Sample Press Release
- B. Lot Identification Signs
- C. Postcard Survey and Analysis Sample
- D. Sample Field Survey Sheets
- E. Sample Design of 98-Car Parking Lot
- F. Sample Sketch Locations of Various Carpool Lots

Inexpensive car pool parking lots at selected highway intersections throughout Michigan provide the potential for enormous savings in fuel and costs for motorists who use them, according to surveys by the Department of State Highways and Transportation.

"Our surveys reveal that motorists using existing car pool parking sites along state highways are saving from \$100 to \$600 a year on gasoline alone," reported State Highways and Transportation Director John P. Woodford.

As one of several experiments to conserve fuel in the wake of the 1973 oil embargo and energy crisis, the State Highway Commission directed the Department to develop already owned right-of-way property as sites for car pool parking lots.

Fifty-seven sites in 21 counties now are in use, and with one exception, all are "rough finished" with only simple grading, graveling, fencing and signing. The one exception also is the largest, a paved lot capable of accommodating 100 vehicles in the northeast quadrant of Interstate 96 Freeway and Milford Road west of Wixom in Oakland County.

Capacity of the other 56 sites ranges from 10 to 60 vehicles.

The Department has scheduled 31 other sites for development and another 43 sites are under study. All are located at intersections or interchanges involving state highways, where motorists already are using right-of-way to park and double-up with other motorists, mostly for home-to-job trips.

The parking sites are unattended, with random parking and no cost to users. Increasing usage and actual savings, revealed in Department surveys, "have proved this to be a very successful experiment," Woodford said.

"Looking down the road a few years," Woodford added, "these parking sites will prove to be a highly valuable public service in conserving gasoline as well as convenience to car-poolers. We believe they are well worth the minimal investment."

In addition to the initial development of sites on state-owned property, the Department also maintains the sites year around, including winter snow-plowing. Surveys have shown steady increase in usage since the first sites were developed four years ago.

A typical location currently being studied for development is the intersection of US-27 and M-57, 30 miles north of Lansing in Gratiot County. Surveys indicate that pooling from that point to Lansing could save between 7,500 and 12,000 miles a year for each driver, with annual savings ranging from \$300 to \$480 in gasoline costs, depending on the number of drivers in a pool. Annual savings up to \$600 have been reported for greater distances.

In addition to the car pool parking sites, no longer an experiment, the Highway Commission last month approved funding for an experimental park-and-ride program in southeastern Michigan.

Initially, two parking lots to serve bus riders as well as car poolers will be developed at I-75 and Big Beaver Road in Troy, and at M-85 (Fort Road) and Gibraltar Road in Gibraltar. Both will be paved and lighted and have shelters for users.

These lots will provide free parking for motorists who car-pool or board buses, which will serve the lots.

APPENDIX A

LOT IDENTIFICATION SIGNS



PUBLIC PARKING FOR CAR POOLS
COURTESY OF
MICHIGAN
DEPARTMENT OF STATE HIGHWAYS
AND TRANSPORTATION

**TYPICAL IN-LOT
IDENTIFICATION SIGN**

**TYPICAL
ON-ROAD SIGN**




**TYPICAL
ON-ROAD SIGN**



PUBLIC
CAR POOL
PARKING

POSTCARD SURVEY AND ANALYSIS SAMPLE

CARPOOL PARKING POSTCARD SURVEY

BUSINESS REPLY MAIL <i>No postage stamp necessary if mailed in the United States</i>	FIRST CLASS PERMIT NO. 1312 LANSING, MICH.
POSTAGE WILL BE PAID BY - MICHIGAN DEPT. OF STATE HIGHWAYS & TRANSPORTATION Bureau of Transportation Planning P. O. Box 30050 Lansing, Michigan 48909 ATTN: Planning Section	

To help us evaluate and improve our carpool parking lot program, we kindly ask you to fill out and mail this postpaid card:

Trip Origin (City or Township) _____
Miles from home to lot _____
Trip Destination (or work place) _____
Miles from lot to destination _____
Number of days per week car is parked here _____
Miles per gallon of your car _____
How many in carpool _____
Purpose of trip _____
Comments: _____



OFFICE MEMORANDUM

DATE: April 19, 1977

TO: FILES

FROM: William J. Schram
Planning Section

SUBJECT: Carpool Parking Survey
I-96 @ Spencer Road – Livingston County

On March 2, 1977, survey cards were placed on the windshield of all vehicles parked at this location. 54 cards were placed and 37 or 68% were returned.

ANALYSIS

Trip Length

The average trip length from home (origin) to the lot is 8.7 miles. The average trip length from the lot to the trip destination (workplace) is 37.4 miles. Thus, the average daily round trip mileage of commuters using this lot is 92.2 miles.

Trip Purpose

The trip purpose in all cases was work.

Number in Carpool

The average number of persons per vehicle is 4. However, two responses indicated they were members of a 13 person vanpool. Without the 2 vanpool figures, the average occupancy was 3.5 persons per vehicle.

Frequency of Use

The respondents indicated that they use the lot on an average of 4.4 days per week

Origins and Destinations

The trip origins and destinations are plotted on the attached map. The findings are as follows:

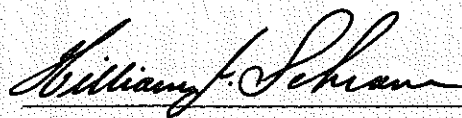
Origins	Vehicles	Percent
Brighton	12	32.5%
Brighton Twp.	3	8.1%
Hartland Twp.	2	5.4%
Green Oak Twp.	2	5.4%
Detroit	1	2.7%
Whitmore Lake	1	2.7%
Hamburg Twp.	1	2.7%

Memorandum to FILES
 April 19, 1977
 Page Two

Genoa Twp.	3	8.1%
Howell	6	16.2%
Marion Twp.	1	2.7%
Cohoctah Twp.	1	2.7%
Unadilla Twp.	1	2.7%
Williamston	1	2.7%
South Lyons	1	2.7%
Highland Twp.	1	2.7%
	<u>37</u>	<u>100.0%</u>
Destinations	Vehicles	Percent
Unknown	1	2.7%
Detroit area	28	75.7%
Ann Arbor area	4	10.8%
Lansing area	4	10.8%
	<u>37</u>	<u>100.0%</u>

The origins of the commuters using this parking lot indicate that approximately one-third are from the immediate area (Brighton). The Howell area is next highest (16.2%) followed by Brighton and Genoa Townships with 8.1% each. The remaining origins are spread throughout the county. The destinations of carpoolers using this lot are overwhelmingly to the Detroit area (75%) followed by the Ann Arbor and Lansing areas with 10% each.

Attached are comments received from carpoolers, a summary analysis sheet and an origin-destination map.



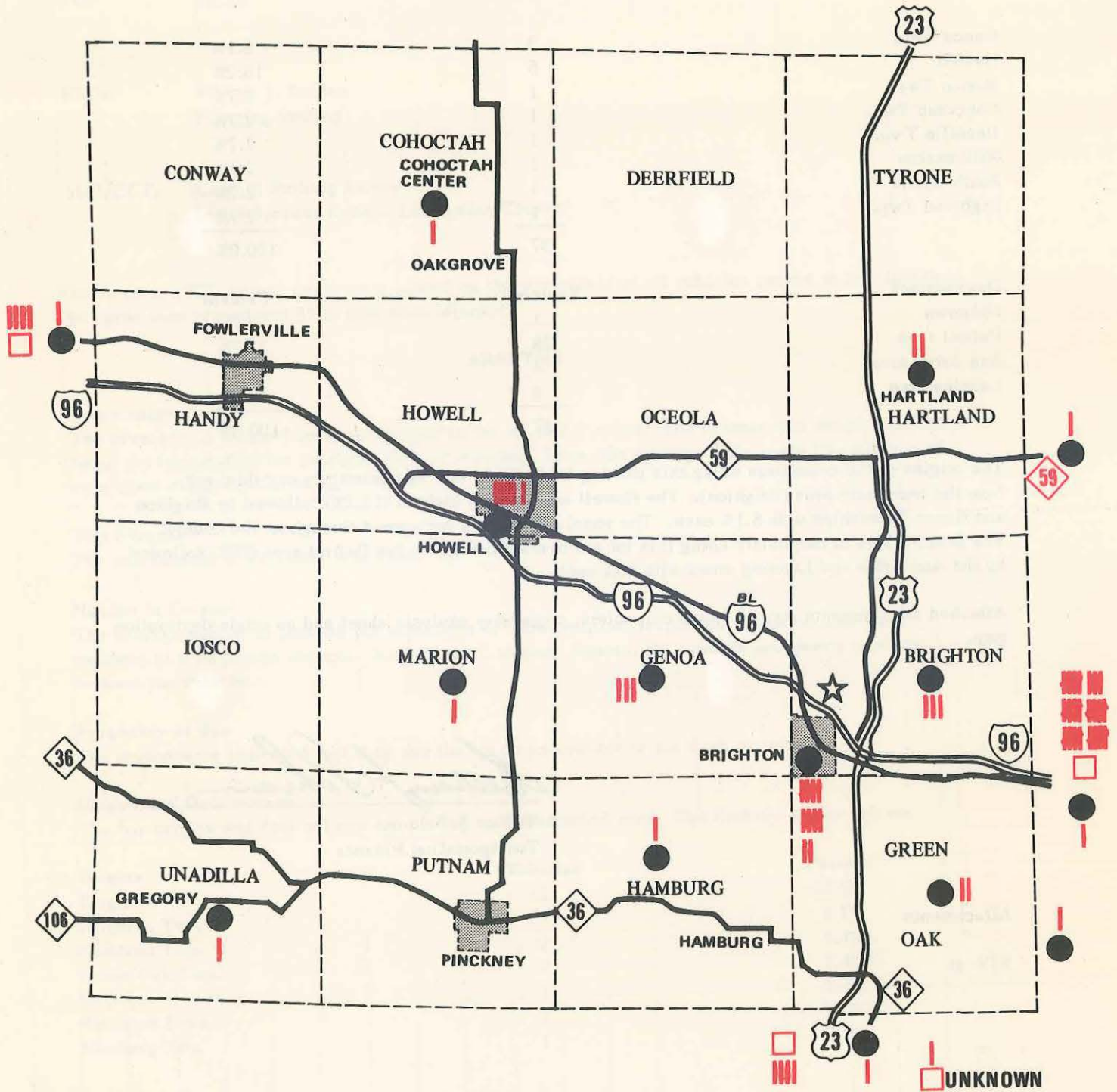
William J. Schram
 Transportation Planner

Attachments

WJS: gi

CARPOOL PARKING ANALYSIS

I-96 @ SPENCER ROAD



- ☆ CARPOOL LOT
- ORIGIN (I-NO'S. OF CARS)
- DESTINATIONS

TRIP ORIGIN	MILES TO LOT	TRIP DESTINATION	MILES FROM LOT	NO. DAYS CAR AT LOT	MILES PER GALLON	NO. IN CARPOOL	TRIP PURPOSE
Brighton	3	Plymouth	27	5	12	13 ⁽¹⁾	Work
Brighton	1	Milford	12	2.5	13	2	Work
Hamburg Twp,	6	Lansing	45	4	20	4	Work
Genoa Twp.	4	Ann Arbor	22	3.5	14	4	Work
Brighton	1.5	Ann Arbor	25	3	15	3	Work
Gregory	25	Unknown	45	5.5	22	4	Work
Howell	15	Redford	35	3	15	3	Work
South Lyons	15	Lansing	45	5	12	4	Work
Green Oak Twp.	3	Southfield	30	3	31	3	Work
Brighton	3	Detroit	42	5	14	4	Work
Williamston	30	Livonia	30	3.5	12	4	Work
Brighton	4	Highland	38	4	20	4	Work
Brighton Twp.	5	Dearborn	42	3	16	3	Work
Brighton Twp.	1	Detroit	40	3	30	2	Work
Howell	5	Livonia	35	4	12	3	Work
Green Oak Twp.	2	Dearborn	38	5.5	13	3	Work
Howell	10	Dearborn	40	4	13	5	Work
Brighton	5	Ann Arbor	35	5	12	5	Work
Detroit	35	Lansing	50	5	30	3	Work

TRIP ORIGIN	MILES TO LOT	TRIP DISTINATION	MILES FROM LOT	NO. DAYS CAR AT LOT	MILES PER GALLON	NO. IN CARPOOL	TRIP PURPOSE
Brighton	4	Southfield	30	6	12	2	Work
Brighton	5	Detroit	40	5	23	3	Work
Howell	10	Wayne	48	5	30	2	Work
Brighton Twp.	2	Dearborn	47	6	10	4	Work
Marion Twp.	8	Detroit	50	6	13	4	Work
Hartland Twp.	12	Dearborn	38	5	20	3	Work
Hartland	8	Detroit	32	4	15	6	Work
Highland Twp.	15	Detroit	60	7	10	4	Work
Whitmore Lake	7	Lansing	45	2	14	3	Work
Howell	10	Highland	45	5	20	5	Work
Brighton	7	Detroit	32	3	15	3	Work
Genoa Twp.	6	Ann Arbor	30	5	15	5	Work
Howell	8	Plymouth	31	3	11	2	Work
Brighton	3	Plymouth	27	5	10	13 ⁽¹⁾	Work
Cohoctah Twp.	24	Livonia	26	6	13	4	Work
Brighton	3	Detroit	50	2.5	10	2	Work
Howell	12	Livonia	26	5	22	4	Work
Genoa Twp.	6	11 Mile @ Van Dyke	52	5	14	3	Work
TOTAL	323.5		1,385	162	603	(148) (122)	Work
AVERAGE	8.7		37.4	4.4	16.3	4.0 3.5	

(1) 13 in a bus

TOTAL ONE-WAY MILES ---- 1,708.5
AVERAGE 1 WAY TRIP ---- 46.1
AVERAGE ROUND TRIP ---- 92.2

COMMENTS 1-96 @ SPENCER ROAD

Nice place to park.

It would be helpful if lighting was provided at the carpool lot during winter months. (security is a problem). Why doesn't the state think about using large vans or buses since many state employees who work in Lansing use these lots.

This lot seems too small for the volume of cars. Also, the shape of the lot is rather inefficient.

Appreciate the parking very much. Lots could have better police patrols.

Lot was kept in good shape this winter. Hope it can be kept the same way when it thaws.

The lots need to be expanded in size and better maintained. What about some kind of van or bus service which would stop at cp lots and take people to work.

We like the lot - 1000% improvement over prior facilities, which were -0-. It could be improved with lighting and paving.

Need resurfacing - too muddy.

All members of my car pool appreciate the new parking facilities.

Also use lot week-ends for trips into city for bowling & shopping. 4 people ride - also would like lot black topped & more of them or bigger.

The lot provides the three of us to get to & from work w/limited expense - love it - Thanks.

In view of the high volume of cars the Spencer Rd. carpool lot receives, could it possibly be paved?

Sometimes, the lot gets quite crowded.

Please **pave** or provide daily maintenance during spring or inclement weather.

To have lot check by State Police, Because things and cars have been stolden.

To work for a living

Please keep up your excellent work on this car pool area. Very appreciative.

I must say that the Spencer exit lot was kept in good condition this winter. Thank you.

Carpool lot program is one of the best state programs. One carpool member had her car broken into the other day while it was in the carpool lot. She reported the theft of contents to State Police. Spring mud might be a problem. Lot is crowded. These are comments not complaints.

Point reflectors at entrance with road traffic, they now face toward road, you have a hard time finding entrance now.

Very good parking accomodations, but one suggestion, more road gravel to cover standing water in lot. Thank you.

Parking lot is good idea. Lot needs better surface.

Parking lot needs repair. Deep holes!

A good spot for commutters to meet.

CARPOOL PARKING LOTS FIELD SURVEY

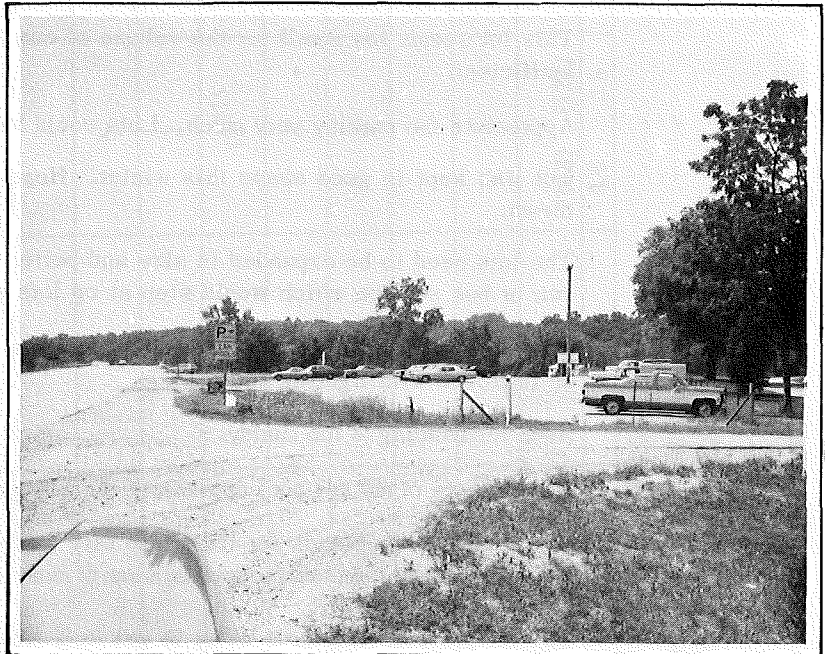
LOCATION: I-96 @ Spencer Rd. - NE Quad. Lot No. 1

DATA COLLECTED BY: WJS

DATE: 8-10-76

DISTRICT NO. 8

COUNTY Livingston



CAPACITY:

40
53

NO. OF CARS USING:

SURFACE TYPE:

GRAVEL

BITUMINOUS

BASE:

GOOD

FAIR

POOR

SURFACE:

GOOD

FAIR

POOR

DRAINAGE:

ADEQUATE

INADEQUATE

LAND USE:

URBAN

RURAL

TERRAIN:

LEVEL

ROLLING

FLORA:

SPARSE

MEDIUM

HEAVY

SIGNED:

YES

NO

COMMENTS:

Lot approaching capacity - need litter barrels

9-77 - over 70 cars in lot - 5 more on shoulders

We will have to build new lot across Spencer Rd. -

gravel this fall (77) & then surface both lots

next fall (78)

APPENDIX D

CARPOOL PARKING LOTS

FIELD SURVEY

LOCATION: I-96 @ Spencer Rd. - SE Quad. Lot No. 2

DATA COLLECTED BY: WJS

DATE: 12-15-77

DISTRICT NO. 8

COUNTY Livingston



CAPACITY:

50
10

NO. OF CARS USING:

SURFACE TYPE:

GRAVEL BITUMINOUS

BASE:

GOOD FAIR POOR

SURFACE:

GOOD FAIR POOR

DRAINAGE:

ADEQUATE INADEQUATE

LAND USE:

URBAN RURAL

TERRAIN:

LEVEL ROLLING

FLORA:

SPARSE MEDIUM HEAVY

SIGNED:

YES NO

COMMENTS:

New lot - just opened within a week - needs signing

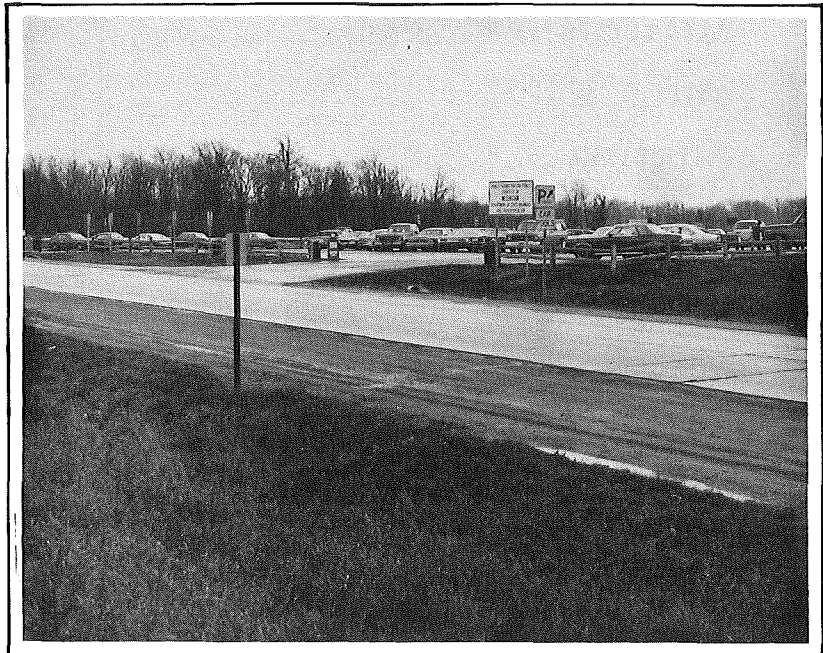
This lot & lot No. 1 across the road are to be surfaced, striped, Fenced, etc.

this coming fall (1978)

APPENDIX D

CARPOOL PARKING LOTS FIELD SURVEY

LOCATION: I-96 @ Milford Rd.
 DATA COLLECTED BY: WJS
 DATE: 11-2-77
 DISTRICT NO. Metro
 COUNTY Oakland



CAPACITY:

98
59

NO. OF CARS USING:

SURFACE TYPE:

GRAVEL

BITUMINOUS

BASE:

GOOD

FAIR

POOR

SURFACE:

GOOD

FAIR

POOR

DRAINAGE:

ADEQUATE

INADEQUATE

LAND USE:

URBAN

RURAL

TERRAIN:

LEVEL

ROLLING

FLORA:

SPARSE

MEDIUM

HEAVY

SIGNED:

YES

NO

COMMENTS:

New lot - just opened

reconstructed from 40 car gravel lot

6 reserved spots for handicapped

2 newspaper racks

5 trash barrels

striped & rustic rural fencing

APPENDIX D

CARPOOL PARKING LOTS

FIELD SURVEY

LOCATION: US-23 @ M-36 SW Quad.

DATA COLLECTED BY: WJS

DATE: 8-10-76

DISTRICT NO. 8

COUNTY Livingston



CAPACITY:

25

NO. OF CARS USING:

15

SURFACE TYPE:

GRAVEL **BITUMINOUS**

BASE:

GOOD **FAIR** **POOR**

SURFACE:

GOOD **FAIR** **POOR**

DRAINAGE:

ADEQUATE **INADEQUATE**

LAND USE:

URBAN **RURAL**

TERRAIN:

LEVEL **ROLLING**

FLORA:

SPARSE **MEDIUM** **HEAVY**

SIGNED:

YES **NO**

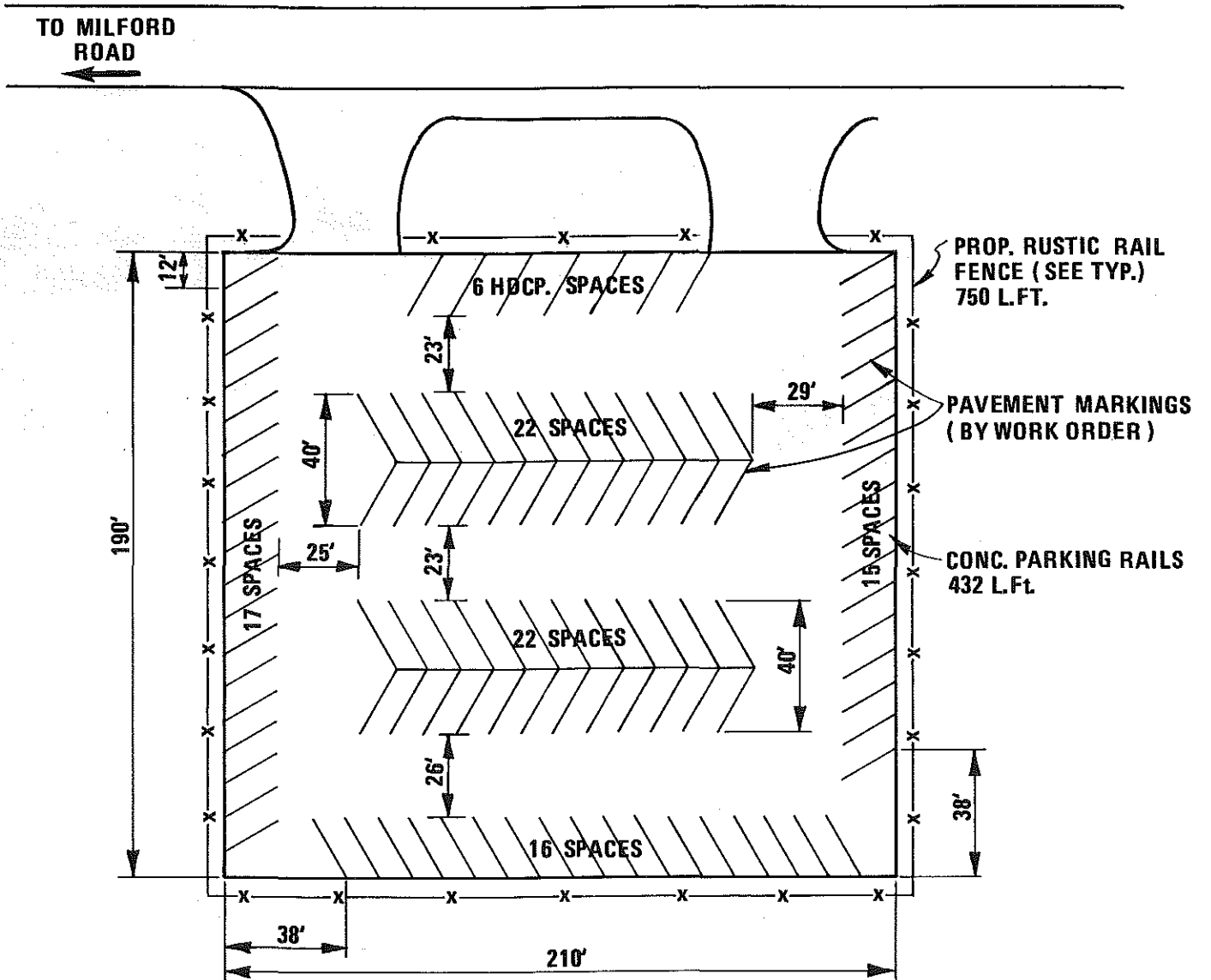
COMMENTS:

lot is teardrop shaped

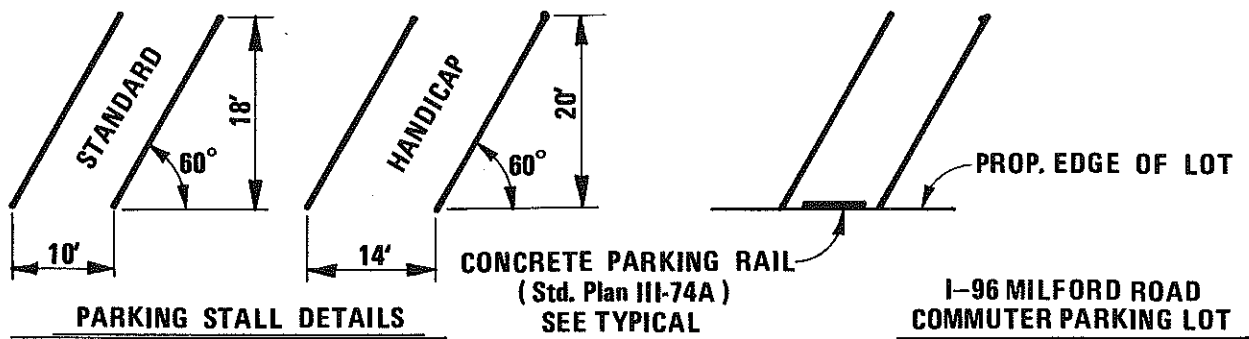
back end of lot is used for storage of guardrails, etc.

APPENDIX D

COMMUTER PARKING LOT I-96 @ MILFORD



NOTE: PAVEMENT MARKING IS NOT A PART OF THIS CONTRACT

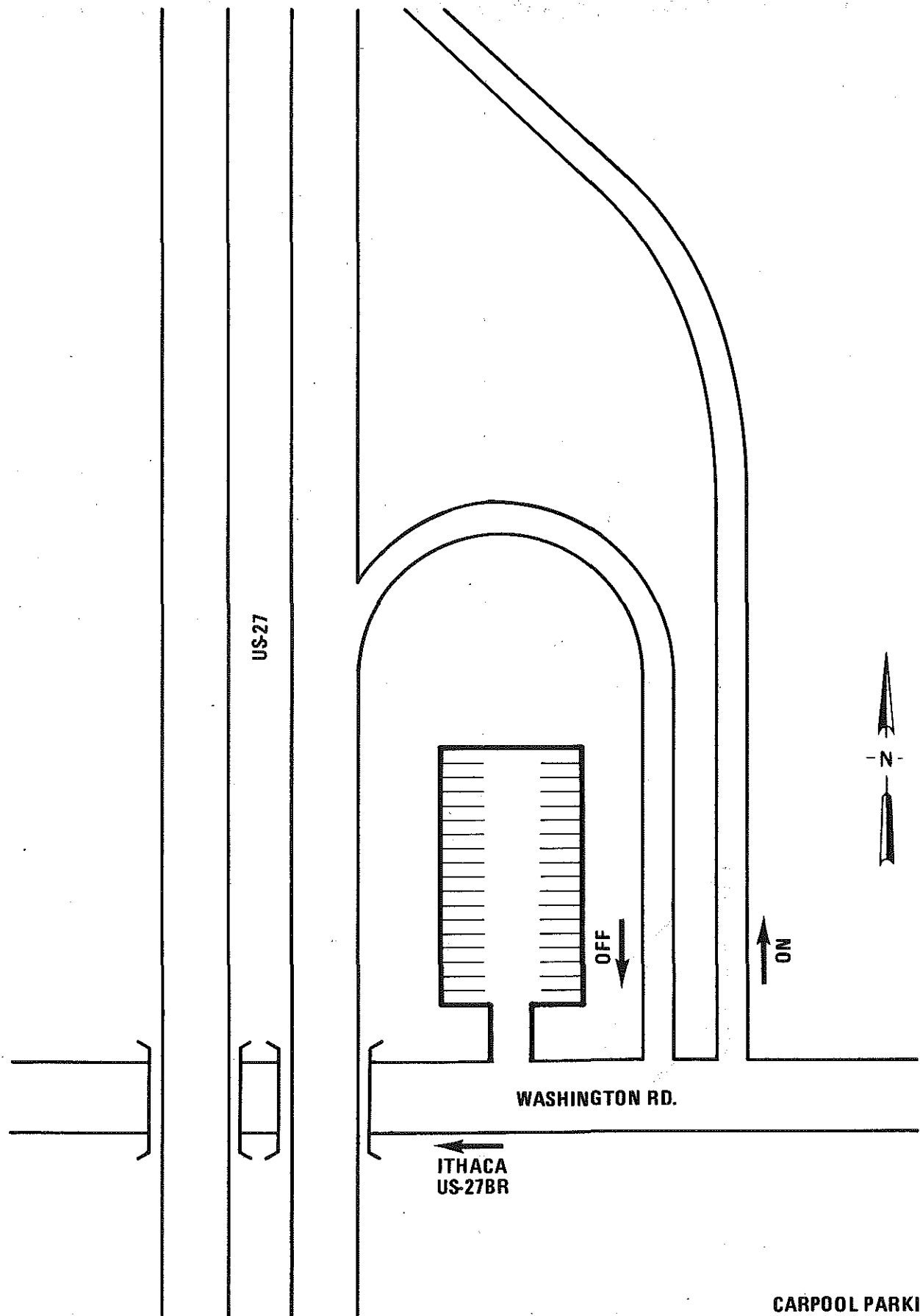


**I-96 MILFORD ROAD
COMMUTER PARKING LOT**

**AREA: 39,900 S.Ft.
CAPACITY: 98 VEHICLES
SIZE: 190'X 210'**

APPENDIX E

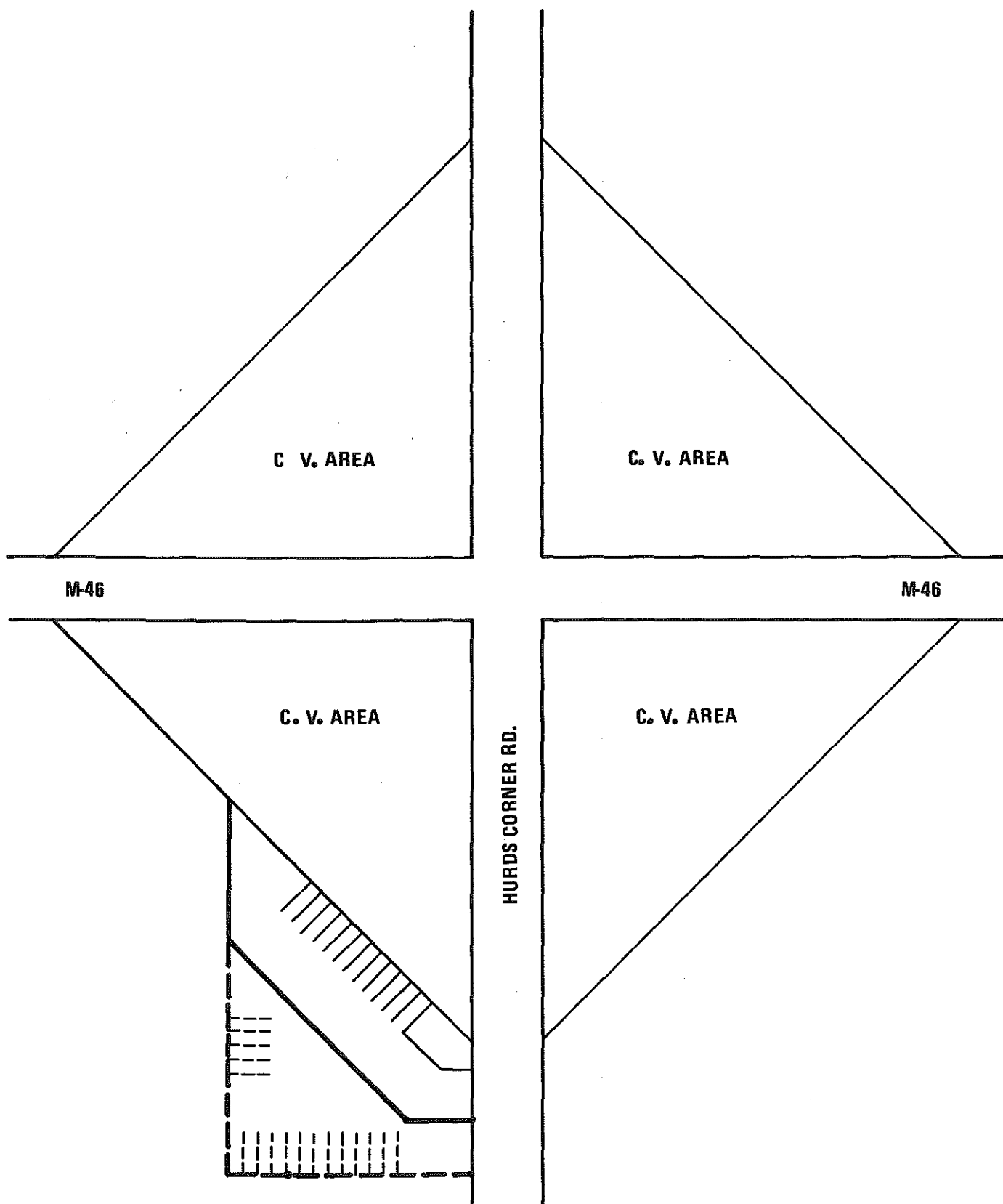
CARPOOL PARKING LOT US-27 @ US-27BR GRATIOT, COUNTY



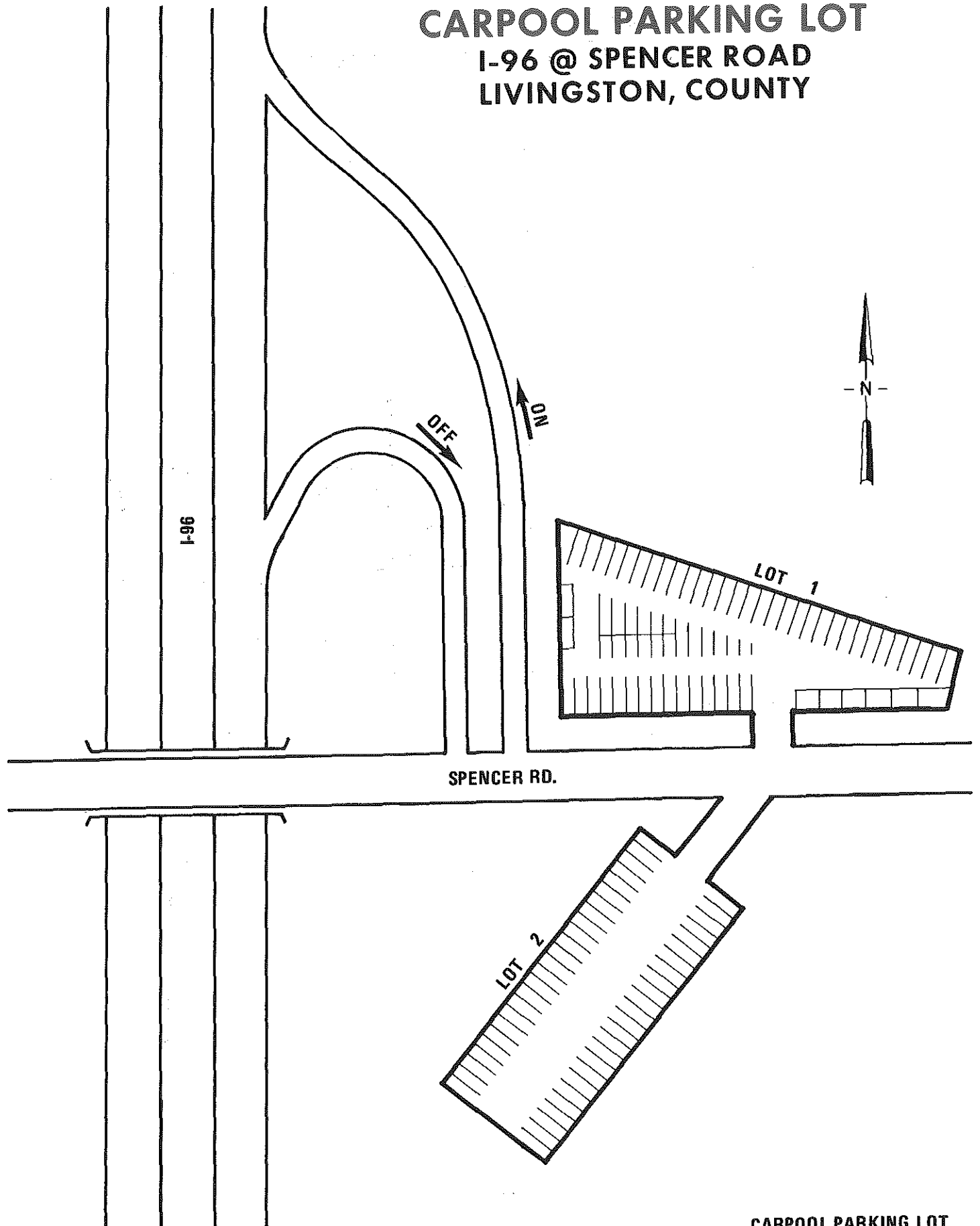
APPENDIX F

CARPOOL PARKING LOT
US-27 @ US-27BR
GRATIOT COUNTY

CARPOOL PARKING LOT M-46 @ HURDS CORNER ROAD TUSCOLA, COUNTY

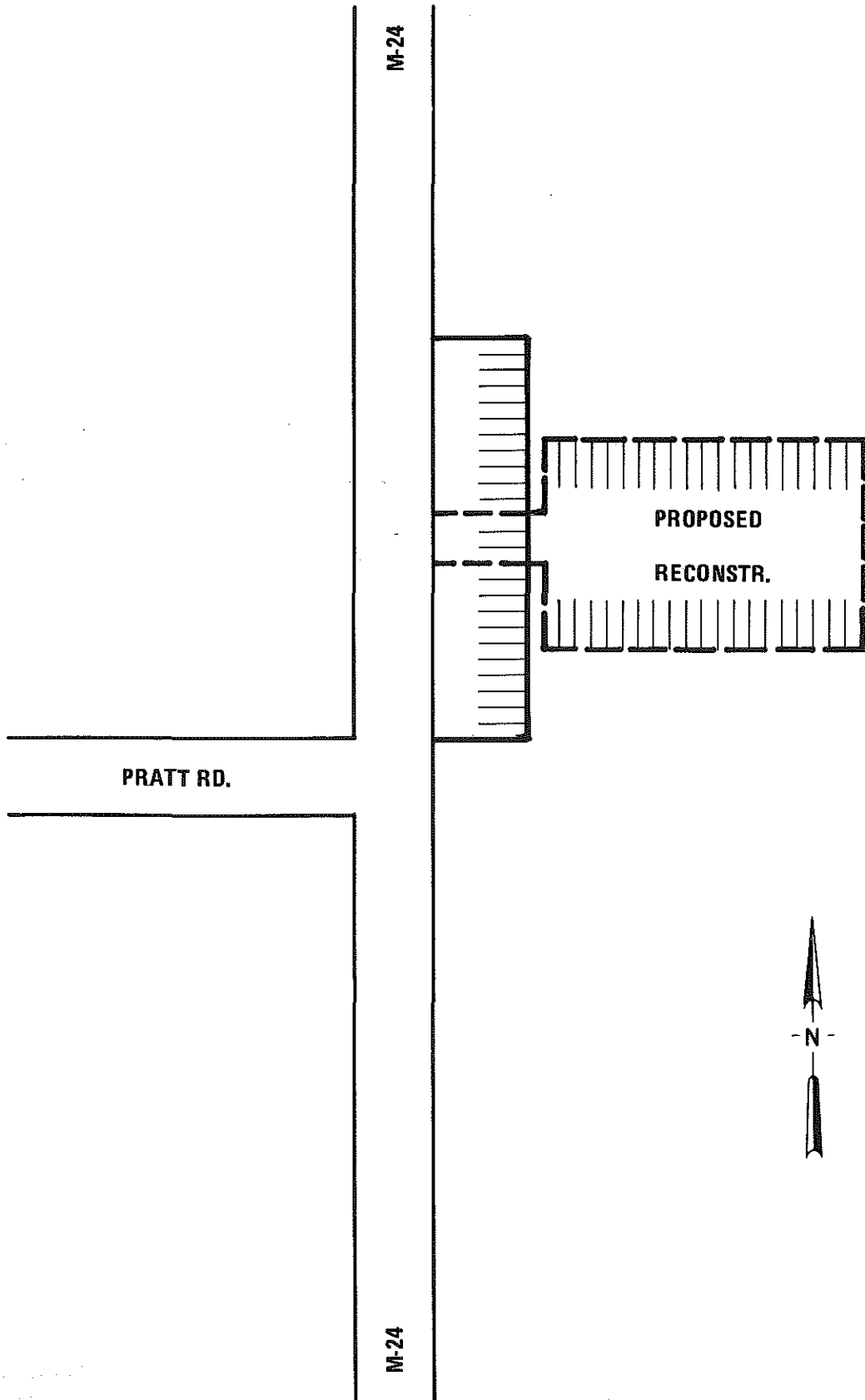


**CARPOOL PARKING LOT
I-96 @ SPENCER ROAD
LIVINGSTON, COUNTY**

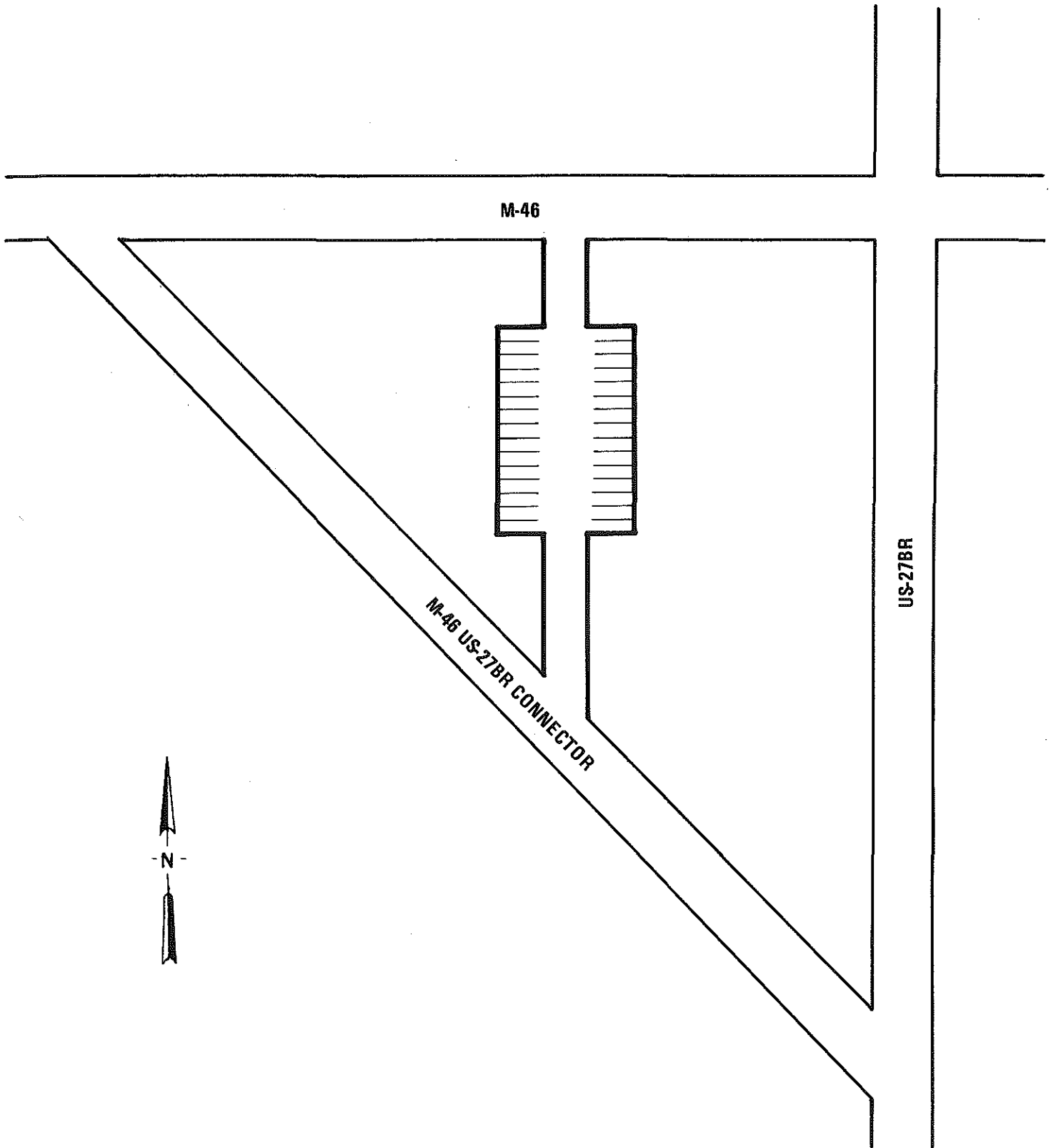


**CARPOOL PARKING LOT
I-96 @ SPENCER RD.
LIVINGSTON COUNTY**

CARPOOL PARKING LOT M-24 @ PRATT ROAD LAPEER, COUNTY



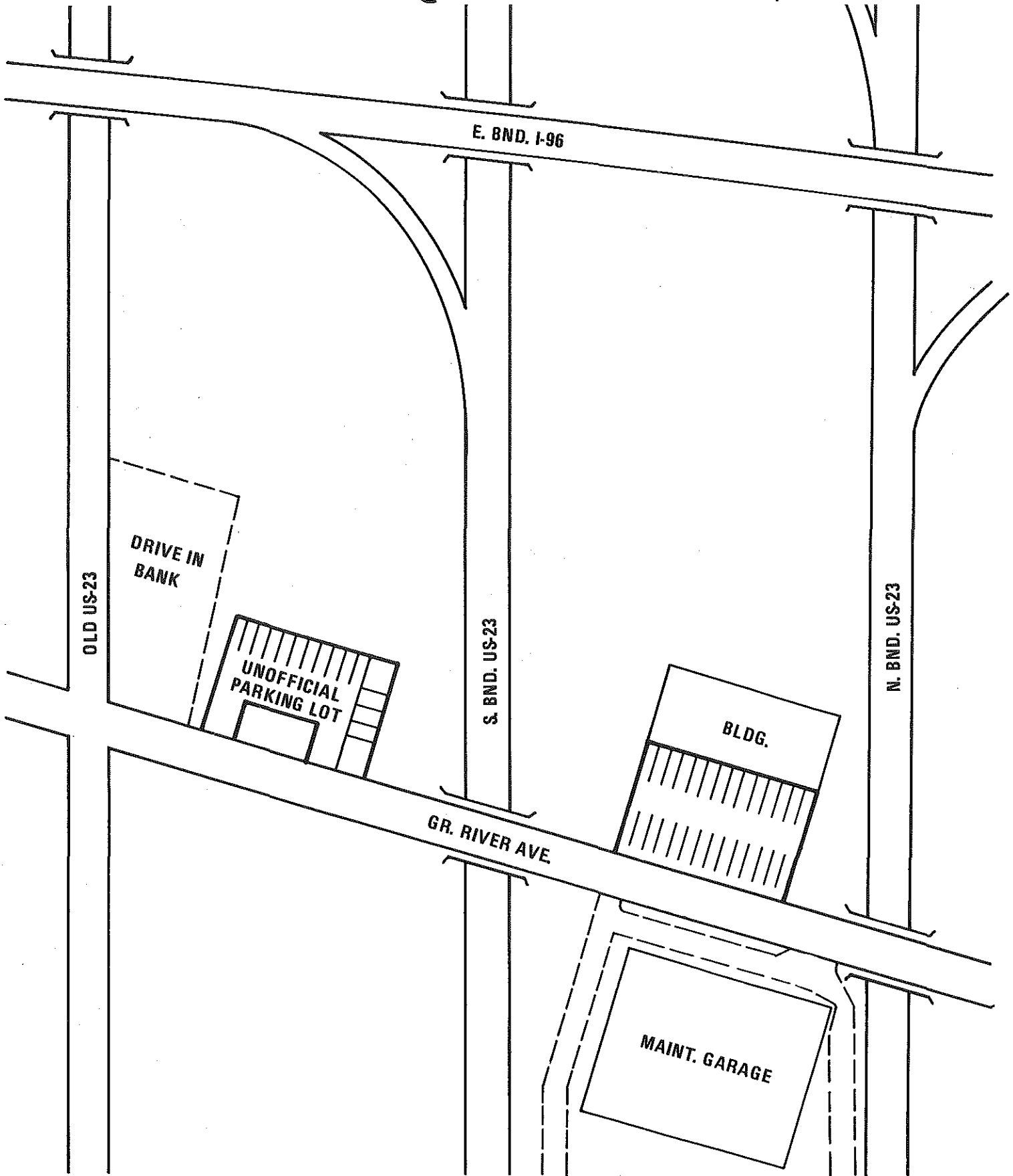
CARPOOL PARKING LOT M-46 @ US-27BR GRATIOT, COUNTY



CARPOOL PARKING LOT
M-46 @ US-27BR
GRATIOT COUNTY

CARPOOL PARKING LOT

GRAND RIVER AVENUE @ US-23 LIVINGSTON, COUNTY



CARPOOL PARKING LOT
GRAND RIVER AVE.
@ US 23
LIVINGSTON COUNTY