MAINTENANCE AREA 9A

SNOW & ICE REMOVAL PLAN

WINTER 1972-1973

STATE OF MINNESOTA DEPT. OF HIGHWAYS

STATE OF MINNESOTA

DEPARTMENT OF HIGHWAYS

MAINTENANCE AREA 9 - A

SNOW & ICE REMOVAL PLAN

WINTER 1972-1973

REVISED 1972

By

C. A. Siggerud - District Maintenance Engineer

G. H. Wellner - Maintenance Pre-Operations Engineer

W. L. Hunziker - Maintenance Operations Engineer

L. Koalska - Area Maintenance Superintendent

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Maintenance Area 9A

Snow and Ice Removal Plan

Winter 1972-73

INTRODUCTION

Much has been said in recent years about snow and ice removal from our streets and highways. A few years ago motorists expected to encounter snow and ice covered roads and accepted subsequent delays without too much question. Presently, however, the motoring public expects and is in a position to demand safe driving conditions in the shortest possible time regardless of the weather.

The economy of our entire community and State hinges on our transportation system. Employees must be able to arrive at their place of work on time. Also equipment and goods must be able to be moved in an expeditious manner.

In order to provide this kind of service it is imperative that a well-organized plan be developed to ensure effective and efficient snow and ice removal.

OBJECTIVES

The primary objective of a Snow and Ice Control Plan is to provide safe and efficient movement of traffic within the District commensurate with the available funds, manpower and equipment.

A secondary objective is to protect the investment that the motorists of the State of Minnesota have in the road structure, signs, bridges, guard-rail, etc. which may become damaged or destroyed if proper snow and ice removal practices are not performed.

All attempts will be made to provide the following:

Stage I

A.D.T.Group	Level of Service
Over 10,000	Bare pavement within 6 hours after termination of storm (12 hours for severe storms).
2,000-10,000	Bare pavement within 24 hours after termination of storm (on divided highways, left lanes should be half bare with sanded curves and hills before termination of snow removal effort).
800 - 2,000	Intermittent bare pavement (compacted snow allowed in towns and sheltered areas).
400 - 800	Two bare wheel tracks and sanded hills and curves.

Stage 2

Prompt clean up after Stage 1 is completed based on regular 8 hour day and all available men and equipment.

THE HIGHWAY FACILITY

The highway facility in District 9A contains 580 centerline miles of main line roadway with a total of 1,755 lane miles, exclusive of roadways maintained by municipalities under maintenance agreements, such as with the cities of St. Paul, West St. Paul, and South St. Paul. In addition to this, 21 type "A" and 71 type "B" interchanges require snow and ice control measures. The District also must maintain 60 lane miles of frontage roads. These are cleared only after the first two categories of roads are in a safe driving condition.

Present traffic in the District is in excess of 5,500,000 vehicle miles per day, with individual traffic counts of more than 100,000 vehicles per day on certain routes.

DISTRICT MAINTENANCE ORGANIZATION

General -- The District Maintenance headquarters is located at 3485 Hadley Avenue, in Oakdale near the Junction of T.H. 212 & I-694.

The District is subdivided into six areas and 12 sub-areas on a geographical basis, taking into account the traffic density and other factors. Revisions to these areas are necessary from time to time to balance the work load.

Within each of the six areas, a Highway Maintenance Supervisor has the responsibility of all maintenance activity, including snow and ice control. Each of these areas is further divided into two sub-areas which are supervised by Highway Maintenance Foremen. The sub-areas are further subdivided into snow and ice removal sections, the length of which is determined largely by the centerline miles of roadway, although other criteria are being considered. Presently, there are 31 snow and ice control sections within the District having from one to nine section trucks assigned to them.

Personnel -- The number of Senior Highway Maintenance Workers on the payroll as of Oct. 1, 1972, was 243 men. Of this total number of Senior Highway Maintenance Workers, seven are employed on signing either in the field or in the Shop.

Equipment -- As of October 16, 1972, 77 Class 33 trucks (2½ to 3 ton) are available for snow and ice control work on 31 sections. Seven trucks are in the shop for repairs. Three trucks are being rigged, and 11 more trucks are to be delivered. The projected number of trucks which will be available on December 31, 1972, is 92 in the 2½ to 3 ton class. The number of section trucks needed is 89.

In addition, 2-ten ton trucks are available for plowing snow and 2 are in the shop for repairs; also 2 SnoGo's mounted on 6 ton trucks are presently available. An ample number of front end loaders are available and additional trucks and graders are available through rental contracts.

MATERIALS -- Sand, salt and calcium chloride remain the primary snow and ice control materials available. The use of any one or combination of materials is one of judgment based on the experience of the Highway Maintenance Superintendent, Highway Maintenance Supervisors and individual Freeway Maintenance men. Personnel involved with the snow and ice removal shall acquaint themselves with the sections of the Minnesota Highway Department Maintenance Manual (5-791.350 and 5-791.360) and use it as a guide to accomplish their assigned tasks.

The increasing concern by the public over our use of salt on highways makes it necessary for everyone who is engaged in snow and ice control work to concern himself not only with its sparing use but also with its effect upon pollution of surface and underground water and its effect upon vegetation. The most practical method to prevent unnecessary pollution by salt is to control its distribution whether it be controlled usage on the highways or by control over dispersal of salt from stockpiles by natural causes such as rain and wind. The former can be controlled by continually checking the amount used per lane mile and per truck hour. The latter we feel can best be controlled by protecting salt from the weather by providing shelter in especially designed salt sheds for approximately 30% of the total average annual need of salt. This requires that the maximum salt delivered could not exceed 30% at one time and would more likely be 20% or less after the initial order. In addition to salt sheds, salt treated sand piles should be as nearly depleted at the end of the winter as can safely be done and stored whenever practical in salt sheds where space is available. Also it may be desirable to increase our runoff collection capability at some of the storage sites. Other methods of controlling salt runoff will be sought and tried if they are promising of success.

A concerted effort to reduce the usage of salt on our highways in the winter of 1971-72 resulted in a substantial decrease in tons of salt used per 100 truck hours. The average salt used per 100 truck hours was 42 tons, whereas in the previous winter 61 tons were used. This is a reduction of 28%. The use of sand decreased from 97 tons to 78 tons per 100 truck hours, a reduction of 20%. The combined use of sand and salt per 100 truck hours was reduced from 158 tons to 119 tons, a reduction of 25%. Another benefit gained by a more judicious use of these materials was a more uniform rate of application throughout the district.

The total tons of salt used last winter dropped 3672 tons from a total of 25,437 tons used in the winter of 1970-71.

Salt purchases are presently handled by contract thru the Central Office in St. Paul. Competitive bids are submitted by various companies to handle and deliver salt materials to 17 stock pile sites throughout the District, as set forth by contract specifications. The anticipated need for salt for this winter is 20,000 tons to be delivered in these amounts and locations:

2% each to	Taylors Falls, Hastings, Farmington, Stillwater, Rosemount, Forest Lake and Jct. of 61, 50 & 20 south of Hastings.
5% each to	North Branch, Lakeville, Mendota Quarry, St. Paul Park and Aldine.
15% each to	Maplewood, Arden Hills, Oakdale.
16% to	Stockpile site under the 6th Street Bridge.

OPERATION PLAN

Off-Hour Patrol -- The District will maintain an early morning or dawn patrol (12:00 midnite to 8:00 A.M.) using seven trucks on a daily basis -- seven days per week. Also, a night patrol consisting of seven trucks will be used from 4:30 P.M. to midnight on a daily basis -- seven days per week. These patrols, together with our normal scheduled work day and a patrol with one pickup or section truck, between the hours of 8:00 A.M. and 4:30 P.M. on Saturday and Sunday, will provide continuous coverage.

The primary purpose of the "off-hour patrol" is to keep the traffic moving by sanding bridges that may frost over quickly, applying ice removal chemicals or sand as needed, and to keep the headquarters office aware of the weather conditions. Through the use of the off-hour patrol units, should weather conditions warrant, the number of snow and ice control units on the road can be immediately doubled, or the radio dispatcher may call out additional units as needed for the more severe storms.

In either case, the District forces would be in a position to "keep on top" of the situation and provide acceptable service to the motoring public.

In addition to the snow and ice removal service provided by the "off hour patrol", they will provide a most necessary service in the removal of debris from the roadway and to assist at accident scenes.

Radio Dispatcher -- The District maintains a radio dispatcher on a 24-hour, seven days per week basis. The dispatcher will prepare "Weather and Road Condition Progress Reports".

Exhibit A, Appendix I is a report based on information obtained by radio or telephone from the operators of vehicles in the various parts of the District. These will be made on a periodic basis and at such other times when significant weather and road condition changes occur. This information will be summarized and passed on to the Road Information Section in the Central Office for public distribution to the radio, T.V. and other news media.

Each dispatcher will also prepare a narrative summary report on a daily basis covering all major storms and associated work activity. This is to be used as a quick reference diary covering each shift.

Highway Maintenance Superintendent -- The Highway Maintenance Superintendent will coordinate the snow and ice removal activities throughout the District, directing men, equipment and materials where needed. He will also provide guidance to each Highway Maintenance Supervisor to effect an efficient operation.

Highway Maintenance Supervisors -- Each Highway Maintenance Supervisor will be responsible for the direction of the men and usage of equipment within his assigned area. Coordination of the efforts in one sub-area with those of an abutting sub-area is a must. The Highway Maintenance Supervisors shall keep the headquarters office informed by telephone or radio of the status of snow and ice removal activity within his area.

Highway Maintenance Foreman -- Each Highway Maintenance Foreman will be directed by and will be responsible to a Highway Maintenance Supervisor. When conditions are such that two or more shifts are needed, he may be directed to assume direction of all men and equipment for one of these shifts.

Freeway Maintenance Men -- Assignment of personnel to the various subareas and sections is based on need. Exhibit II, Appendix III shows data covering the various subareas. Each Freeway Maintenance Man will be required to arrive at his assigned station within 45 minutes of the time he was notified. He shall come prepared to perform his assigned duties in all kinds of weather.

The actual personnel requirements for Freeway Maintenance Men is determined from data contained in Appendix III, which indicates the minimum section crew's needs based on the following criteria:

Criteria

Classification 1, Trans-State (over 10,000 A.D.T.)

Truck Needs = .033 x Lane Miles + .667 x Type A Interchanges + .500 x Type B Interchanges.

Classification 2, Trans-State (2,000 - 10,000 A.D.T.)

Truck Needs = .022 x Lane Miles + .400 x Type A Interchanges + .250 x Type B Interchanges.

Classification 3, Trans-State (under 2,000 A.D.T.)

Truck Needs = .017 x Lane Miles = .400 x Type A Interchanges + .250 x Type B Interchanges.

Classification 4, Urban Commuter (Over 10,000 A.D.T.)

Truck Needs = .033 x Lane Miles = .667 x Type A Interchanges + .500 x Type B Interchanges.

Classification 5, Rural Commuter (2,000 - 10,000 A.D.T.)

Truck Needs = .022 x Lane Miles + .400 x Type A Interchanges + .250 x Type B Interchanges.

Classification 6, Primary (800 - 2,000 A.D.T.)

Truck Needs = .017 x Lane Miles + .400 x Type A Interchanges + .250 x Type B Interchanges.

Classification 7, Secondary (Under 800 A.D.T.)

Truck Needs = .008 x Lane Miles + .400 x Type A Interchanges + .250 x Type B Interchanges.

Type A Interchanges are full clover leafs and Type B Interchanges are diamonds or modifications of a diamond.

GUIDELINES FOR IMPLEMENTATION

General -- During a storm every effort shall be made to utilize all available mechanical equipment for snow and ice control. Based on the available man power, it will be necessary to use one-man truck operation whenever weather and road conditions permit a safe operation. Two-man operation may be used when more than one operation is being carried on at the same time.

One-Man Vehicle Operation -- One-man operation will be used under the following conditions:

1. Whenever weather and road conditions permit a safe operation.
2. Single operations such as sanding or chemical application.
3. Snowfall does not produce large windrows on traveled surface.
4. Foreman must be willing and able to perform the one-man operation.

Two-Man Vehicle Operation -- The foreman may authorize Two-man operation ~~may be used~~ when any of the following conditions exist:

1. Poor visibility due to blowing snow and cold temperature which may affect a safe operation.
2. Snowfalls that produce large windrows that require more than one operation to move off the traveled portion of roadway.
3. Certain hazardous roadways ~~with extensive left turn slots~~.
4. Winging operations to remove windrows will require a two-man operation.
5. Any other operation which is considered not safe by the foreman for a one-man operator.

Combination of One-Man and Two-Man Operations -- The combination of one-man and two-man vehicle operations should be used when safe and traffic movements have normalized, thereby allowing less restriction in use of manpower and equipment. The work that is usually performed under this arrangement is as follows:

1. Removal of snow from shoulders and adjacent slopes to provide additional space for next storm.
2. Removal of snow from intersections and other locations where high banks interfere with sight distances.

3. Resumption of normal maintenance operations.

4. Perform any operation that will return traffic movements back to normal.

Work Shifts -- The present staffing in most sub-areas will permit two 12 hour shifts under severe weather conditions. However, in several sub-areas only one shift will be possible, consequently some trucks may be idle during the second 12 hour period. No night shifts are purposely scheduled in the District, except for the off hour patrol.

Under ordinary work days, when snow and ice removal is not a pressing factor in the movement of traffic, all crews that are not off duty on compensatory overtime will work the regularly scheduled hours from 8:00 A.M. to 4:30 P.M. Monday through Friday. In the event of a snow storm or predicted storm, a portion of the crew is sent home early to prepare for a second shift, if needed. The first shift would remain on duty 4 additional hours (to 8:00 P.M.) and be relieved by the second shift at that time. The second shift would work for a maximum of 12 hours and be relieved by the day crew at 8:00 A.M.

In the event of a snow storm beginning after about 4:00 A.M., and no night crews are on duty (except for the night patrol), the night crew would not be called out at that hour, but the day crew would then be called out early. The crew change would necessarily be made at 4:00 P.M. rather than at 8:00 P.M.

As in the past, night crews will patrol the entire Maintenance Area to assure that prompt action will be taken as needed in the event that icing, slippery spots or snow accumulations are developing on our highways and bridges. This service is designed to operate 7 days per week, 24 hours per day, except between the hours of 8:00 A.M. and 4:00 P.M. on Saturdays and Sundays. Two night patrols will be based at Maplewood, and one each at Forest Lake, Arden Hills, Oakdale, St. Paul Park and Farmington.

No crew on duty will be permitted to take coffee breaks or meals between the hours of 5:00 A.M. and 8:00 A.M., and between 5:00 P.M. and 7:00 P.M. This is to avoid criticism by rush hour traffic motorists of the Maintenance crews not "doing everything possible" during these critical hours.

Equipment Inspection -- During the week of October 6 - 10, each truck station shall hold a winter equipment inspection to determine the status of each piece of equipment for snow and ice removal duty. The mechanical condition of each piece of equipment shall be thoroughly inspected, minor repairs made, and the need for major repair work brought to the attention of the Shop Foreman. Also, all accessories shall be thoroughly inspected and replaced if necessary to assure complete readiness. A copy of the Snow and Ice Equipment inspection report is attached, Exhibit B, Appendix I.

BUDGET AND FISCAL CONTROL

General -- Analysis of previous winters' operations and weather data indicates there is no direct correlation between the severity of the winter and the amount of money spent for snow and ice control on our Highways. There does, however, appear to be a relationship of the average amount spent over several years time with the average snowfall for the same period.

The average annual snowfall over a 38-year period is 42.4 inches. (Figure 1, Appendix I). "Average snow years" occurred only nine of the thirty-eight years.

The most logical approach to budgeting snow and ice control activity is to project costs on a monthly schedule based on a plot of the average snowfall by month over a 38-year period. (Figure 2, Appendix I).

1972-73 Snow and Ice Control Fund -- $958,172 has been budgeted for the 1972-73 winter season for snow and ice control activity in District 9A. This is 15.5% of the total maintenance funds allocated to the District.

Figure 3, Appendix V, indicates the projected expenditure for this activity on a monthly basis. Early expenditure of a portion of this fund reflects the activity of stockpiling sand and chemicals prior to their actual use.

Rental of Non-State Equipment -- $50,000 has been budgeted for the rental of other non-state owned equipment used for snow and ice control on a supplementary basis.

The projected use of these funds is as follows:

Month	Amount
October	$ 0
November	1,000
December	6,000
January	15,000
February	15,000
March	10,000
April	3,000
May	0

APPENDIX I

Exhibit "A"
Appendix I

SNOW & ICE CONTROL
Condition & Progress Report
Maintenance Area 9A

Section_____ Driver_____
Time_____ Helper_____
Date_____
Estimated or Actual Temperature_____
Estimated Wind Vel. Light Medium Strong
Wind Direction (Blowing From)_____
Estimated Visibility Feet_____ or Fraction of Mile_____
Sky Cover Clear Cloudy Ptly. Cloudy
Precipitation Rain Sleet Snow
Estimated Depth of Snow_____ inches loose wet dry compacted
Estimated Depth of Ice_____ inch continuous spotty glaze

% Estimated Progress of Plowing	10	20	30	40	50	60	70	80	90	100
% Estimated Progress of Sanding	10	20	30	40	50	60	70	80	90	100
% Estimated Progress of Clean-up	10	20	30	40	50	60	70	80	90	100

Note: Dispatcher will ask for this report. Be ready to give it in sequence outlined above without any prompting from dispatcher. Report immediately when progress on any of the above items in 100% completed, without waiting for a request from dispatcher.

Remarks:_____

Exhibit B, Appendix I

MAINTENANCE AREA 9A

Snow and Ice Equipment

Unit Numbers: Truck _____ Plow _____ Wing _____ Sander _____

Date _____ Place _____ Inspected By _____

Operator's Name _____ Helper _____

Equipment Accessories: First Aid Kit ( ), Fire Extinguisher ( ), Fuzees ( ), Reflector Flares ( ), Shovel ( ), Tire Chains Installed ( ), Tow Chain ( ), Red Flags ( ), Orange Flags ( ), Service Book ( ), Flashlights ( ), One Man Levers yes ( ) no ( ), Operational yes ( ) no ( ), Spare Belts yes ( ) no ( )

Engine Compartment: Belt Adjustments ( ), Belt Condition ( ), Brake Fluid Level ( ), Battery Breakdown Test ( ), Battery Electrolite Clutch Fluid Level ( ), Battery Cable Condition ( ), Radiator Hose Condition ( ), Heater Hose Condition ( ), Visible Leak ( ),

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Lights:
Headlights - High Beam ( ) Low Beam ( ) (Both Sets) Clearance Lights ( )
Turn Signals - Right ( ) Left ( )
Snow Plow Lights - Right ( ) Left ( )
Sander Lights ( )
Stop and Tail Lights ( ) Four Way Flasher ( )
Revolving Amber ( )
Wiring Condition - Good ( ) Fair ( ) Poor ( ) Very Poor ( )

Glass:
Windshield Cracked ( ) Pitted ( ) Scratched ( )
Mirrors Right ( ) Left ( )
Visibility With Wing Carried Against Box Good ( ) Poor ( )

Front End:
Front Wheel Bearing Play Left ( ) Right ( )
Spindles Left ( ) Right ( )
Steering Good ( ) Poor ( )

Tires & Wheels:
Front Right ( ) Left ( )
Rear Right ( ) Left ( )
Outer ( ) Inner ( ) Outer ( ) Inner ( )
Cracked Wheels or Lock Rings ( ) Number ( )

Springs and Shackles:
Front Right ( ) Left ( )
Rear Right ( ) Left ( )

Start Engine and Make Following Tests:
Brake Pedal Travel ( )
Clutch Free Travel ( )
Emergency Brake ( )
Windshield Wipers ( )
Stop Engine Check for Vacuum Retention

Hydraulic System (To Check Seals, Bottom All Rams under Pressure)
Wing Upper Ram ( )
Lower Ram ( )
Plow Ram ( )
Run Sander ( ) Condition of Sprockets ( ) Chain ( ) Check Hydraulic ( )
Lines for Leaks ( ) Condition ( )
Can Operator See Spinner yes ( ) no ( )
Can Helper See Spinner yes ( ) no ( )

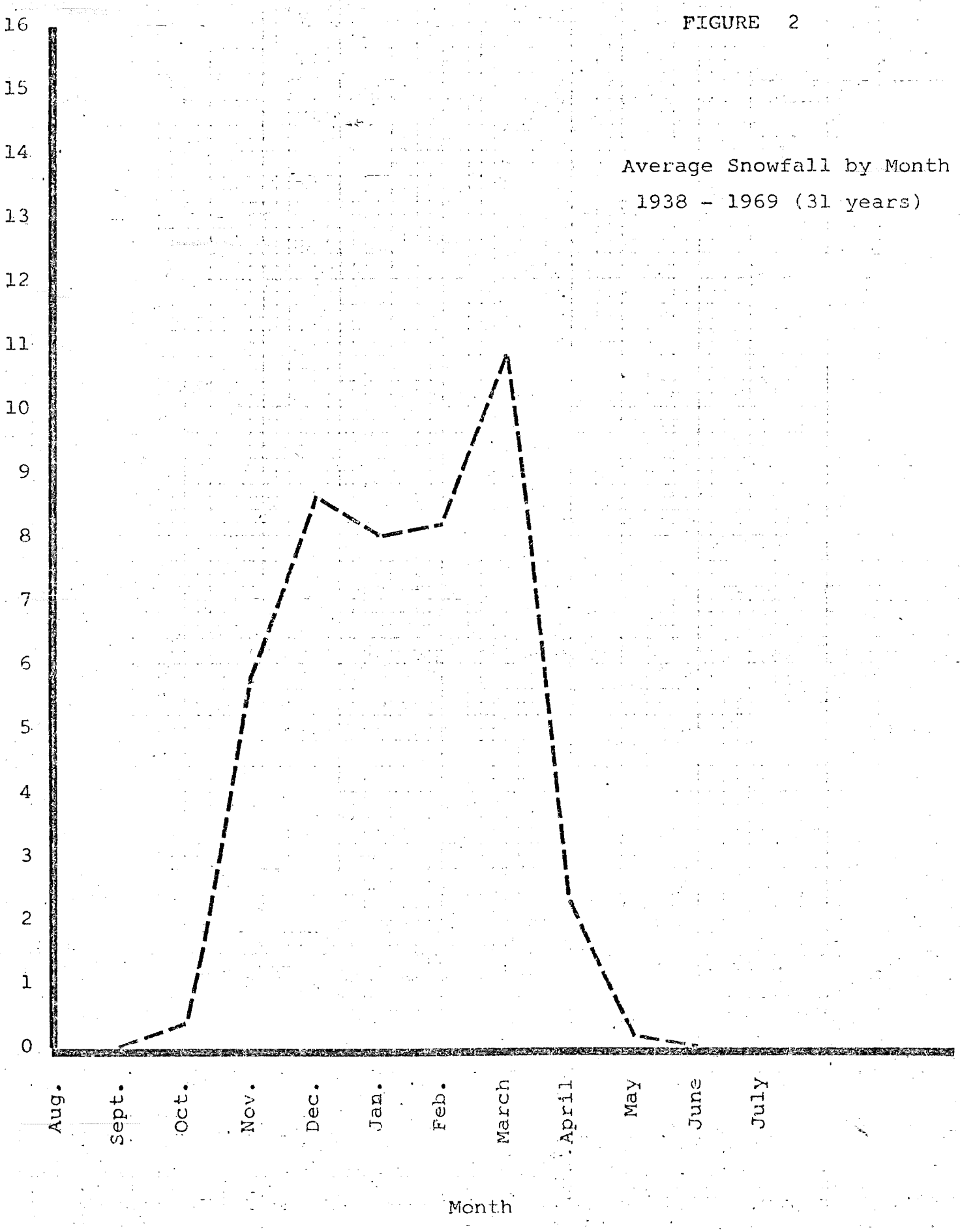
Radio
None ( ) Complete Unit ( ) Cable Kit Only ( )
Operational yes ( ) no ( )
Problems - Explain:

Parts That Should Be Ordered

TOTAL YEARLY SNOWFALL
40 yr. aver.
42.9 inches
per season
SNOWFALL - INCHES
10
20
30
40
50
60
70
80
935
940
945
950
955
960
965
970

Figure 1

FIGURE 2


Average Snowfall by Month
1938 - 1969 (31 years)
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
Aug.
Sept.
Oct.
Nov.
Dec.
Jan.
Feb.
March
April
May
June
July
Month

PROJECTED EXPENDITURE
SNOW & ICE CONTROL FUND
FISCAL YR. 1972

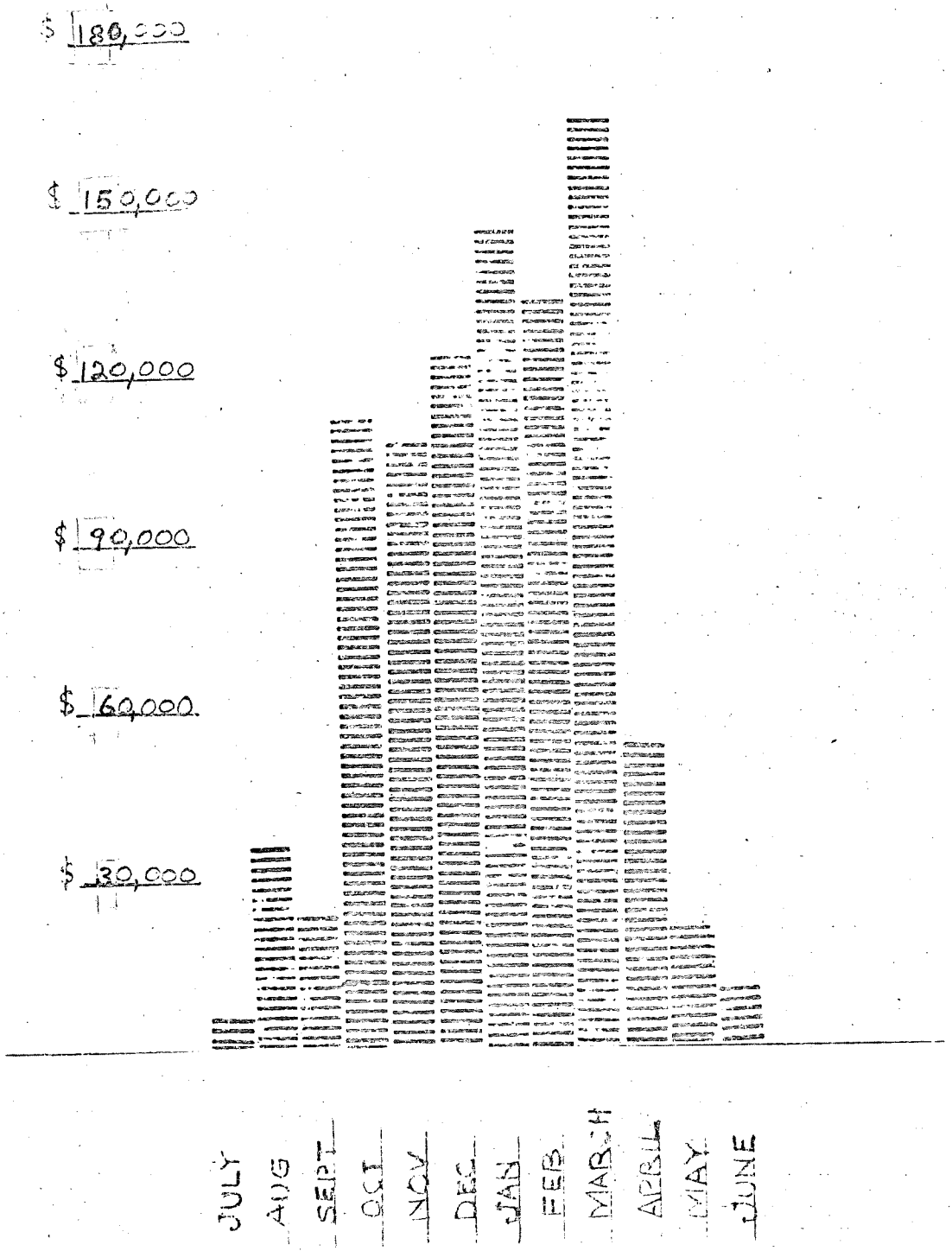


FIGURE 3
APPENDIX I

APPENDIX II

ROAD INVENTORY AND TRUCK REQUIREMENT FOR MAINTENANCE AREA 9A

	A.D.T. Group	Lane Miles	Number of Inter-Changes Type "A"	Type "B"	Number Trucks Required
(1)	Trans-State Over 10,000	486	12	48 1/2	48
(2)	Trans-State 2,000 - 10,000	287	-	12	9 *
(3)	Trans-State Under 2,000	-	-	-	0
(4)	Over 10,000	230	7 5/6	7	16
(5)	2,000 - 10,000	524	1 2/3	3 1/2	13 *
(6)	800 - 2,000	192	-	-	3 *
(7)	Under 800	36	-	-	0
	TOTALS	1755	21 1/2	71	89

Motor Graders Available	5
8 - 10 Ton Trucks Available	4
6 Ton Truck-Mounted Rotaries	2
1 1/2 Cubic Yard Loaders (Mountable Blowers)	4
2 1/2 Cubic Yard Loader	2

* 18 hrs. coverage

ROAD INVENTORY AND TRUCK REQUIREMENT FOR SUB AREA 010 (NORTH AREA)

	A.D.T. Group	Lane Miles	Number of Inter-Changes Type "A" - Type "B"		Number of Trucks Required
(1)	Trans-State Over 10,000	-	-	-	-
(2)	Trans-State 2,000 - 10,000	225		10	8
(3)	Trans-State Under 2,000	-	-	-	-
(4)	Over 10,000	-	-	-	-
(5)	2,000 - 10,000	115		1	3 *
(6)	800 - 2,000	68			1 *
(7)	Under 800	10			-
	TOTALS	418	-	11	12

Motor Graders Available	0
8 - 10 Ton Trucks Available	1
6 Ton Truck-Mounted Rotaries	0
1 1/2 Cubic Yard Loaders (Mountable Blowers)	1
2 1/2 Cubic Yard Loader	0

* 18 hrs. coverage

ROAD INVENTORY AND TRUCK REQUIREMENT FOR SUB AREA 020 (NORTH METRO)

	A.D.T. Group	Lane Miles	Number of Inter-Changes Type "A"	Type "B"	Number of Trucks Required
(1)	Trans-State Over 10,000	138	4 1/2	16	16
(2)	Trans-State 2,000 - 10,000	-	-	-	0
(3)	Trans-State Under 2,000	-	-	-	0
(4)	Over 10,000	32		1	1
(5)	2,000 - 10,000	53	-	-	1 *
(6)	800 - 2,000	2	-	-	0
(7)	Under 800	-	-	-	0
	TOTALS	225	4 1/2	17	18

Motor Graders Available	1
8 - 10 Ton Trucks Available	1
6 Ton Truck Mounted Rotaries	1
1 1/2 Cubic Yard Loaders (Mountable Blowers)	0
2 1/2 Cubic Yard Loader	1

* 18 hrs. coverage

ROAD INVENTORY AND TRUCK REQUIREMENT FOR SUB AREA 030 (CENTRAL METRO)

	A.D.T. Group	Lane Miles	Number of Inter-Changes Type "A" - Type "B"		Number Trucks Required
(1)	Trans-State Over 10,000	75	-	12	8
(2)	Trans-State 2,000 - 10,000	-	-	-	0
(3)	Trans-State Under 2,000	-	-	-	0
(4)	Over 10,000	57	6 1/2	5	9
(5)	2,000 - 10,000	-	-	-	0
(6)	800 - 2,000	-	-	-	0
(7)	Under 800	-	-	-	0
	TOTALS	132	6 1/2	17	17

Motor Graders Available	1
8 - 10 Ton Trucks Available	0
6 Ton Truck-Mounted Rotaries	0
1 1/2 Cubic Yard Loaders (Mountable Blowers)	0
2 1/2 Cubic Yard Loader	0

ROAD INVENTORY AND TRUCK REQUIREMENT FOR SUB AREA 040 (EAST METRO)

	A.D.T.Group	Lane Miles	Number of Inter-Changes Type "A"	Type "B"	Number of Trucks Required
(1)	Trans-State Over 10,000	95	2 1/2	5 1/2	8
(2)	Trans-State 2,000 - 10,000	-	-	-	0
(3)	Trans-State Under 2,000	-	-	-	0
(4)	Over 10,000	91	-	1	3
(5)	2,000 - 10,000	67	-	2	2*
(6)	800 - 2,000	62	-	-	1*
(7)	Under 800	-	-	-	0
	TOTALS	315	2 1/2	8 1/2	14

Motor Graders Available	1
8 - 10 Ton Trucks Available	1
6 Ton Truck-Mounted Rotaries	0
1 1/2 Cubic Yard Loaders (Mountable Blowers)	1
2 1/2 Cubic Yard Loader	1

* 18 hrs. coverage

ROAD INVENTORY AND TRUCK REQUIREMENT FOR SUB AREA 050 (SOUTH METRO)

	A.D.T. Group	Lane Miles	Number of Inter-Changes Type "A"	Type "B"	Number of Trucks Required
(1)	Trans-State Over 10,000	104	3 1/2	11 1/2	11
(2)	Trans-State 2,000 - 10,000	45		1	1 *
(3)	Trans-State Under 2,000	-	-	-	0
(4)	Over 10,000	29	1	-	2
(5)	2,000 - 10,000	19	-	-	0
(6)	800 - 2,000	24	-	-	0
(7)	Under 800	-	-	-	0
	TOTALS	221	4 1/2	12 1/2	14

Motor Graders Available	1
8 - 10 Ton Trucks Available	0
6 Ton Truck-Mounted Rotaries	0
1 1/2 Cubic Yard Loaders (Mountable Blowers)	2
2 1/2 Cubic Yard Loader	0

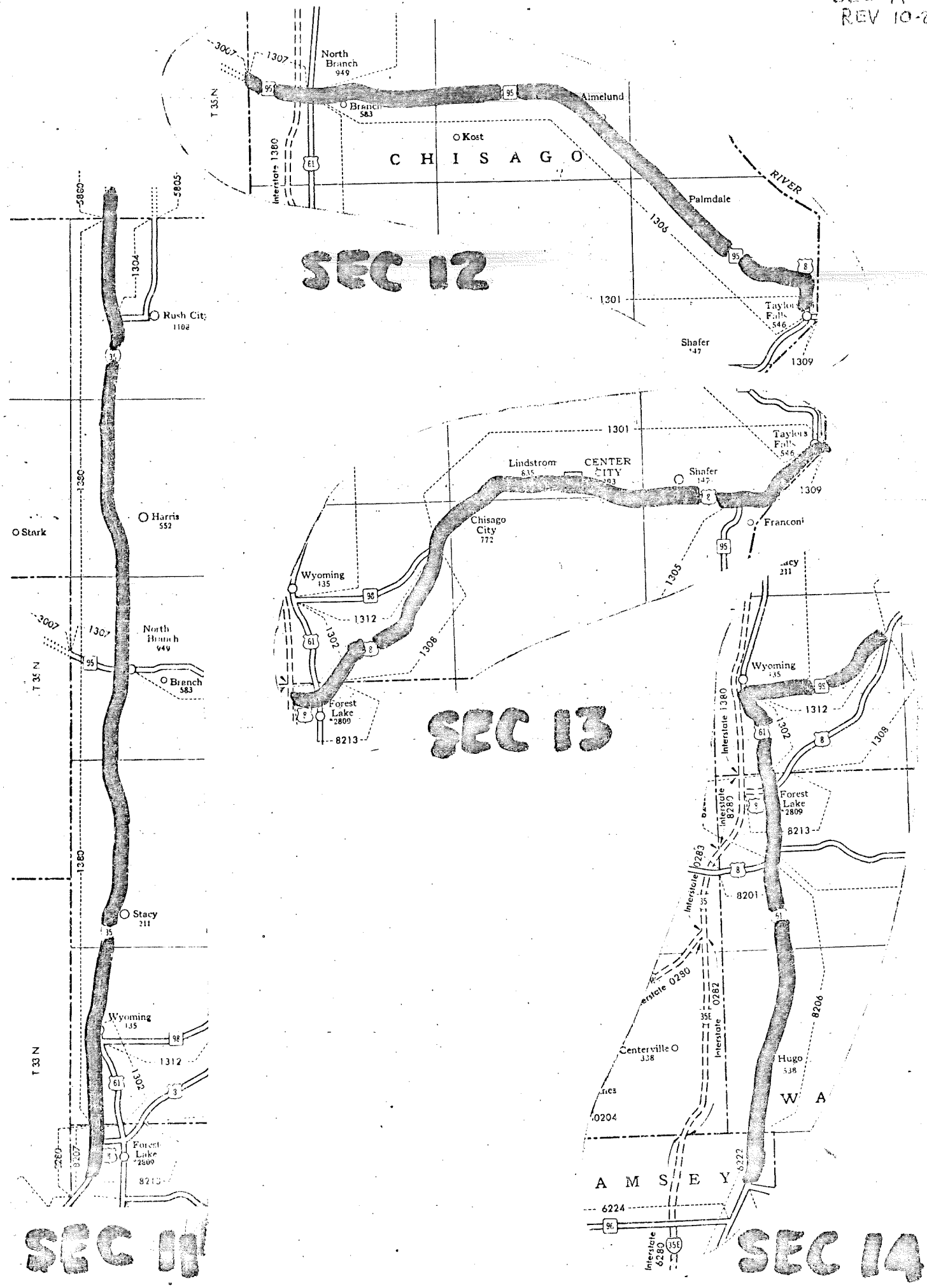
ROAD INVENTORY AND TRUCK REQUIREMENT FOR SUB AREA 060 (SOUTH AREA)

	A.D.T. GROUP	Lane Miles	Number of Inter-Changes Type "A"	Type "B"	Number of Trucks Required
(1)	Trans-State Over 10,000	75	1 1/2	3 1/2	5
(2)	Trans-State 2,000 - 10,000	16	-	1	1*
(3)	Trans-State Under 2,000	-	-	-	0
(4)	Over 10,000	21	1/3	-	1
(5)	2,000 - 10,000	270	1 2/3	1/2	6*
(6)	800 - 2,000	36	-	-	1*
(7)	Under 800	26	-	-	0
	TOTALS	444	3 1/2	5	14
	Motor Graders Available				1
	8 - 10 Ton Trucks Available				1
	6 Ton Truck-Mounted Rotaries				1
	1 1/2 Cubic Yard Loaders (Mountable Blowers)				0
	2 1/2 Cubic Yard Loader				0

* 18 hrs. coverage

APPENDIX III

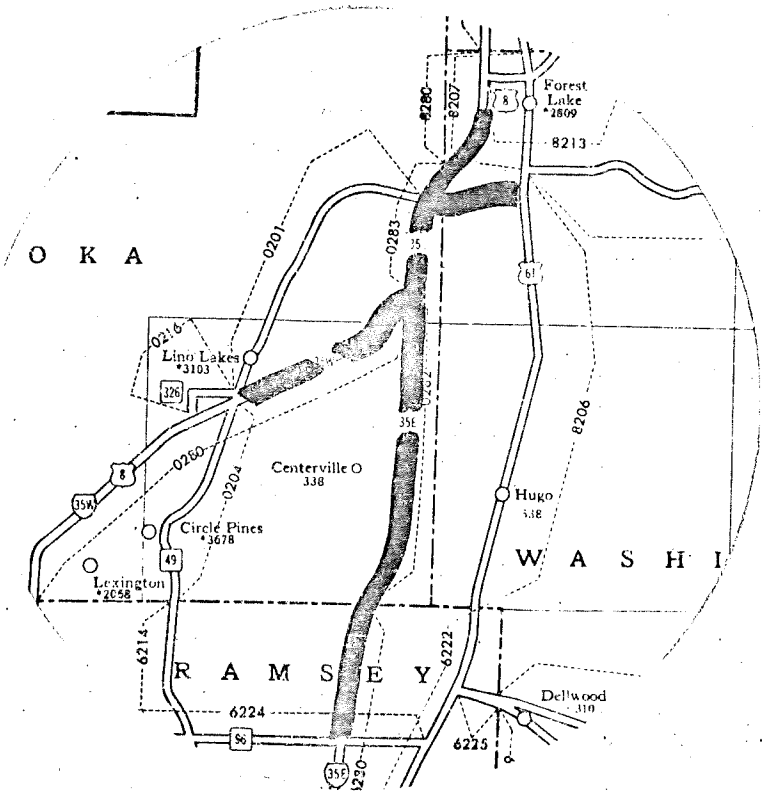
9-18-69
SEC 11
REV 10-23-7



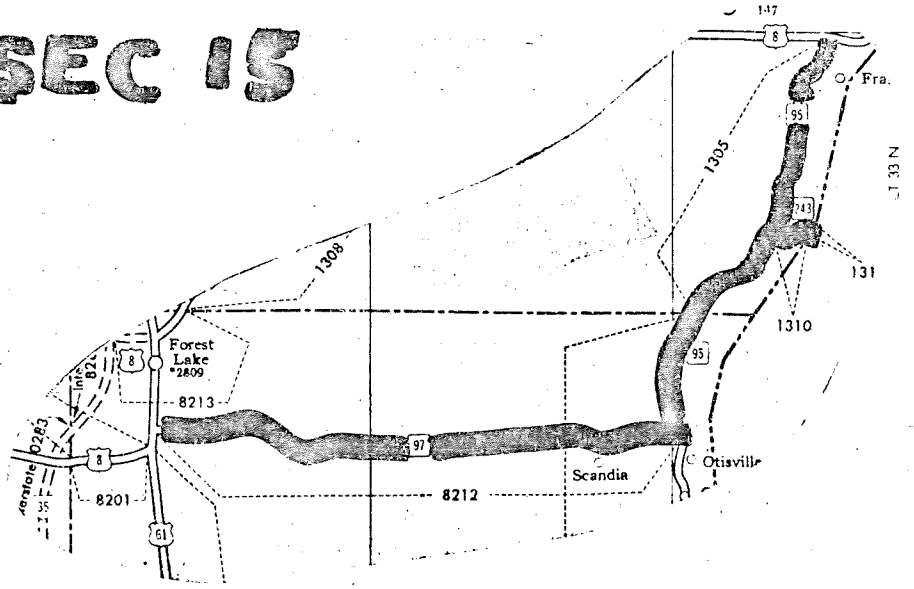
NORTH AREA

Winter Route	Sub-Area	T.H. No.	Control Section	Center Line Miles	Lane Miles	Type Inter-Changes	A.D.T. Group	Required Number of Trucks
11	N.B.	I-35	1380	27.47	109.88	4½ B	(2)	3.54
		I-35	5880	2.50	10.00	½ B	(2)	.35
		I-35	8280	1.20	6.30	½ B	(2)	.26
		I-35	1380	2.62	10.48	½ B	(2)	.36
			Connection 1380 to 1303	0.35	0.70		(6)	.01
			TOTALS	34.14	137.36	6 B		4.52
			TRUCKS ASSIGNED					4.00
12	N.B.	95	1307	2.24	4.48		(6)	.08
		95	1306	19.84	39.68		(6)	.67
			TOTALS	22.08	44.16			0.75
			TRUCKS ASSIGNED					1.00
13	N.B.	8	8213	2.08	6.63	1 B	(5)	.40
	(T.F.)	8	1308	5.40	10.80		(5)	.24
		8	1301	14.88	29.76		(5)	.65
		8	1309	.04	.08		(5)	.00
			TOTALS	22.40	47.27	1 B		1.29
			TRUCKS ASSIGNED					1.00
14	F.L.	61	.6222	2.21	6.56		(5)	.14
		61	8206	9.28	19.36		(5)	.43
		61	8207	2.85	10.70		(5)	.24
		61	1302	2.56	5.12		(5)	.11
		98	1312	4.87	9.74		(7)	.21
			TOTALS	21.77	51.48			1.13
			TRUCKS ASSIGNED					1.00

7-16-69
SEC 15
REV. 10-23-70



SEC 15

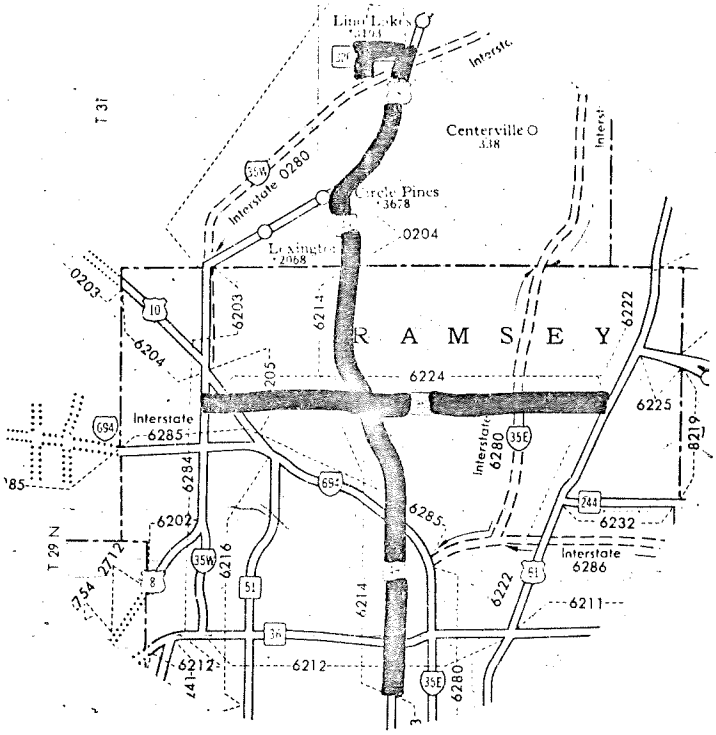


SEC 16

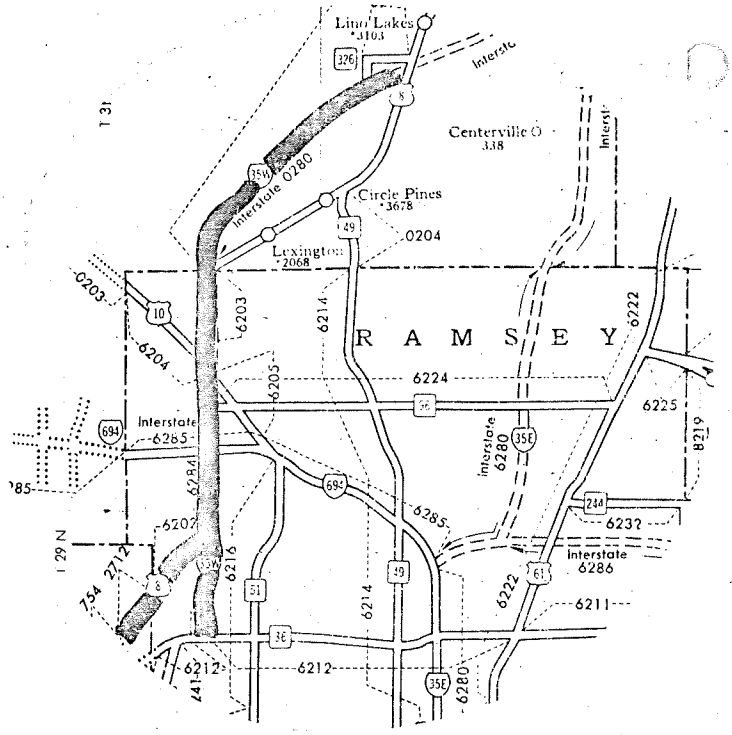
NORTH AREA

Winter Route	Sub-Area	T.H. No.	Control Section	Center Line Miles	Lane Miles	Type Inter-Changes	A.D.T. Group	Required Number of Trucks
15	F.L.	35W	0280	5.23	20.92	½ B	(2)	.59
		I-35	0283	2.52	15.12	1 B	(2)	.58
		I-35	8280	1.74	10.44	½ B	(2)	.35
		97	0201	0.32	0.64		(5)	.01
		97	8201	1.81	3.62		(5)	.08
		35E	6280	3.56	14.24	1 B	(2)	.56
		35E	0282	7.00	28.00	1 B	(2)	.87
			TOTALS	22.18	92.98	4 B		3.04
			TRUCKS ASSIGNED					4.00
16	F.L.	97	8212	10.78	21.56		(5)	.47
		95	8210	2.93	5.96		(6)	.10
		95	1305	7.53	15.06		(6)	.26
		243	1310	1.17	2.34		(6)	.04
		243	1311	0.06	.12		(6)	.00
			TOTALS	22.47	45.04			0.87
			TRUCKS ASSIGNED					1.00

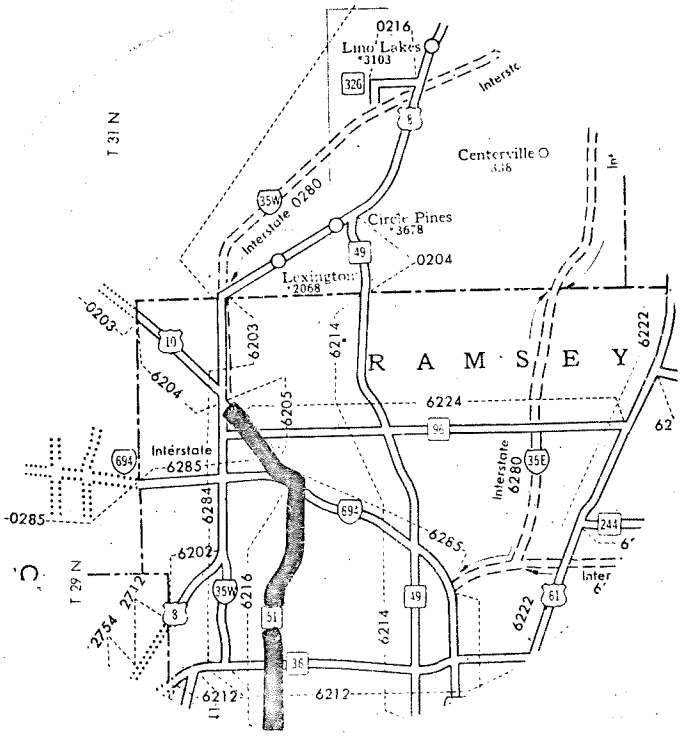
9-18-69



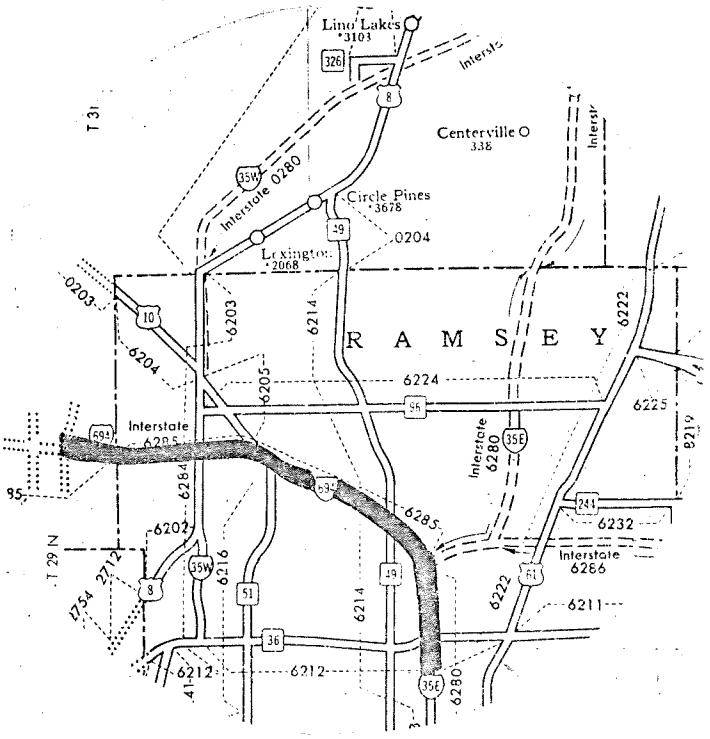
SEC 21



SEC 22



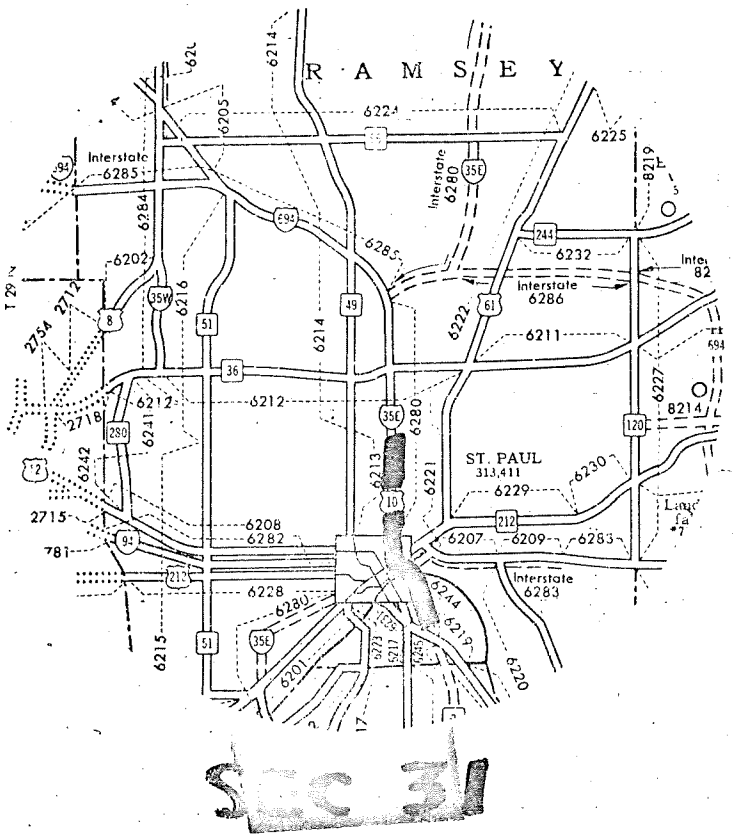
SEC 23



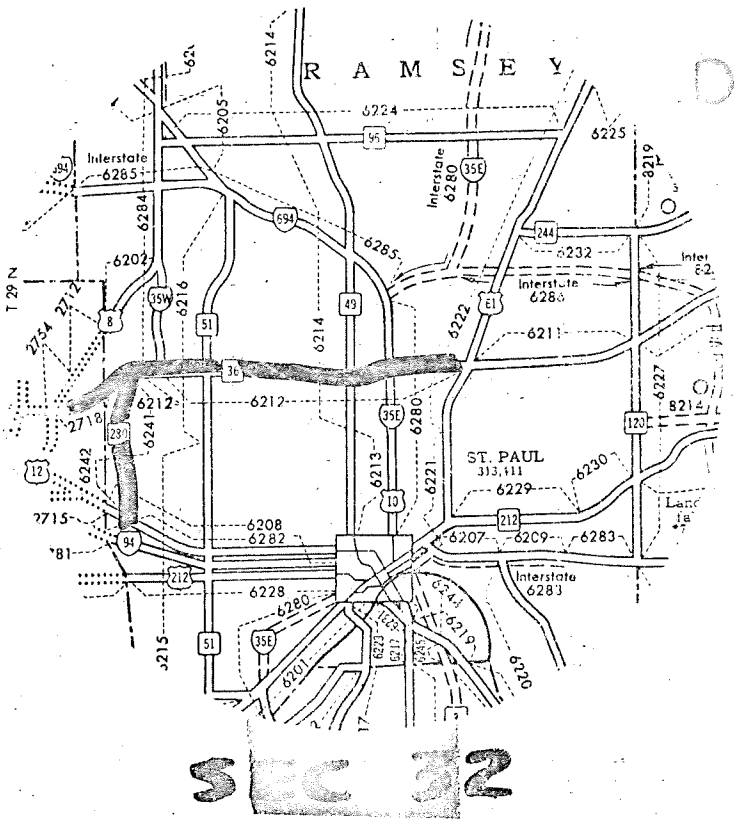
SEC 24

NORTH METRO

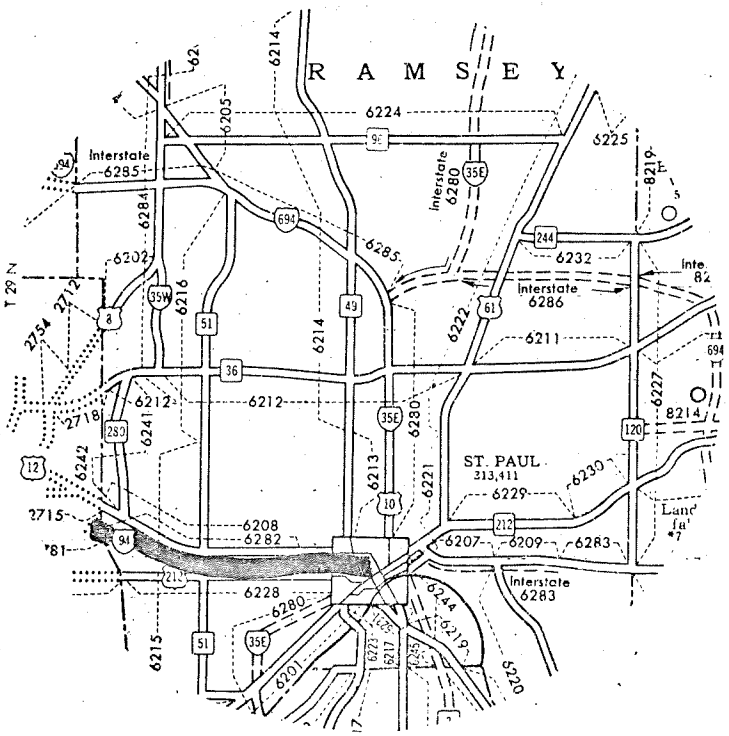
Winter Route	Sub-Area	T.H. No.	Control Section	Center Line Miles	Lane Miles	Type Inter-Changes	A.D.T. Group	Required Number of Trucks
21	North Arden Hills	49	6214	9.41	21.99		(5)	.48
		49	0204	2.29	4.58		(5)	.10
		49	0204	2.07	4.14		(5)	.09
		326	0216	1.11	2.22		(6)	.04
		96	6224	8.45	22.50		(5)	.56
			TOTALS	23.33	55.43			1.21
			TRUCKS ASSIGNED					2.00
22	North Arden Hills	8	2712	0.95	3.80		(4)	.13
		8	6202	1.67	6.68		(4)	.22
		35W	6284	8.41	49.24	2½A,5B	(1)	5.79
		35W	0280	5.70	24.55	2½ B	(1)	2.06
			TOTALS	16.73	84.27	2½A,7½B		8.20
			TRUCKS ASSIGNED					7.00
23	South Arden Hills	51	6216	5.23	20.92	1 B	(4)	1.19
		10	6205	2.53	11.62		(1)	.38
			TOTALS	7.76	32.54	1 B		1.57
			TRUCKS ASSIGNED					2.00
24	South Arden Hills	35E	6280	2.63	15.78	1 A,2½B	(1)	2.44
		694	6285	8.14	32.66	½A,6 B	(1)	4.41
		694	0285	1.00	4.00	½A	(1)	.47
			TOTALS	11.77	52.44	2 A,8½B		7.32
			TRUCKS ASSIGNED					7.00



SEC 31

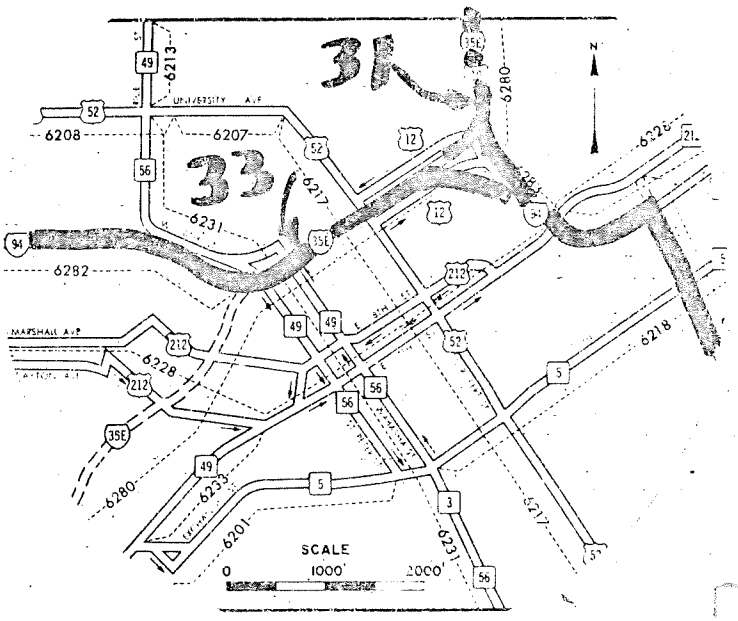


SEC 32



SEC 33

INSET OF ST. PAUL



CENTRAL METRO

Winter Route	Area	T.H. No.	Control Section	Center Line Miles	Lane Miles	Type Inter-Changes	A.D.T. Group	Required Number of Trucks
31	Capitol	35E	6280	2.29	13.76	2½ B	(1)	1.70
		94	6283	0.70	2.54		(1)	.08
		56	6244	1.81	7.57		(4)	.25
			TOTALS	4.80	23.87	2½ B		2.03
			TRUCKS ASSIGNED					4.00
32	Maplewood	36	6212	6.83	27.32	3½ A, 5 B	(4)	5.73
		280	6241	1.78	7.12	½ A	(4)	.57
		280	6242	1.54	6.16	2½ A	(4)	1.87
			Univ. to I-94					
		280	6242	.56	3.66		(4)	.12
		35W	6284 & 2788 etc	2.86	13.45	1½ B	(1)	1.19
			TOTALS	13.57	57.71	6½ A 6½ B		9.48
			TRUCKS ASSIGNED					7.00
33	Capitol	94	6282	5.40	41.21	6 B	(1)	4.36
		35E	6280	.35	2.80		(1)	.09
			Connection 6280 to 6283	.33	1.98	2 B	(1)	1.07
			TOTALS	6.08	45.99	8 B		5.52
			TRUCKS ASSIGNED					6.00

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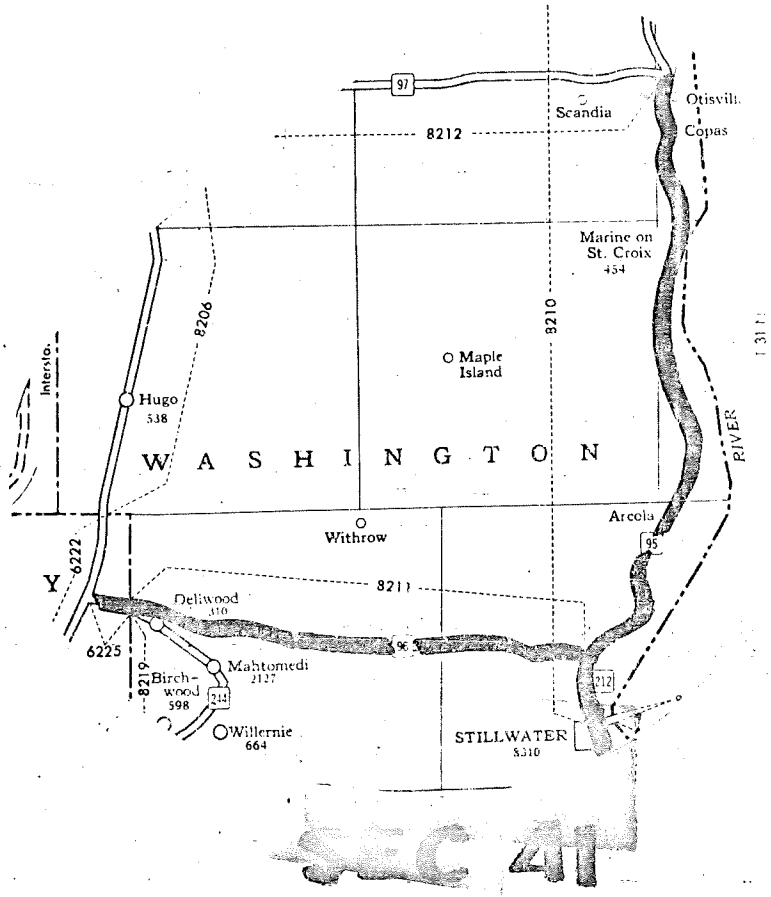
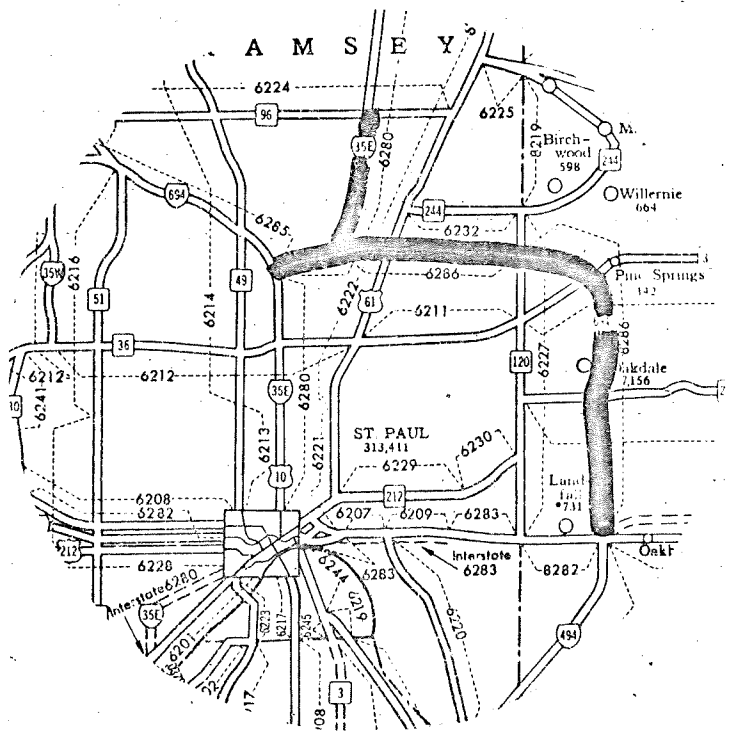
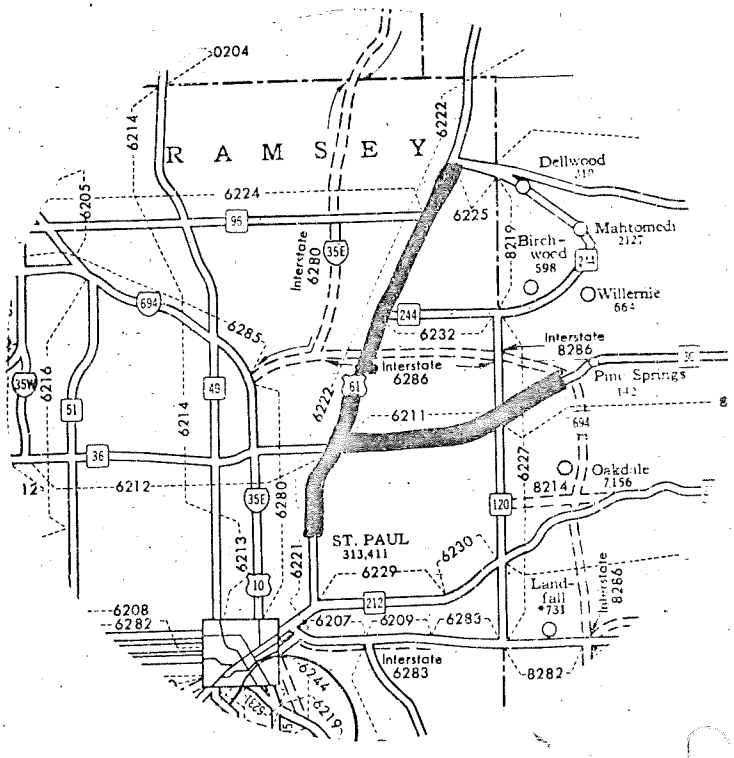
SEC 42
REV. 10-23-70



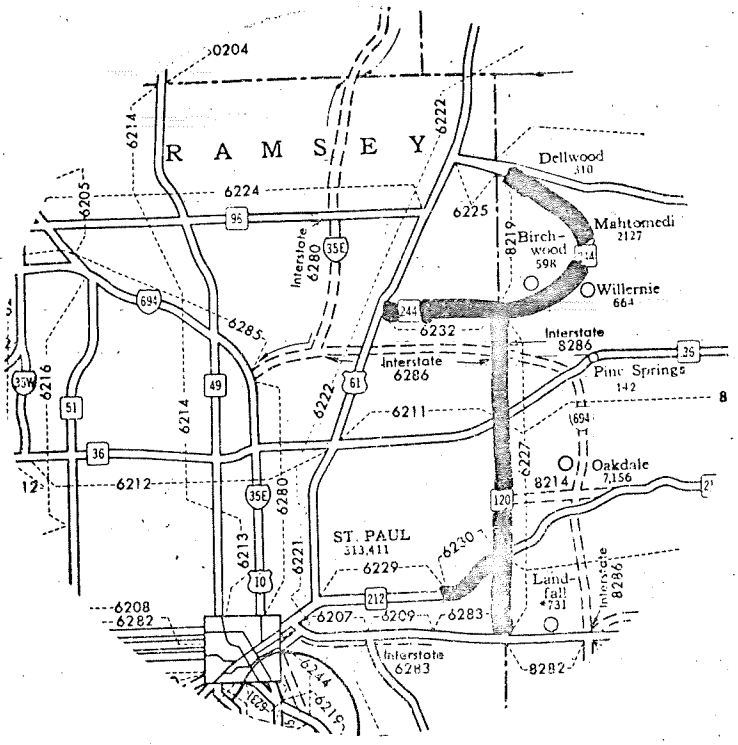




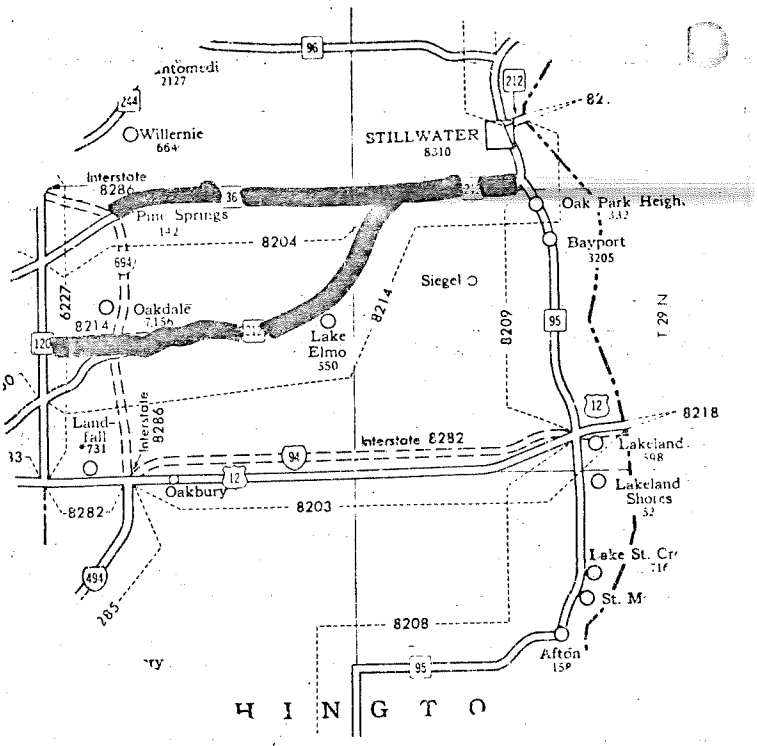
EAST METRO

Winter Route	Sub-Area	T.H. No.	Control Section	Center Line Miles	Lane Miles	Type Inter-Changes	A.D.T. Group	Required Number of Trucks
41	Stillwater	212	8214	1.15	2.65		(4)	.09
		212	8217	0.10	0.20		(4)	.01
		95	8210	15.57	32.18		(6)	.55
		96	6225	1.15	2.30		(6)	.04
		96	8211	9.10	18.20		(6)	.31
			TOTALS	27.07	55.53			1.00
			TRUCKS ASSIGNED					1.00
42	Oakdale	694	8286	6.84	27.36	1½A, 2 B	(1)	2.90
		694	6286	3.52	14.08	2 B	(1)	1.46
		35E	8280	2.87	14.48	1½B	(1)	1.23
			TOTALS	13.23	55.92	1½A, 5½B		5.59
			TRUCKS ASSIGNED					5.00
43	Oakdale	61	6222	7.61	30.44		(4)	1.00
		36	6211	3.62	14.48	1 B	(4)	0.73
		36	8204	1.32	5.28		(4)	.17
			TOTALS	12.55	50.20	1 B		1.90
			TRUCKS ASSIGNED					2.00
44	Oakdale	120	6227	5.92	11.84		(4)	.39
		120	6227	1.13	2.26		(5)	.07
		244	6232	2.50	5.00		(5)	.17
		244	8219	4.80	9.60		(5)	.32
		212	6230	1.39	2.78		(4)	.09
			TOTALS	15.74	31.48			1.04
			TRUCKS ASSIGNED					1.00

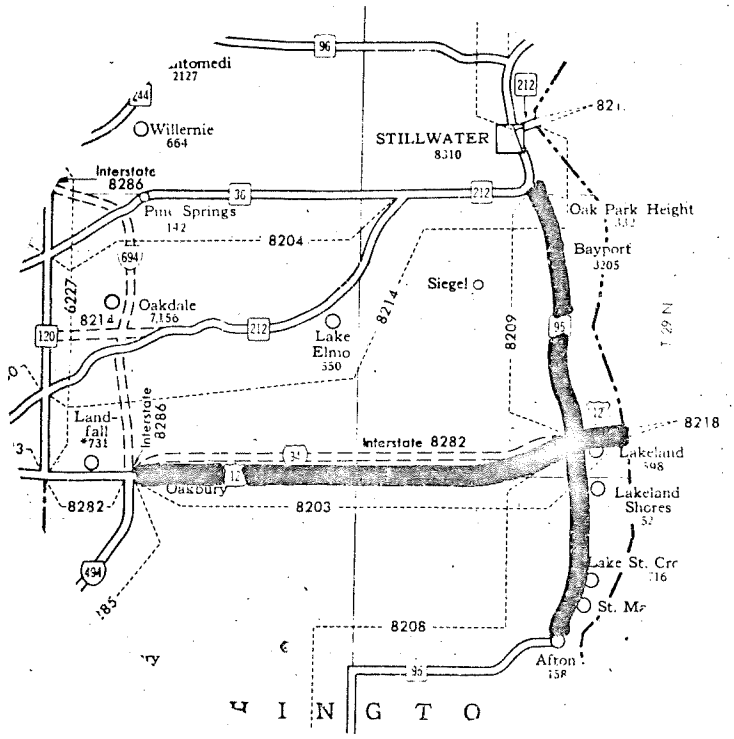
9-18-69
SEC 47 ELIMINATE
10-23-70



SEC 44



SEC 45



SEC 46

EAST METRO

Winter Route	Sub-Area	T.H. No.	Control Section	Center Line Miles	Lane Miles	Type Inter-Changes	A.D.T. Group	Required Number of Trucks
45	Stillwater	212	8214	11.17	34.14	2B	(5)	1.25
		36	8204	6.01	24.04		(4)	.79
			TOTALS	17.18	58.18	2B		2.04
			TRUCKS ASSIGNED					3.00
46	Stillwater	12	8203	9.58	38.32	1 A	(1)	1.60
		12	8218	0.22	.44		(1)	.01
		95	8208	4.18	8.82		(6)	.15
		95	8209	5.85	16.26		(5)	.36
			TOTALS	19.83	63.84	1 A		2.12
			TRUCKS ASSIGNED					2.00

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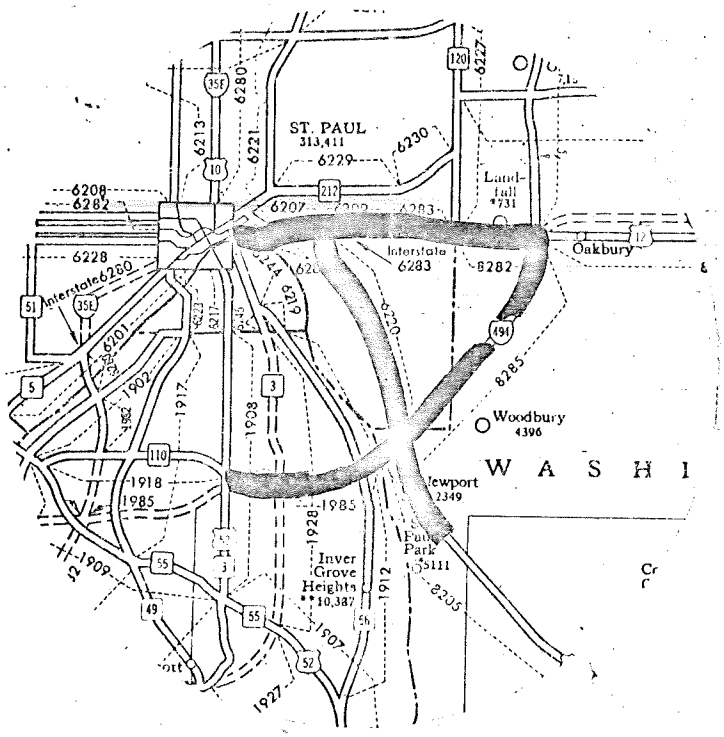
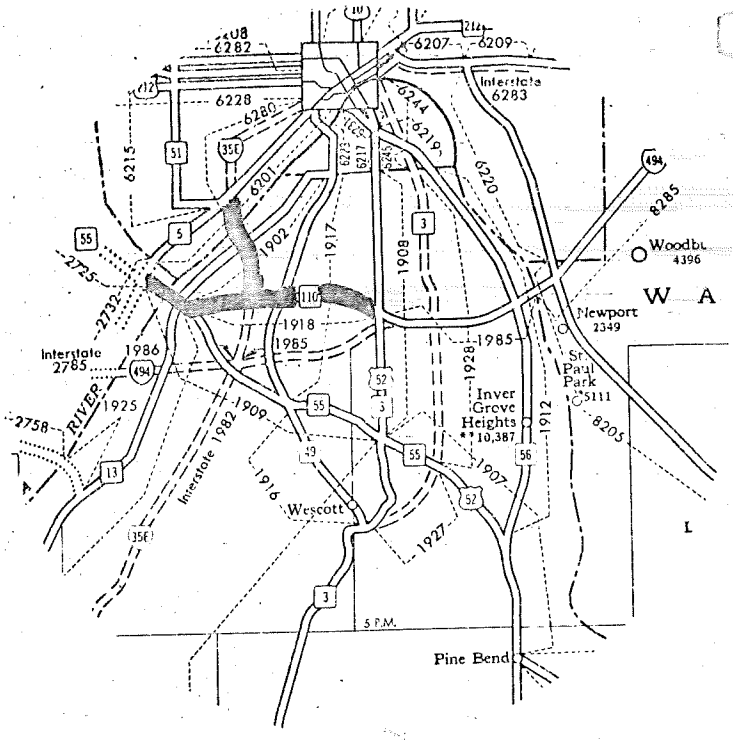
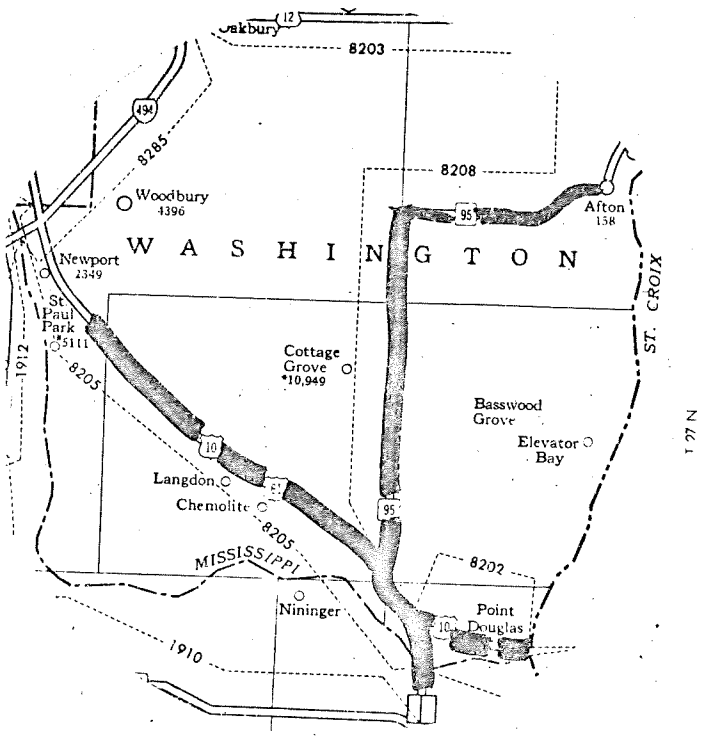
SEC 51
REV. 10-23-70



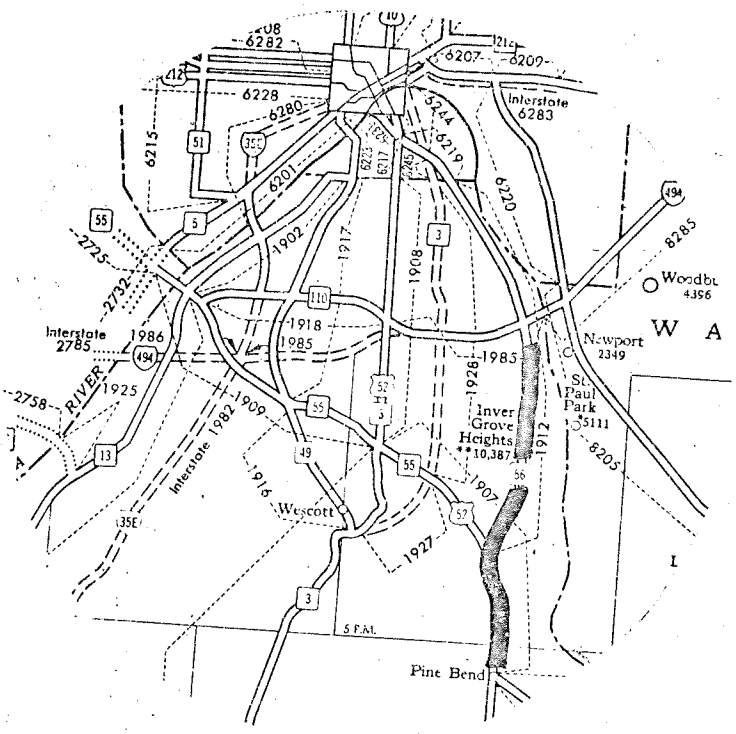
SEC 51



SEC 52



SEC 53

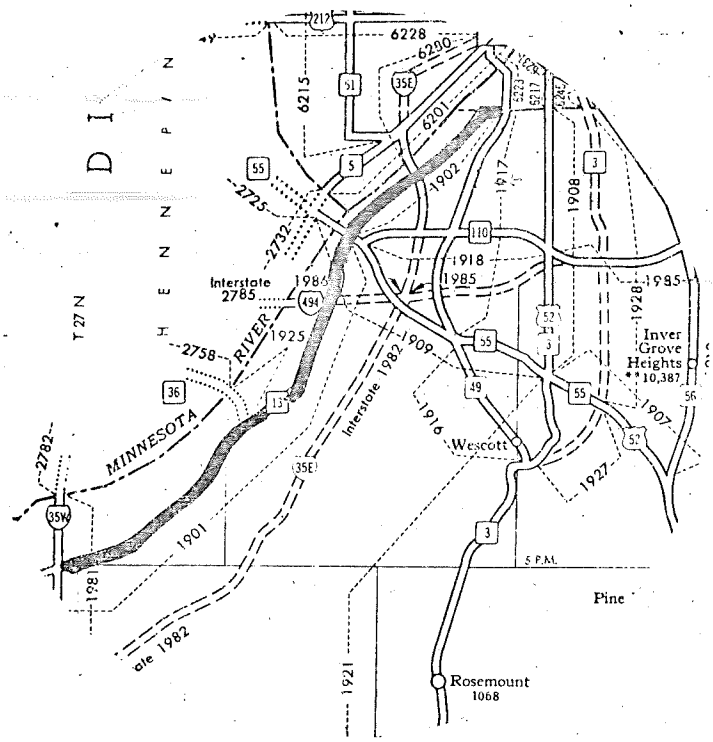


SEC 54

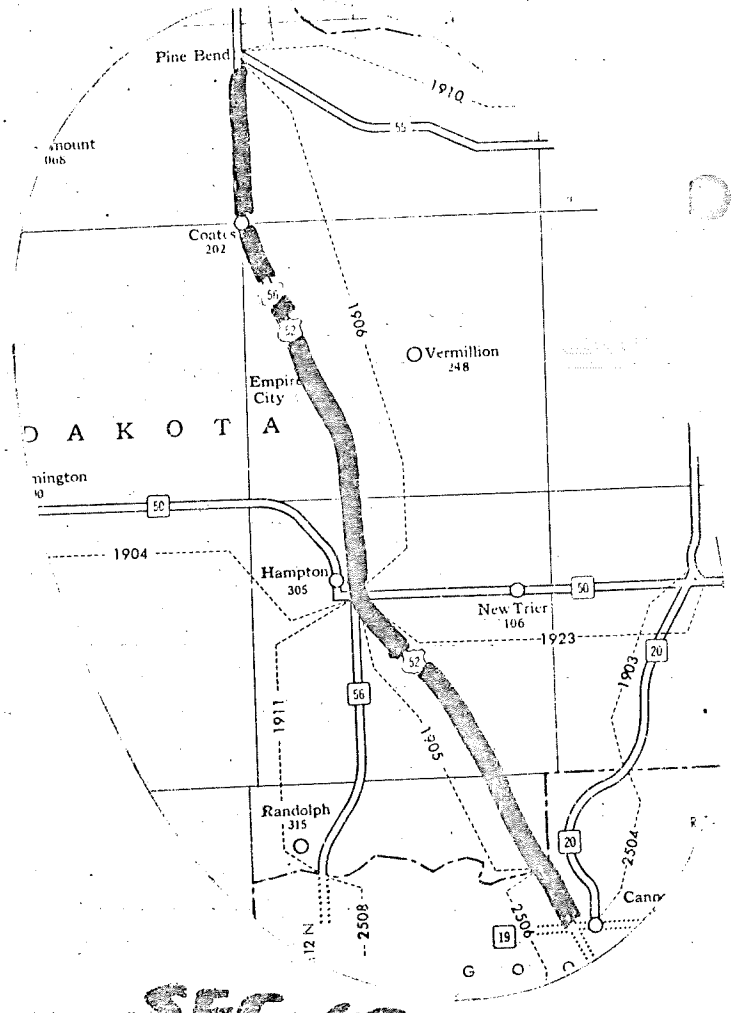
SOUTH METRO

Winter Route	Sub-Area	T.H. No.	Control Section	Center Line Miles	Lane Miles	Type Inter-Changes	A.D.T. Group	Required Number of Trucks
51	St.P.P.	61	8205	3.24	12.96	½ B	(1)	.68
		61	6220	4.99	19.96		(1)	.66
		110	1918	1.67	6.68	½A	(4)	.55
		494	1985	1.41	5.14	1 A,2 B	(1)	1.84
		494	8285	5.81	23.24	1½A,2 B	(1)	2.77
		94,10,12	6283,07,09	4.80	24.48	4½B	(1)	3.06
		94	8282	1.26	7.18	½B	(1)	.49
			TOTALS	23.18	99.64	3 A,9½B		10.05
			TRUCKS ASSIGNED					9.00
52	Ft.S.	35E	1982	1.65	6.60	1A ,1 B	(1)	1.38
		35E	6280	1.00	4.00	1 B	(1)	.63
		110	1918	4.33	17.32	½A	(4)	.90
		55	2725	0.06	0.24		(4)	.01
		55	1909	1.09	4.36		(4)	.14
			TOTALS	8.13	35.52	1½A,2 B		3.06
			TRUCKS ASSIGNED					2.00
53	St.P.P.	10	8202	2.93	5.86		(2)	.13
		10	8216	0.05	0.10		(2)	.00
		61	8205	9.82	39.28	1 B	(2)	1.11
		95	8208	12.26	24.52		(6)	.42
			TOTALS	25.06	69.76	1 B		1.66
			TRUCKS ASSIGNED					2.00
54	Ft.S.	52	1907	2.62	10.48		(5)	.23
		56	1912	4.27	8.54		(5)	.19
			TOTALS	6.89	19.02			0.42
			TRUCKS ASSIGNED					1.00

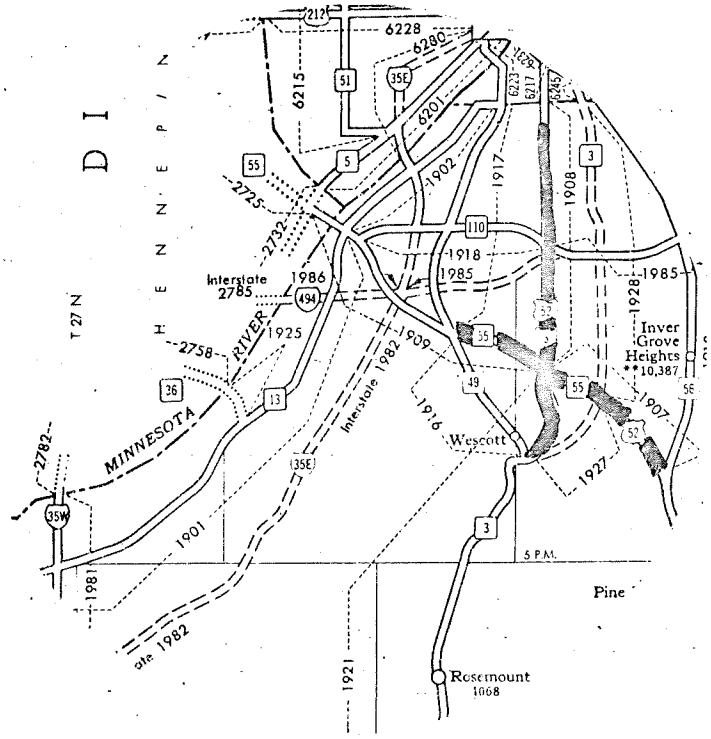
9-18-69



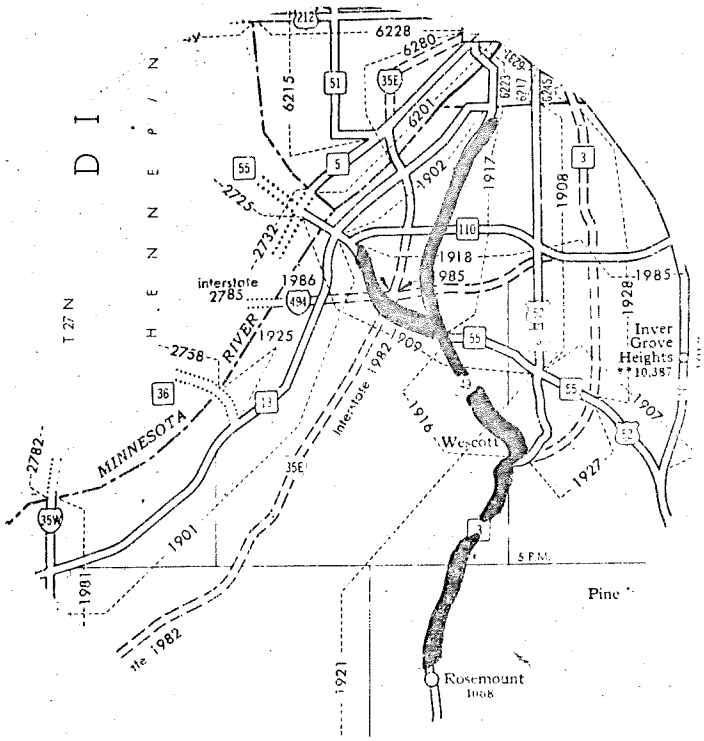
SEC 61



SEC 62



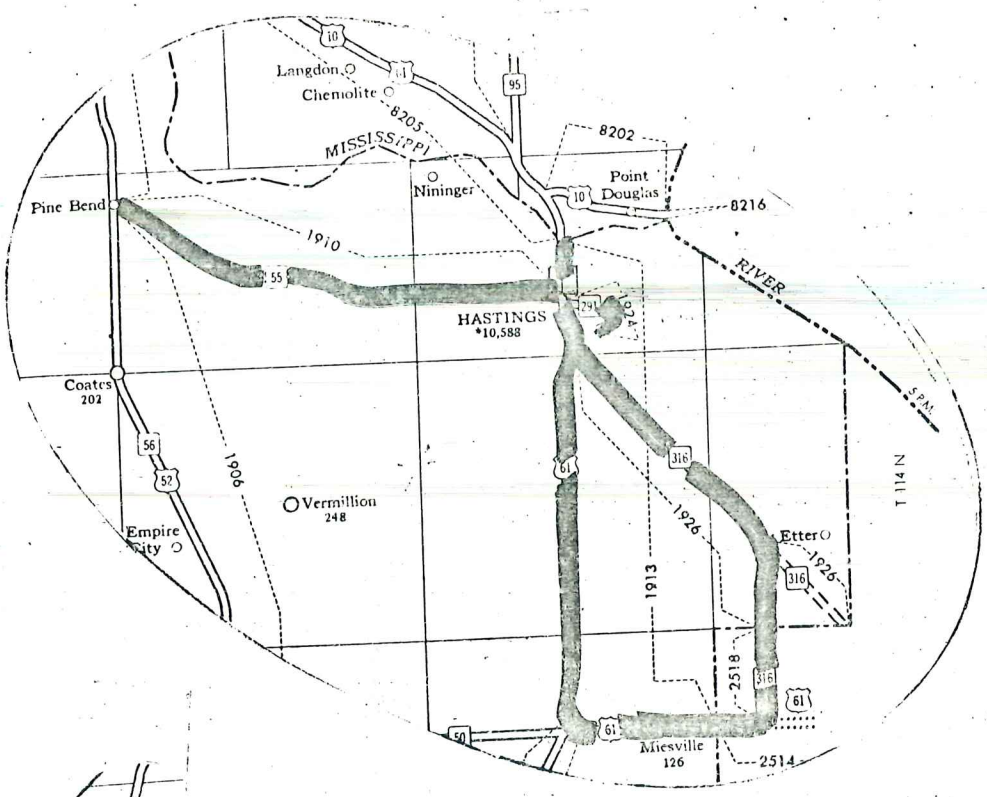
SEC 63



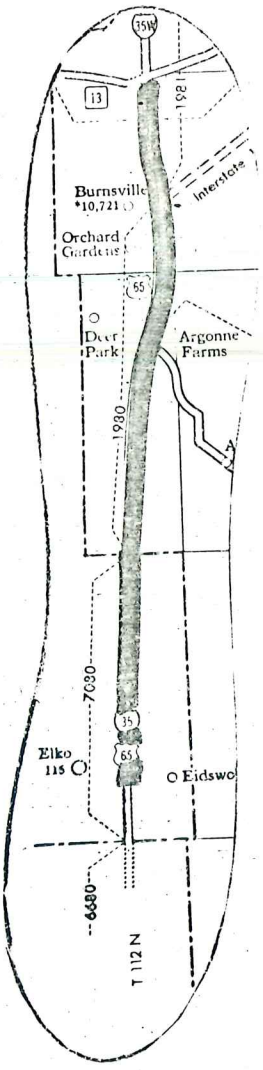
SEC 64

SOUTH AREA

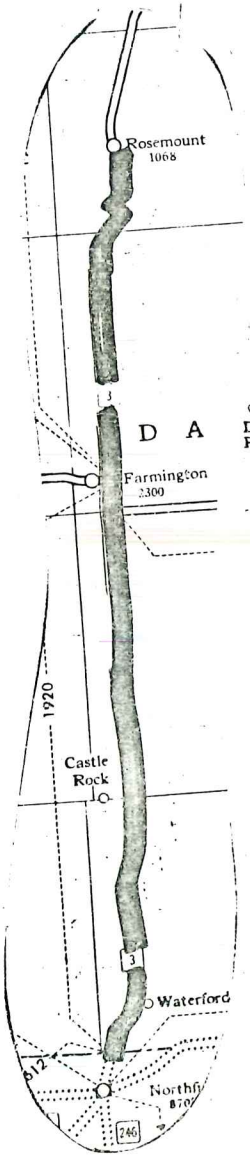
Winter Route	Sub-Area	T.H. No.	Control Section	Center Line Miles	Lane Miles	Type Inter-Changes A - B	A.D.T. Group	Required Number of Trucks
61	Rosemount (W.St.P.)	13	1901	4.54	9.08		(4)	.30
		13	1901	5.61	11.22		(5)	.25
		13	1902	4.45	8.90		(5)	.20
			TOTALS	14.60	29.20			0.75
			TRUCKS ASSIGNED					1.00
62	Rosemount	52	2506	0.75	3.00	0 - ½	(5)	.19
		52	1905	6.86	27 .44	½ - 0	(5)	.80
		52	1906	11.91	47.64	½ - 0	(5)	1.25
			TOTALS	19.52	78.08	1 - ½		2.24
			TRUCKS ASSIGNED					2.00
63	Rosemount	3	1921	2.78	5.56	1/3 - 0	(5)	.26
		52	1908	2.79	5.58		(5)	.18
		52	1908	2.61	5.22	1/3 - 0	(4)	.39
		55	1909	2.10	8.40	1/3 - 0	(5)	.32
		52	1907	3.21	12.84		(5)	.28
			TOTALS	13.49	37.60	1 - 0		1.43
			TRUCKS ASSIGNED					1.00
64	Rosemount	3	1921	12.22	24.44		(5)	.54
		49	1916	2.94	5.88		(5)	.13
		55	1909	3.39	6.78		(4)	.22
		49	1917	4.86	9.72		(5)	.21
			TOTALS	23.41	46.82			1.10
			TRUCKS ASSIGNED					1.00



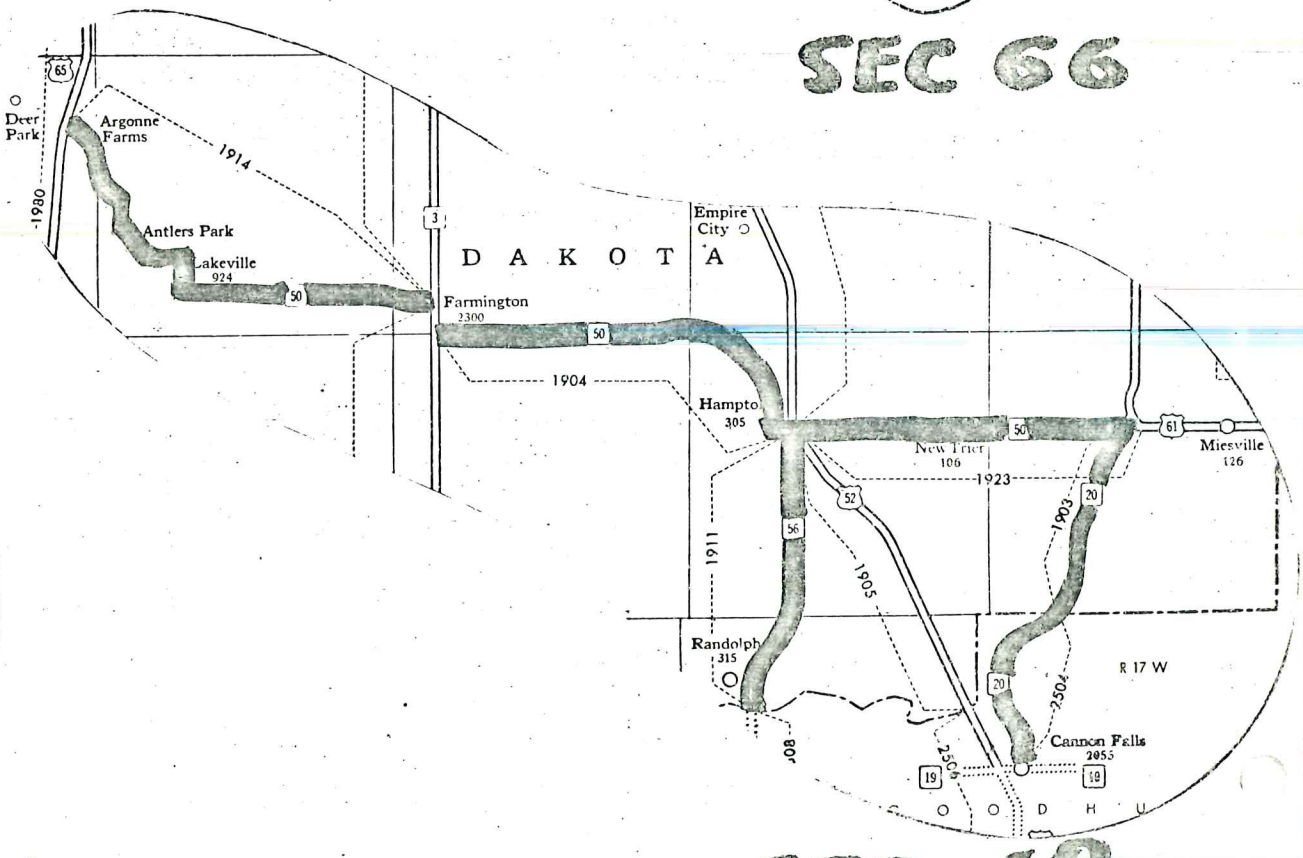
SEC 65



SEC 66



SEC 67



SEC 68

SOUTH AREA

Winter Route	Sub-Area	T.H. No.	Control Section	Center Line Miles	Lane Miles	Type Inter-Changes A - B	A.D.T. Group	Required Number of Trucks
65	Rosemount (Hastings)	55	1910	9.68	19.36		(5)	.43
		291	1924	1.93	3.86		(6)	.07
		316	2518	2.00	4.00		(5)	.09
		316	1926	7.96	15.92		(5)	.35
		61	2514	0.99	1.98		(1)	.07
		61	1913	13.55	29.90		(1)	.99
			TOTALS	35.91	75.02			2.00
			TRUCKS ASSIGNED					2.00
66	Farm. (Ikvl.)	I-35	7080	3.99	15.96	0 - 1	(2)	.48
		I-35	1980	7.80	31.20	0 - 3	(2)	2.53
		35W	1981	2.69	11.76	$1\frac{1}{2}$-$\frac{1}{2}$	(1)	1.64
			TOTALS	14.48	58.92	$1\frac{1}{2}$-$4\frac{1}{2}$		4.65
			TRUCKS ASSIGNED					4.00
67	Farm.	3	1920	11.97	25.28		(5)	.55
		3	1921	7.03	14.48		(5)	.32
			TOTALS	19.00	39.76			.87
			TRUCKS ASSIGNED					1.00
68	Farm.	50	1914	10.14	20.28		(5)	.45
		50	1904	8.27	16.54		(6)	.28
		50	1923	6.95	13.90		(7)	.11
		56	1911	6.16	12.32		(7)	.10
		20	2504	3.05	6.10		(6)	.10
		20	1903	4.59	9.18		(6)	.16
			TOTALS	39.16	78.32			1.20
			TRUCKS ASSIGNED					2.00

SOUTH AREA

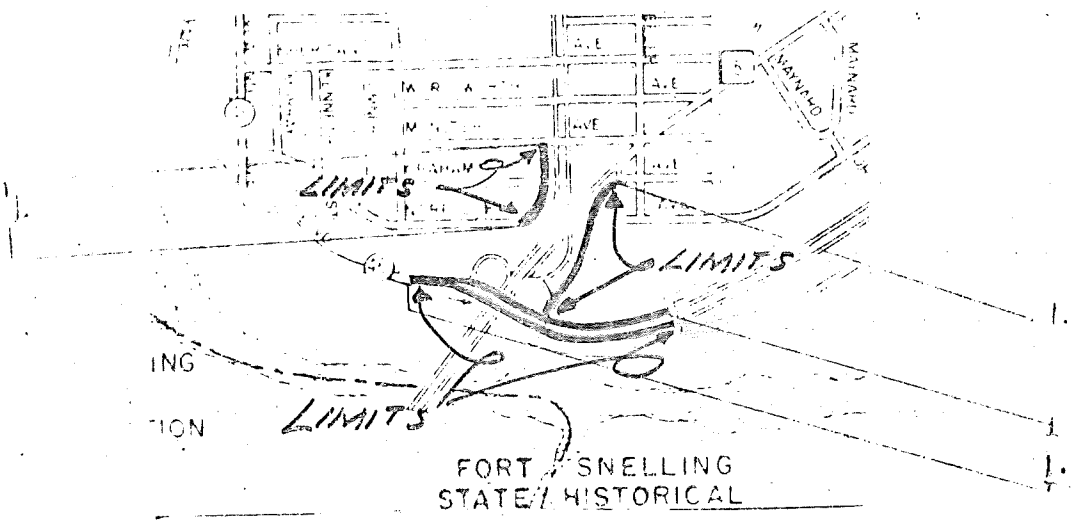
Winter Route	Sub-Area	T.H. No.	Control Section	Center Line Miles	Lane Miles	Type Inter-Changes A - B	A.D.T. Group	Required Number of Trucks
District Totals				548.	1744.	23 - 67½		89.11
			TRUCKS ASSIGNED					88.

District Total D.V.M. = 5,500,681

APPENDIX IV

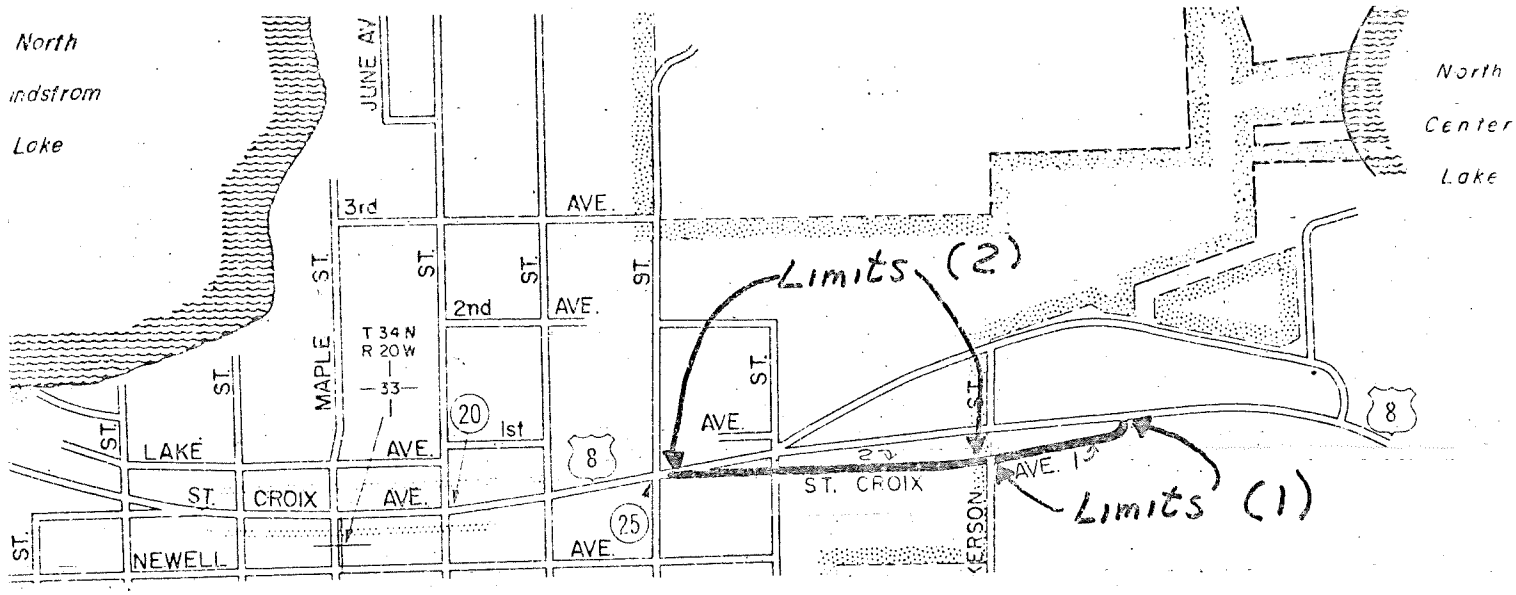
Frontage Road Agreements

This appendix contains a listing of all the frontage road agreements now in effect in our District. These agreements are indexed by the number of the trunk highway or interstate route in the lower right hand corner of the page. The arrows from the word limits indicate the beginning and end of each section of roadway in the agreement. The date following the agreement number is the date the agreement became effective. The exhibit letter is the title of the map received with the agreement.



1. MAINTENANCE AGREEMENT No. 901 (1-19-61) with the City of St. Paul Exhibit "A"

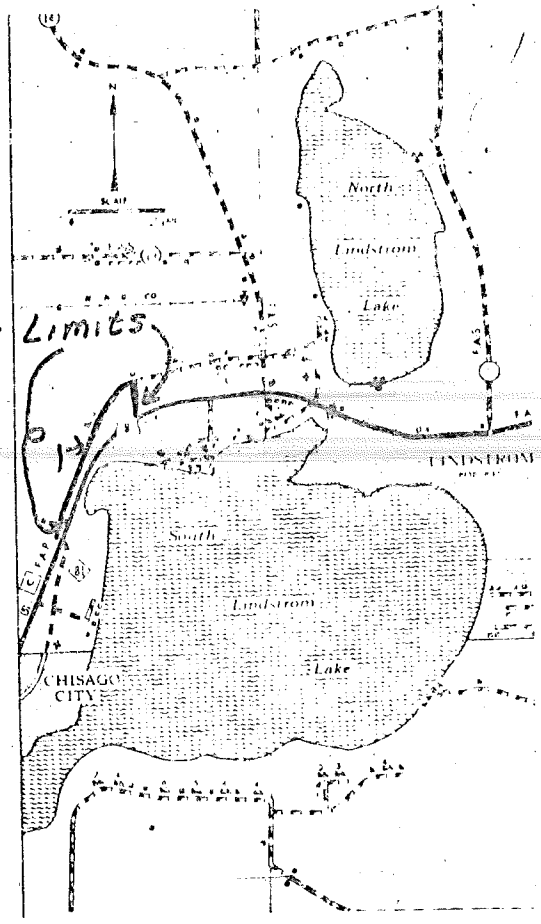
T.H. 5



1. MAINTENANCE AGREEMENT No. 1340 (7-9-68) with CHISAGO LAKE TOWNSHIP

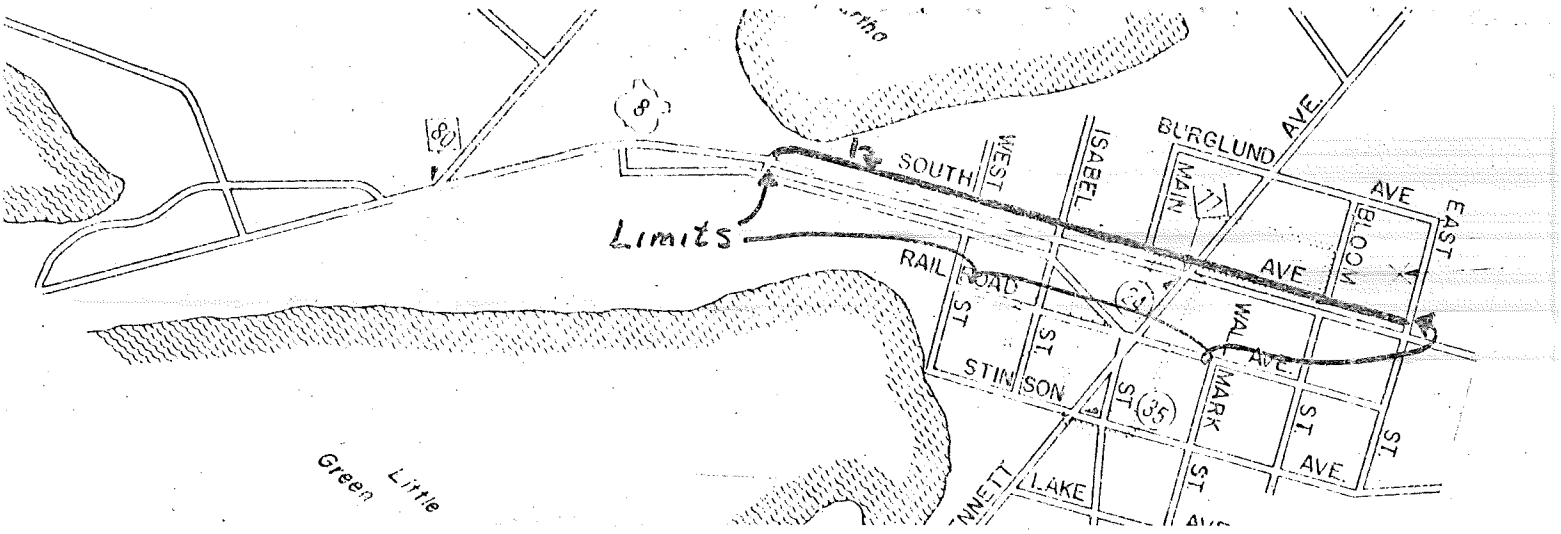
2. MAINTENANCE AGREEMENT No. 1348 (8-29-68) with the VILLAGE of LINDSTROM

T.H. 8



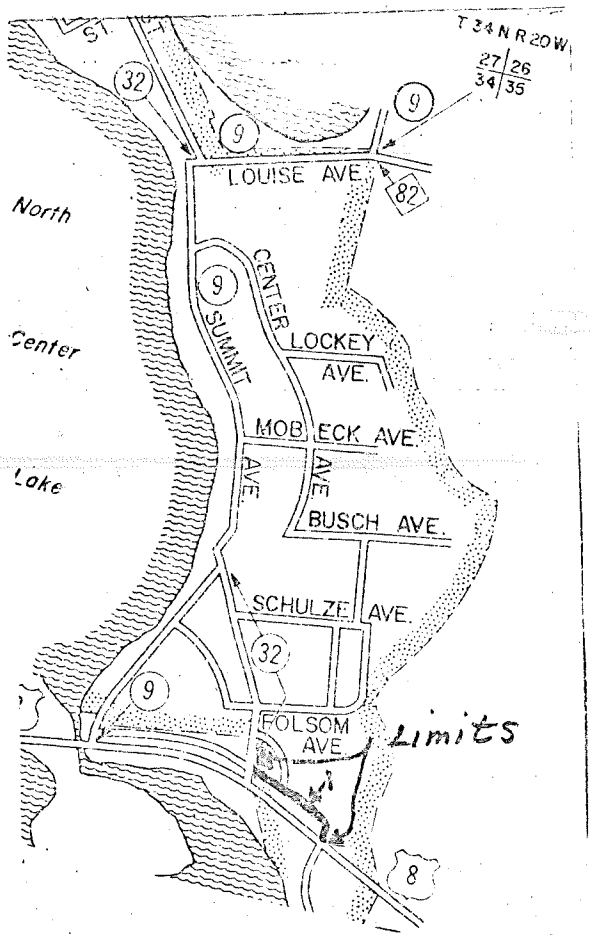
1. MAINTENANCE AGREEMENT No. 1340 (7-9-68)
with CHISAGO LAKE TOWNSHIP

T.H. 8



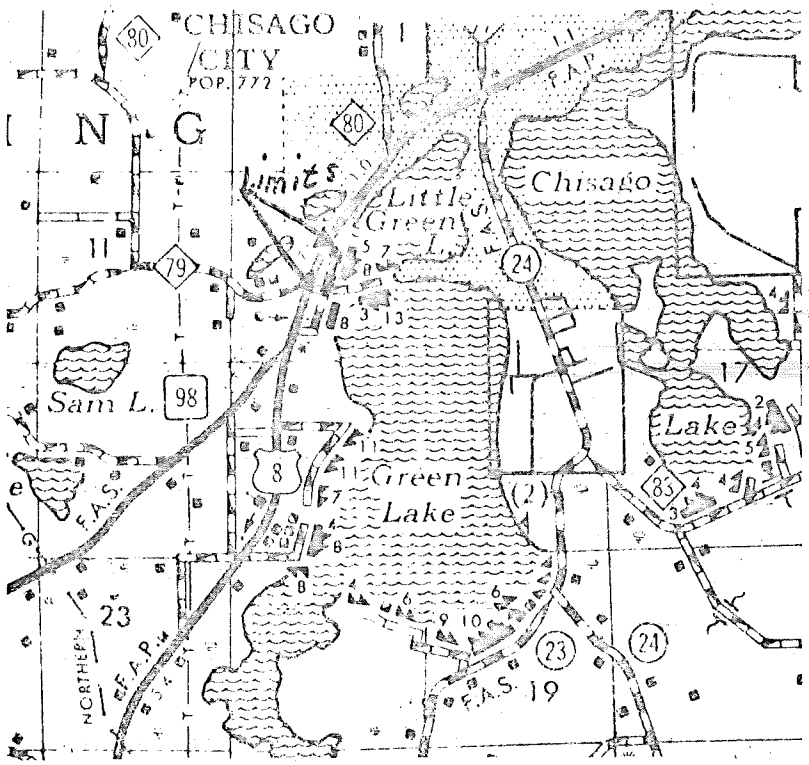
1. MAINTENANCE AGREEMENT No. 1426 with CHISAGO CITY (9-17-69)

T.H. 8



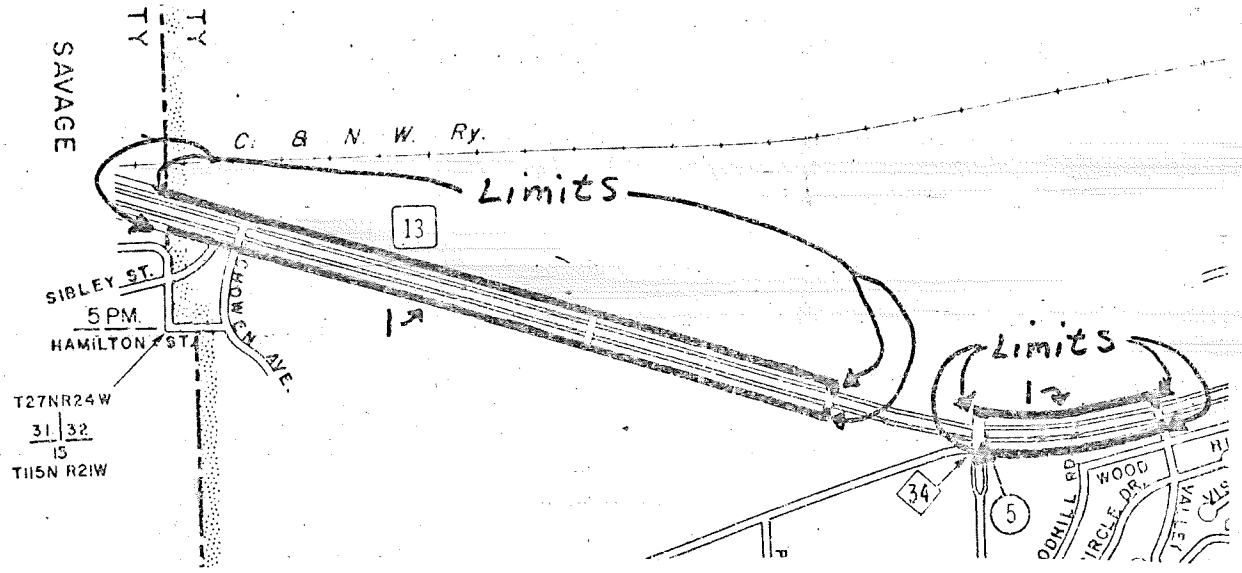
1 MAINTENANCE AGREEMENT No. 1338 (6-27-68)
with CENTER CITY

T.H. 8



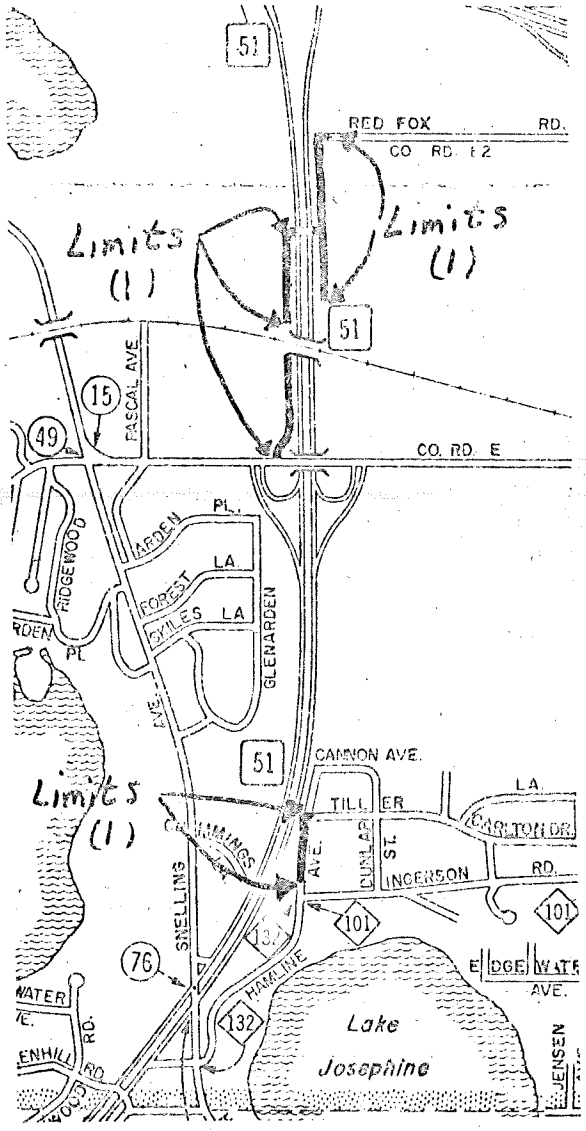
1. MAINTENANCE AGREEMENT No. 1333 (7-2-68)
with CHISAGO COUNTY - Exhibit "A"

T.H. 8



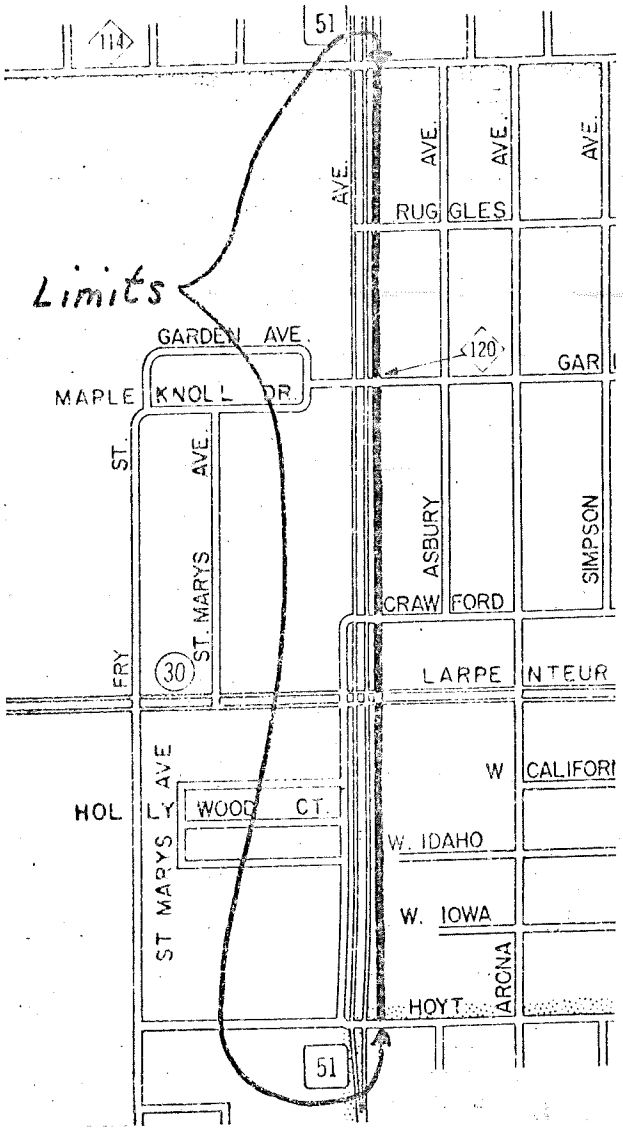
1. MAINTENANCE AGREEMENT No. 1086 - (10-23-64) with the VILLAGE of BURNSVILLE - Exhibit "A"

T.H. 13



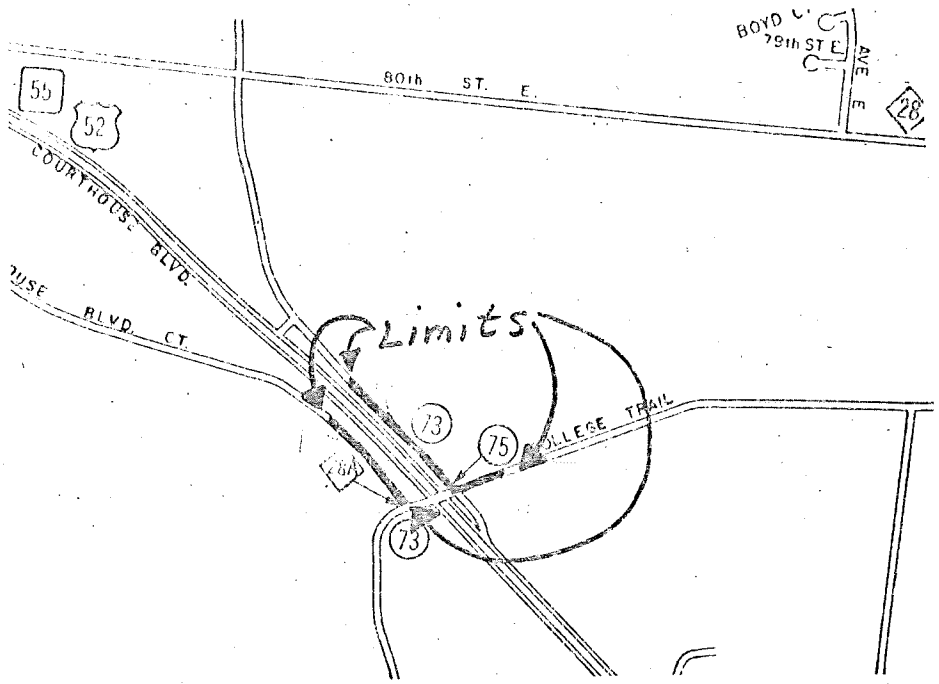
1. MAINTENANCE AGREEMENT No. 1236 (5-2-67)
with ARDEN HILLS - Exhibit "A"

T.H. 51



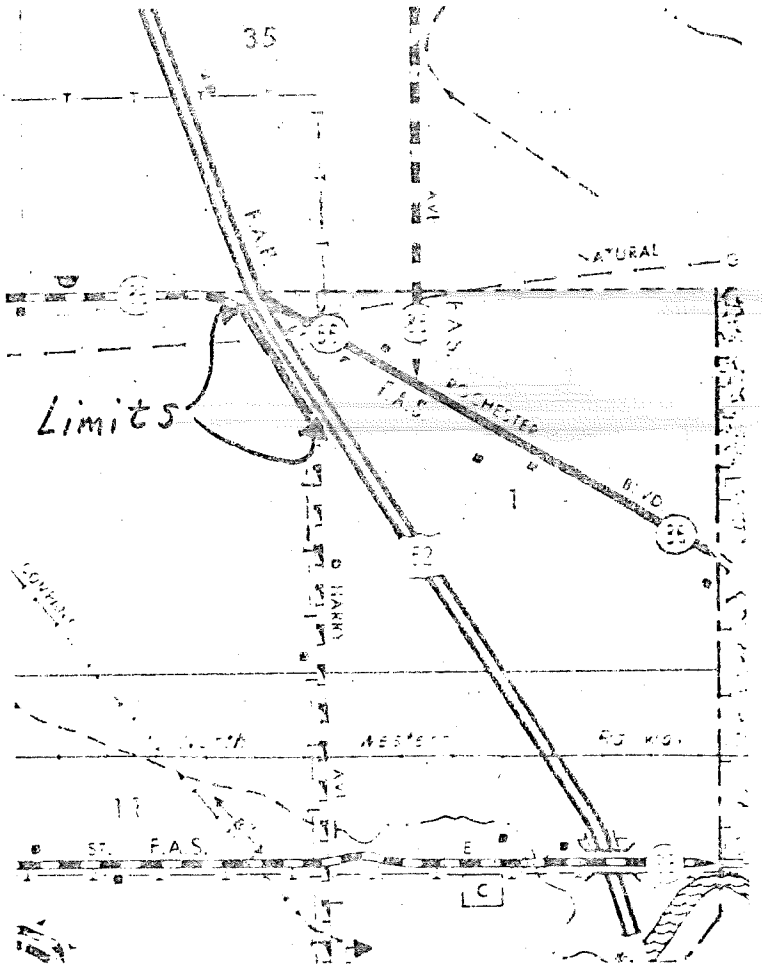
1 MAINTENANCE AGREEMENT No. 1496 (10-7-70)
with the VILLAGE of FALCON HEIGHTS - Exhibit "A"

T.H. 51



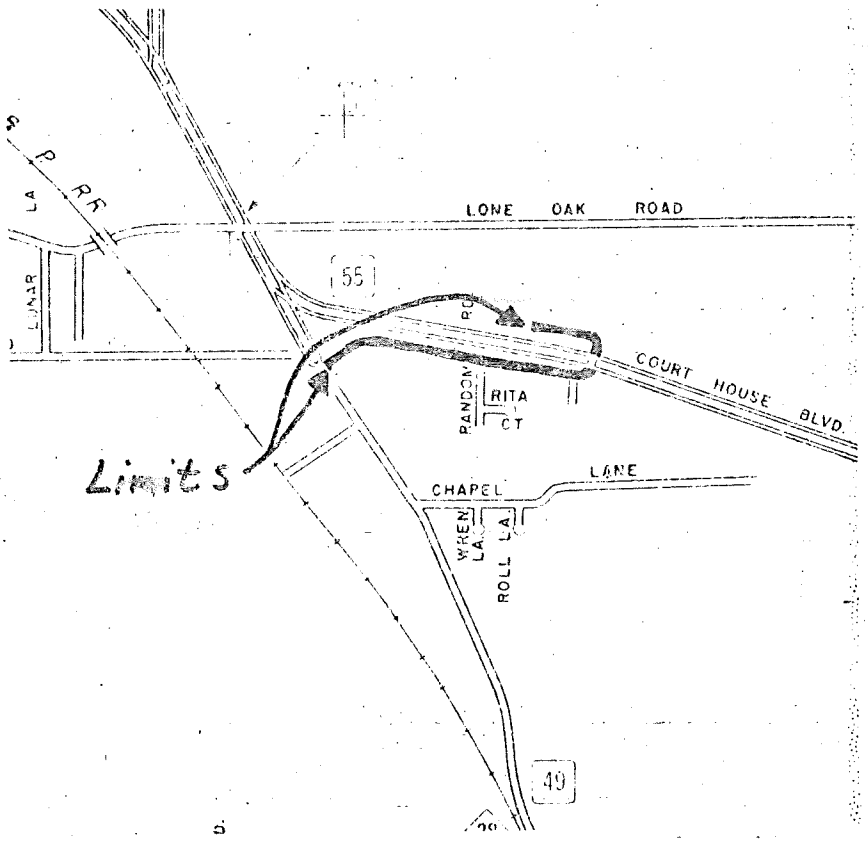
1. MAINTENANCE AGREEMENT No. 974 (9-17-62)
with DAKOTA COUNTY

T.H. 52 + 55



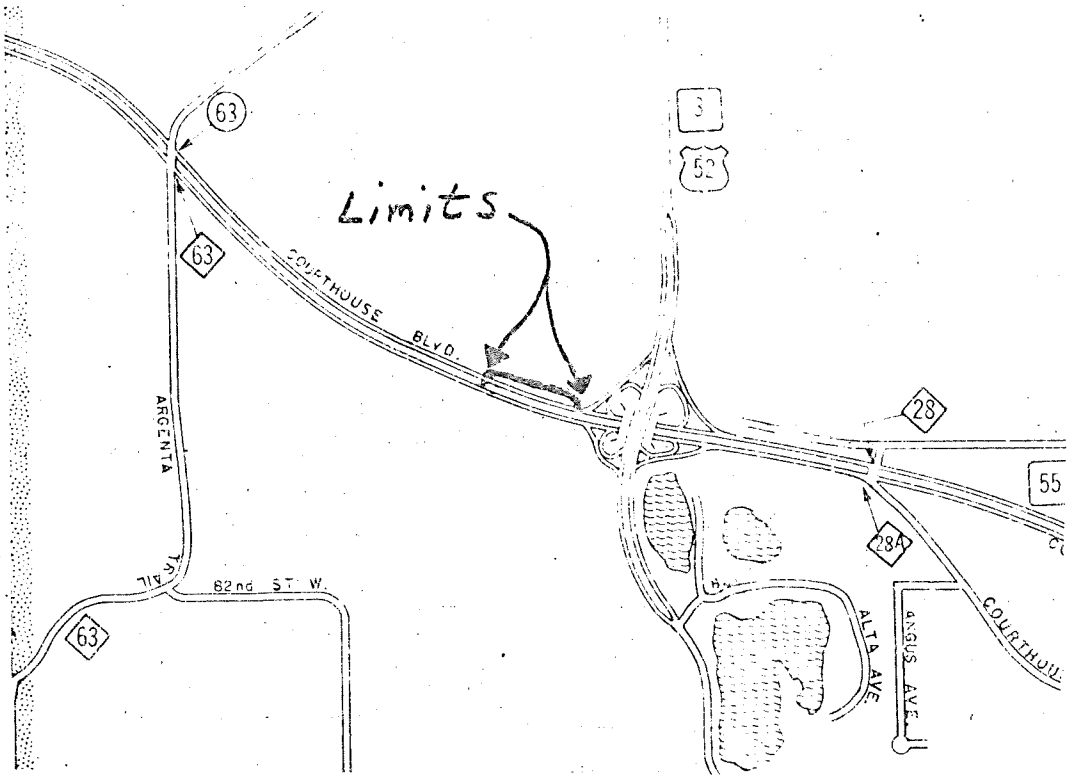
1. MAINTENANCE AGREEMENT No. 1264 - (9-20-67) with the TOWNSHIP of RANDOLPH - Exhibit "A"

T.H. 52



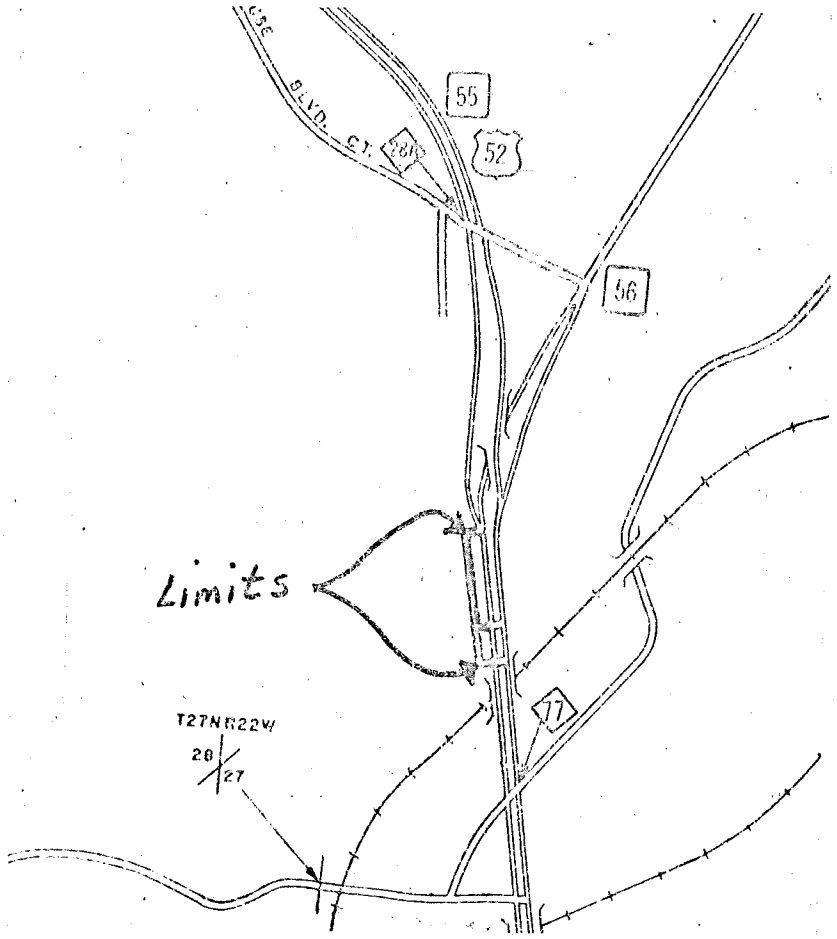
1. MAINTENANCE AGREEMENT No. 1286 (3-13-68) WITH EAGEN TOWNSHIP Exhibit "A"

T.H. 55



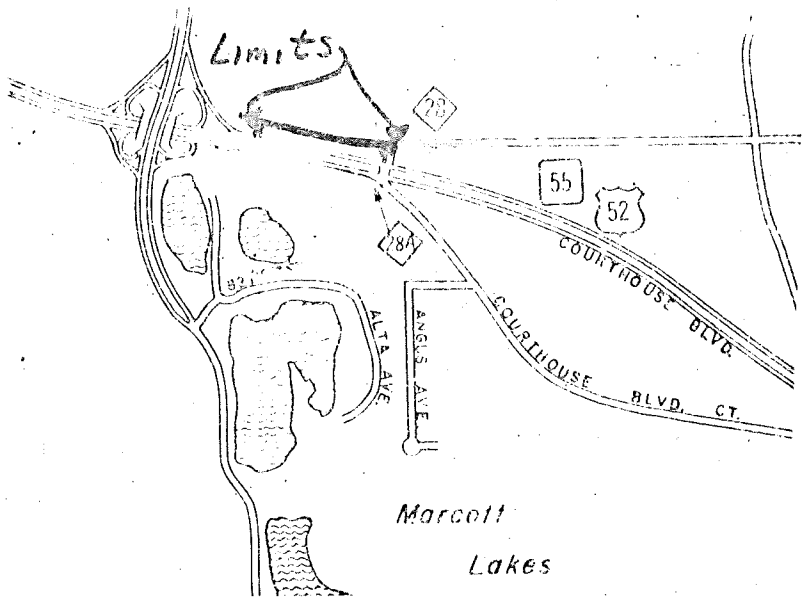
1. MAINTENANCE AGREEMENT No. 1425 (9-8-69) with INVER GROVE HEIGHTS - Exhibit "A"

T.H. 55



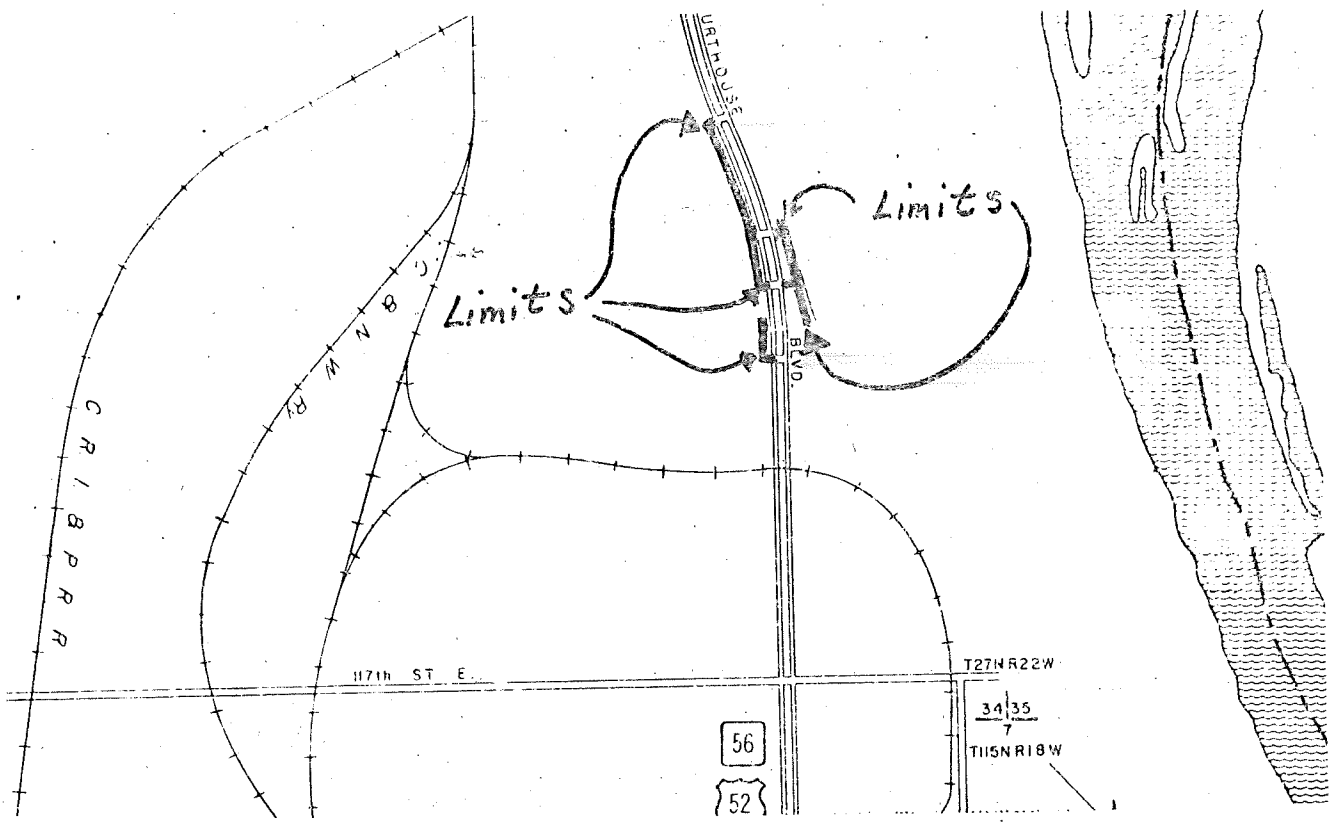
1. MAINTENANCE AGREEMENT No. 1425 - (7-8-69)
with INVER GROVE HEIGHTS - Exhibit "C"

T.H. 52, 55, + 56



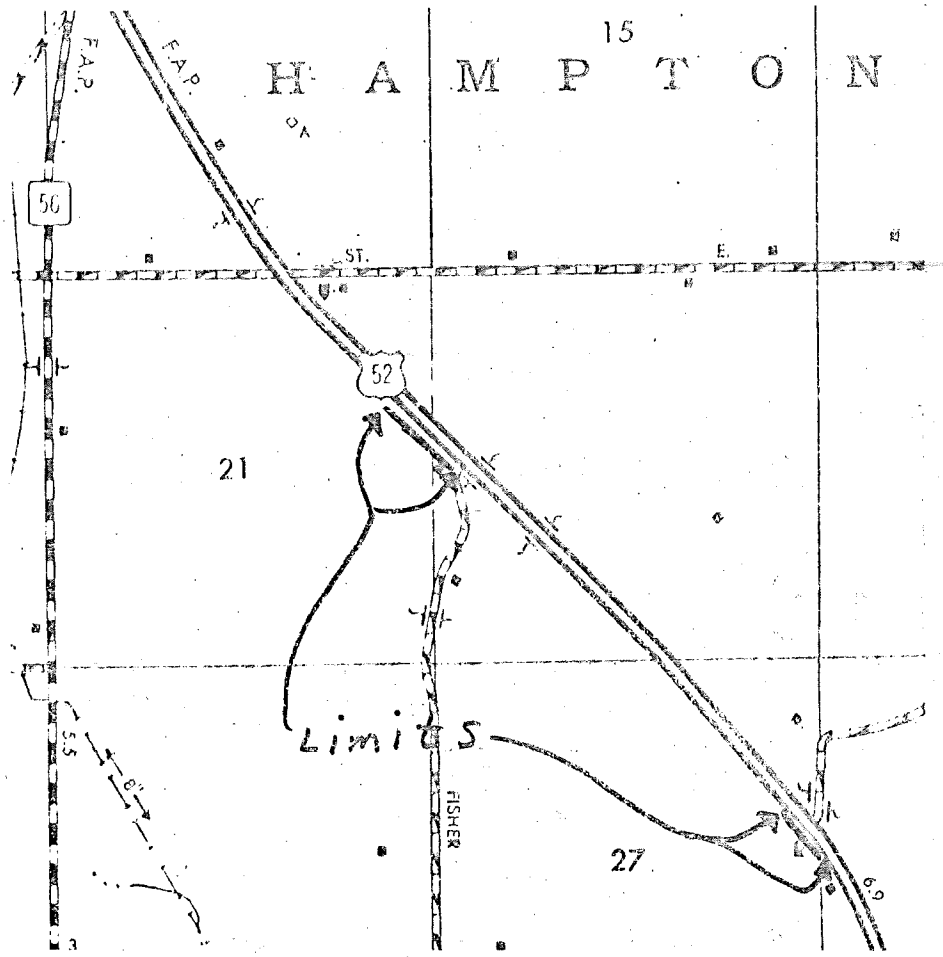
1. MAINTENANCE AGREEMENT No. 1425 (9-8-69)
with INVER GROVE HEIGHTS - Exhibit "B"

T.H. 52 + 55



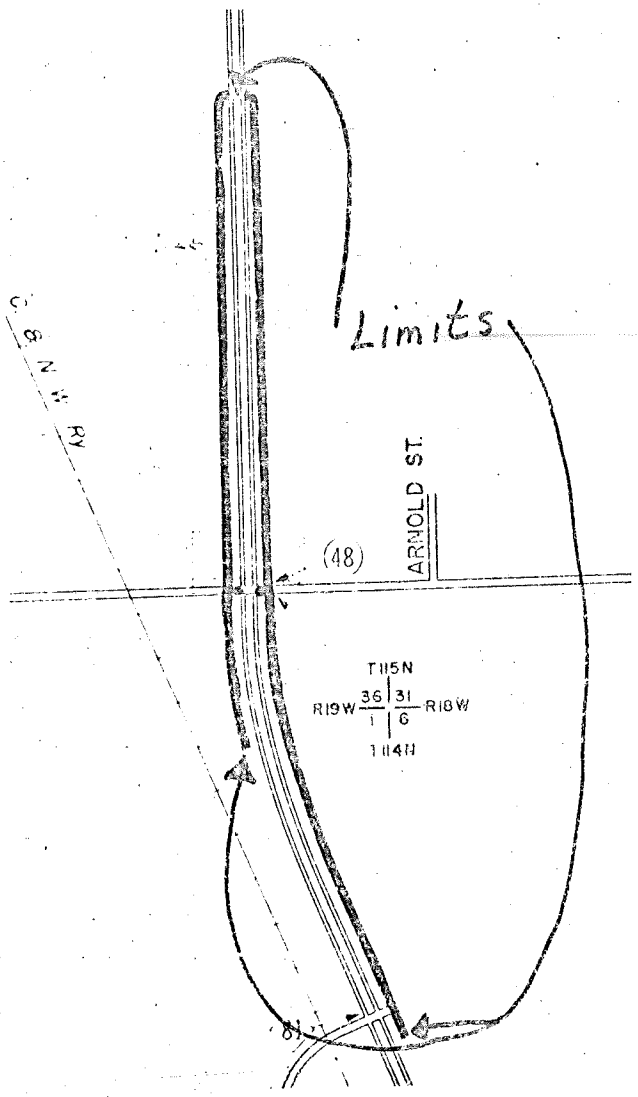
1. MAINTENANCE AGREEMENT No. 1425 - (9-8-69) with INVER GROVE HEIGHTS - Exhibit "D"

T.H. 52, 55, & 56



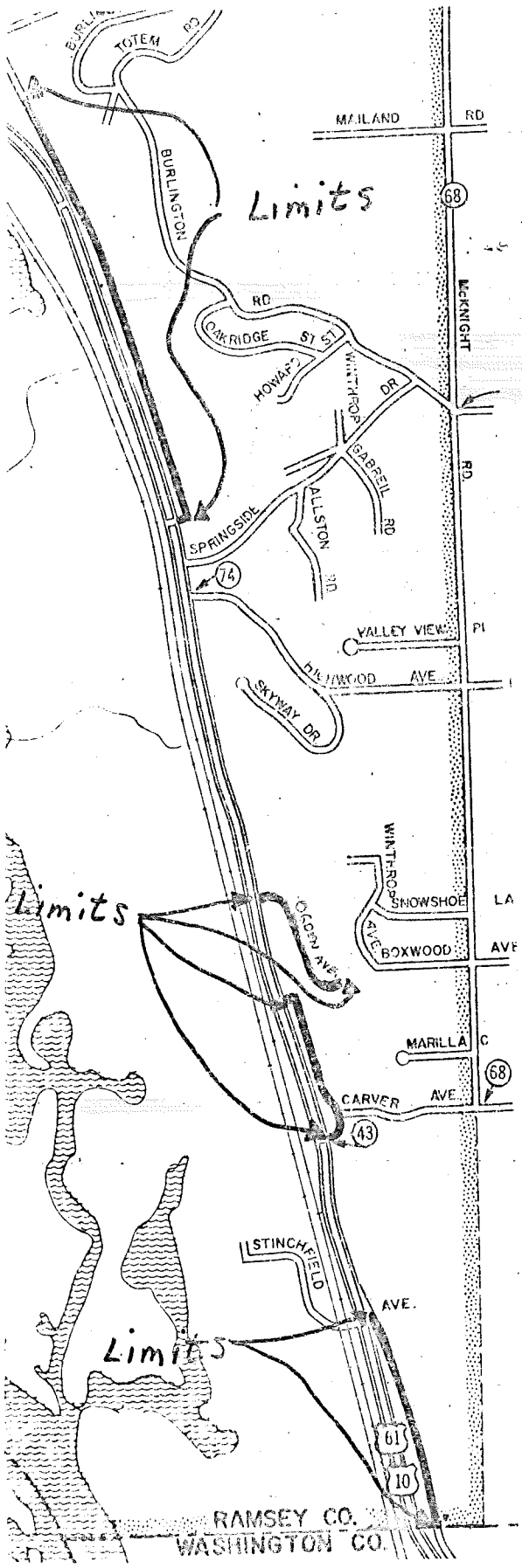
1. MAINTENANCE AGREEMENT No. 1267 - (7-11-67) with Hampton Township - Exhibit "A"

T.H. 52



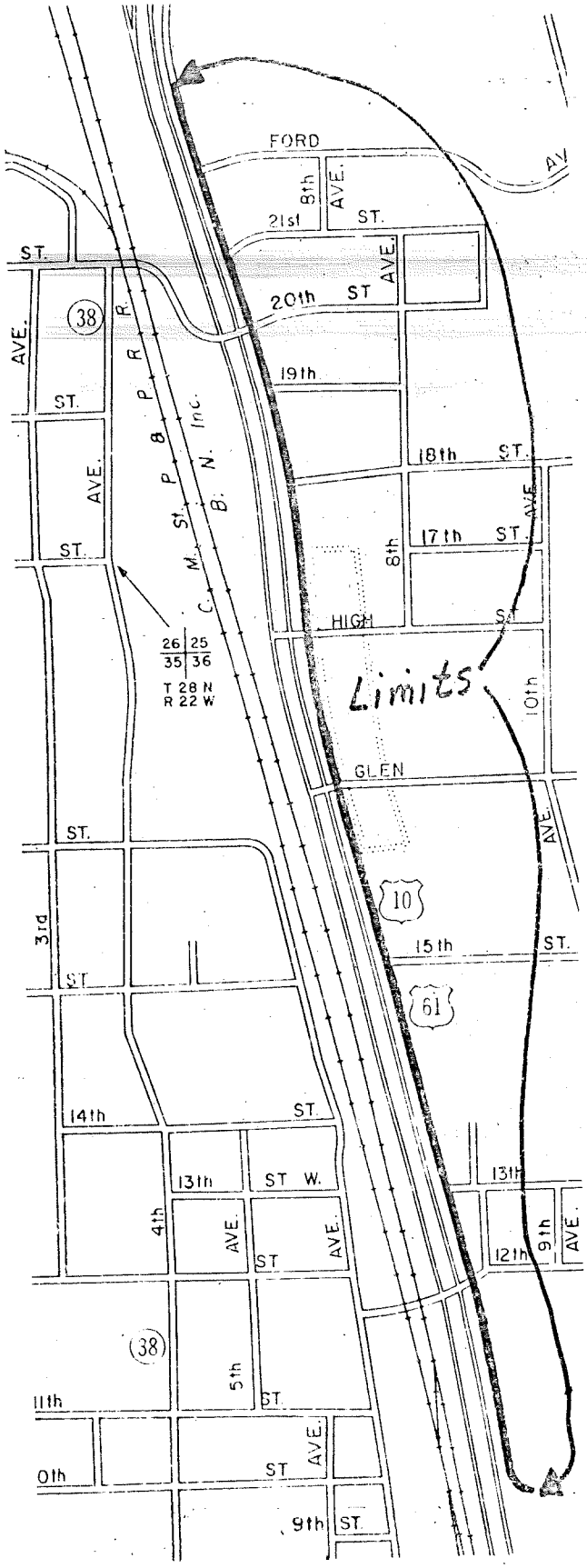
1. MAINTENANCE AGREEMENT No. 1370 - (3-6-69) with the VILLAGE of CONTES - Exhibit "A"

T.H. 52 + 56



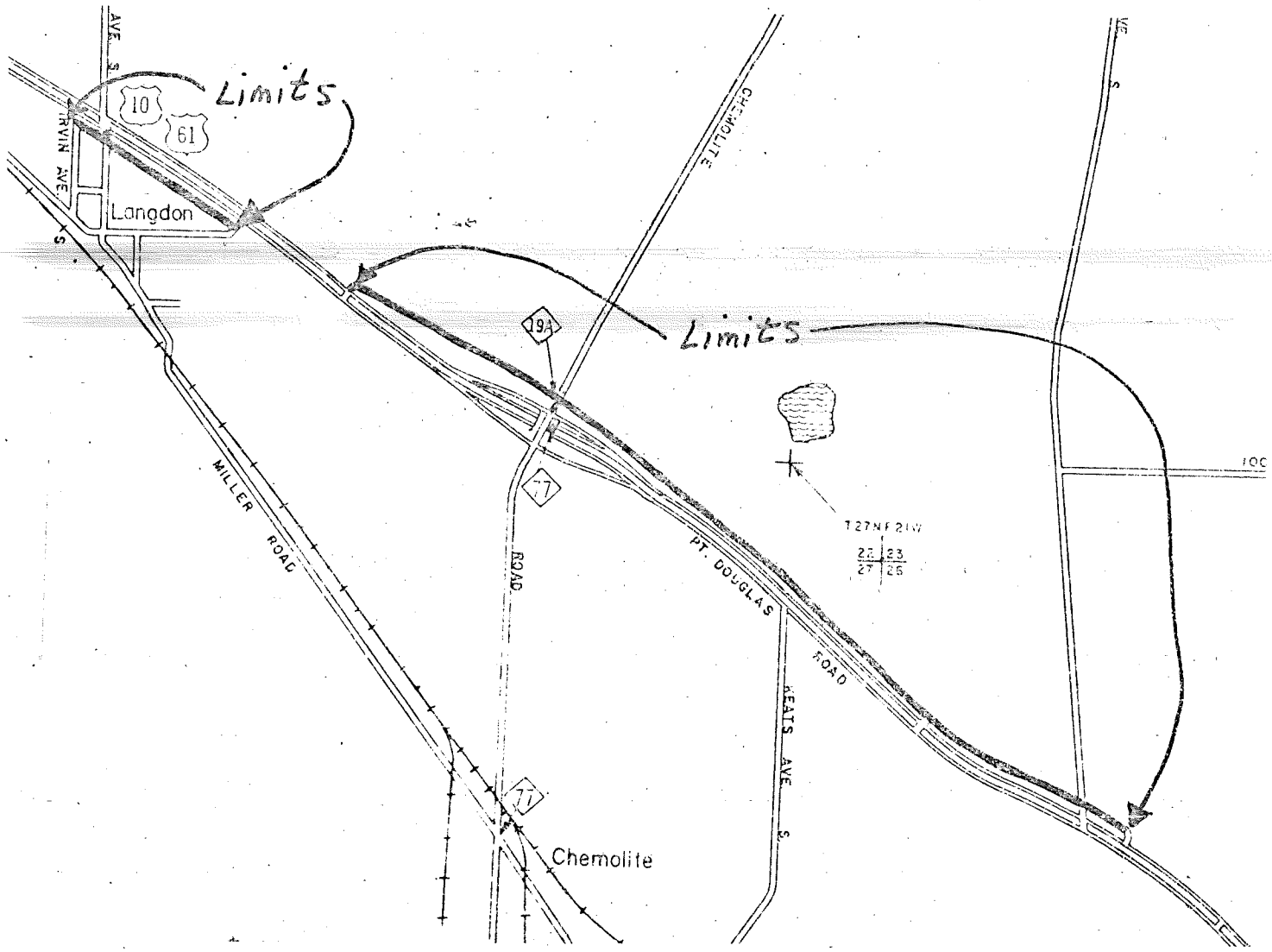
1. MAINTENANCE AGREEMENT No. 1232
with the City of St. Paul
Exhibit "A" (4-17-67)

T.H. 61



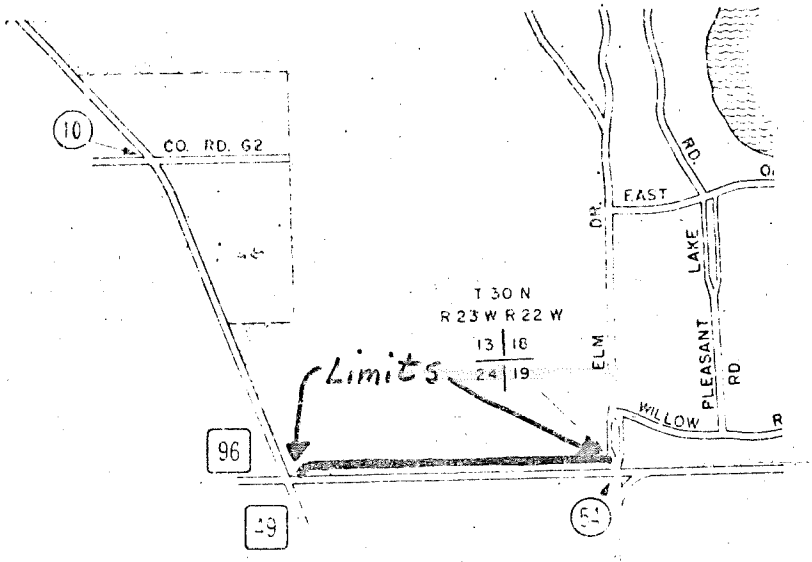
1. MAINTENANCE AGREEMENT NO. 1030-R with VILLAGE of NEWPORT (8-14-63)

T.H. 61



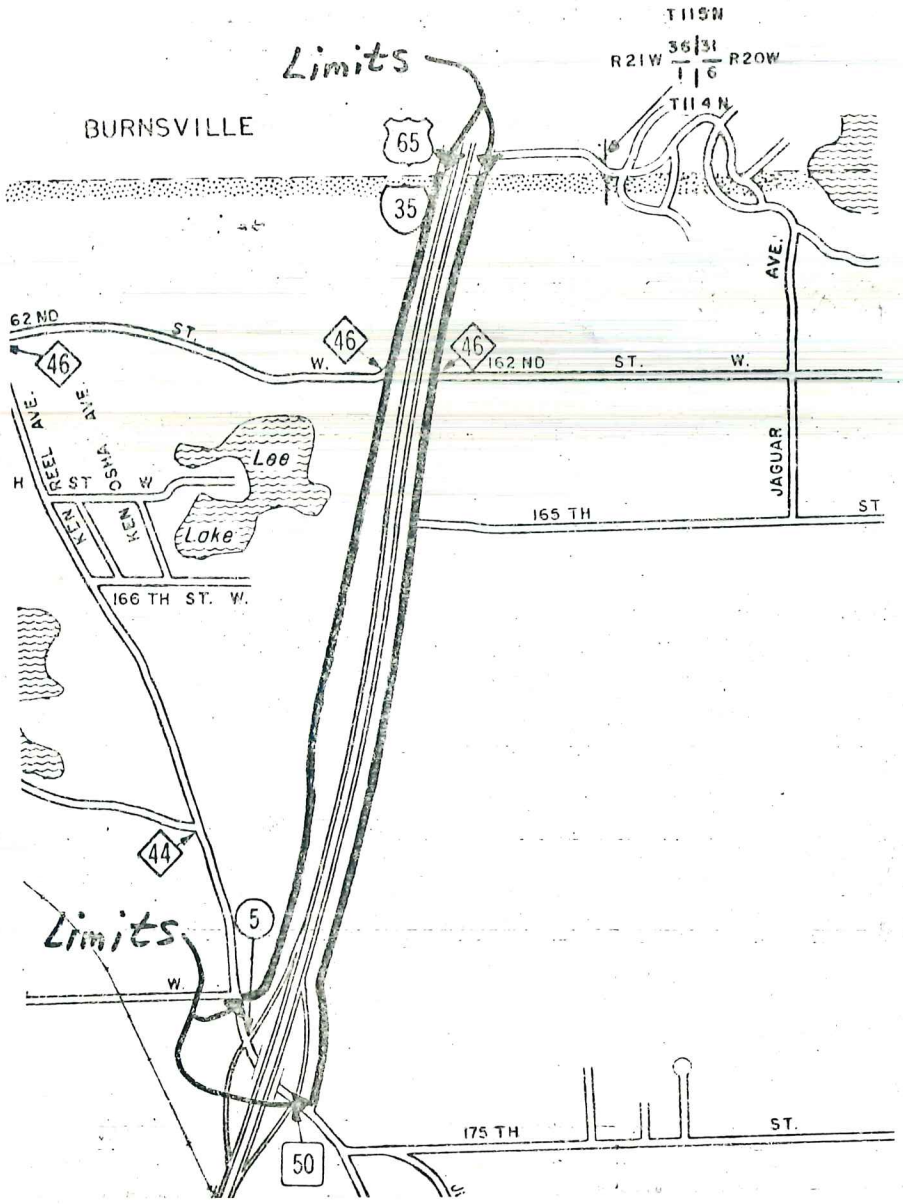
1. MAINTENANCE AGREEMENT No. 1489 (7-21-70)
with the VILLAGE of COTTAGE GROVE - Exhibit "A"

T.H. 61

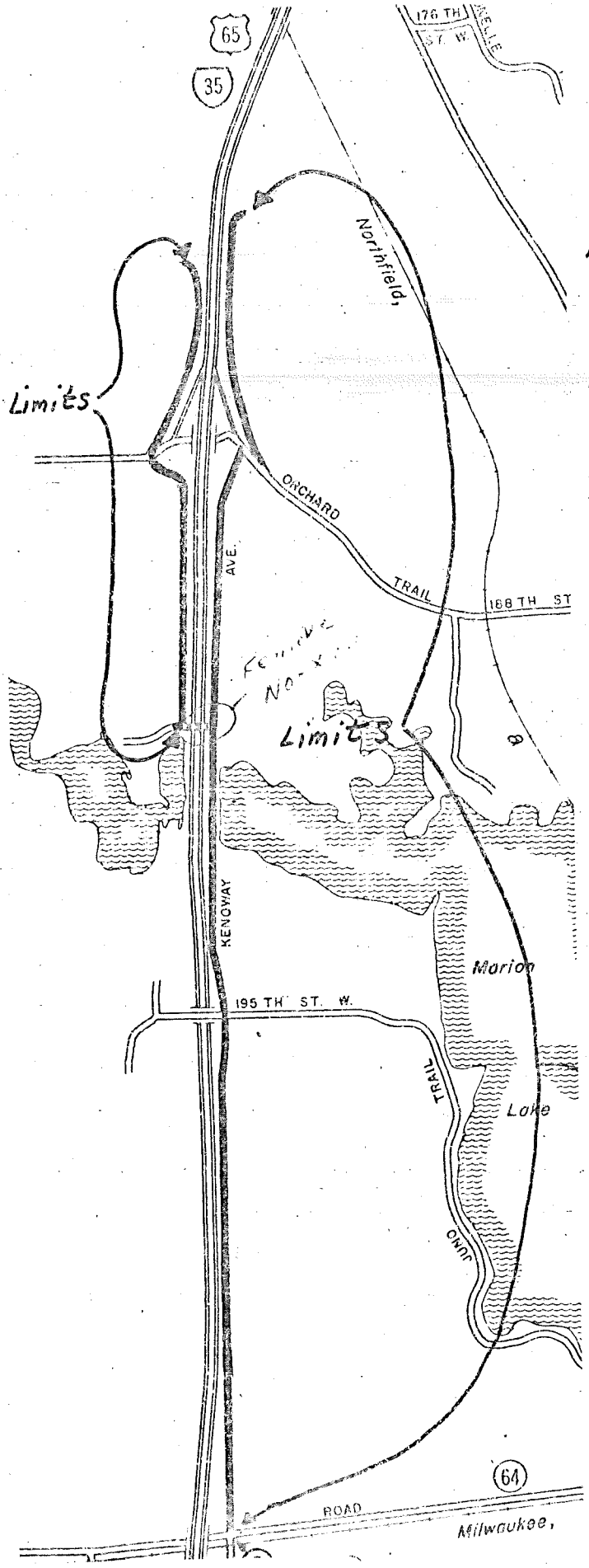


1. MAINTENANCE AGREEMENT No. C-2014M - (5-2-58)
with the VILLAGE of North OAKS

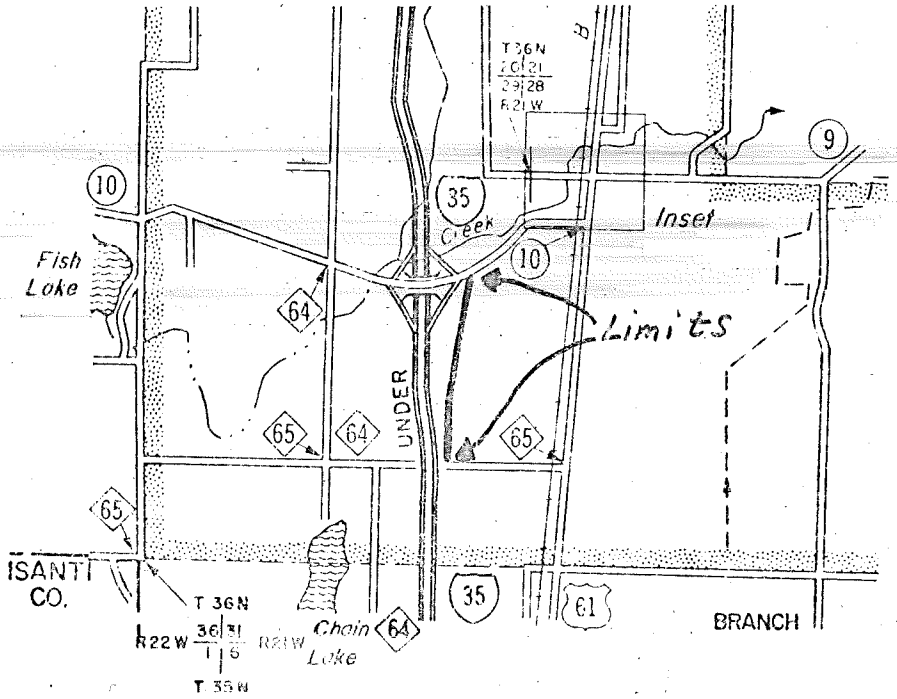
T.H. 96



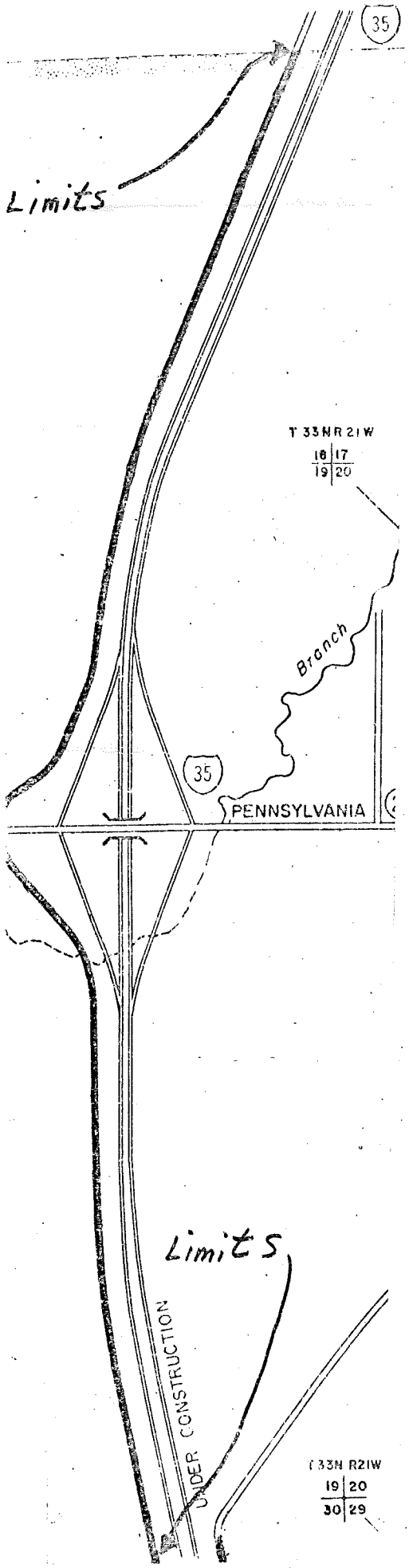
1. MAINTENANCE AGREEMENT NO. 1239 (4-17-67) with the VILLAGE of LAKEVILLE - Exhibit "A"



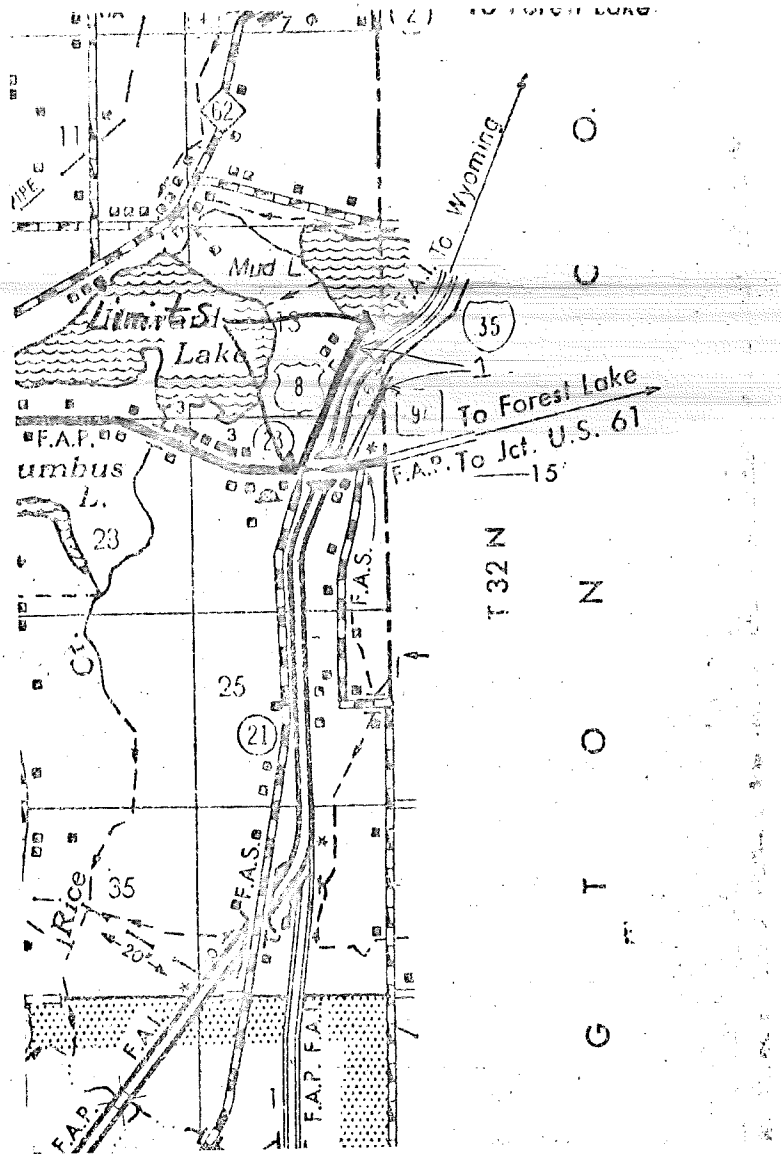
1. MAINTENANCE AGREEMENT No. 1239
with the VILLAGE of LAKEVILLE
Exhibit "A" (4-17-67)



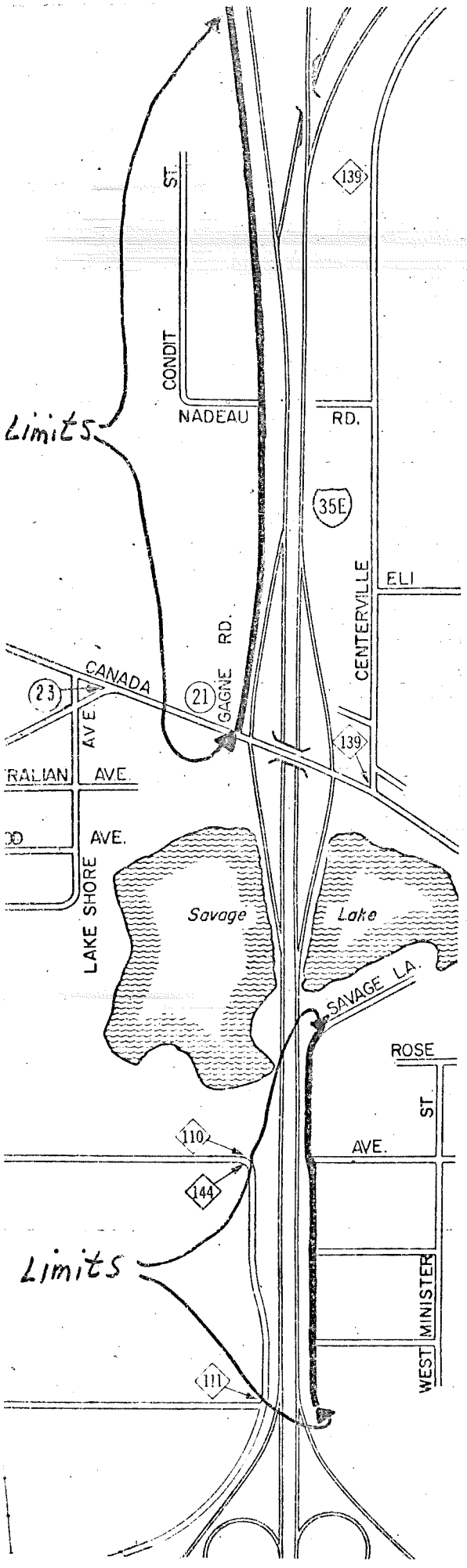
1. MAINTENANCE AGREEMENT No. 1488 (7-24-70)
with the VILLAGE of HARRIS



1. MAINTENANCE AGREEMENT No. 1187
with the VILLAGE of WYOMING
(8-29-66)

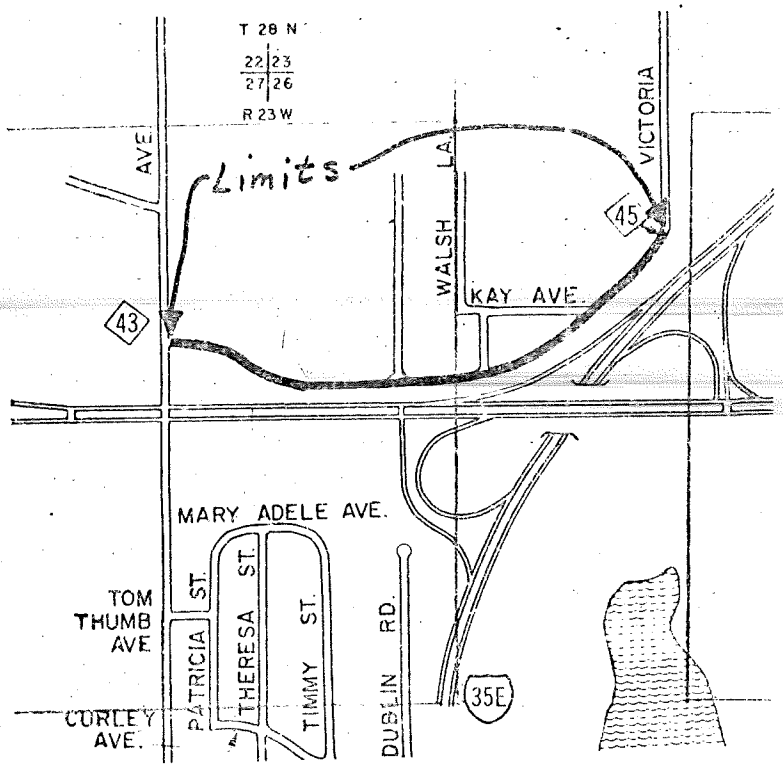


1. MAINTENANCE AGREEMENT No. 1185 - (8-29-66) with COLUMBUS TOWNSHIP - Exhibit "A"



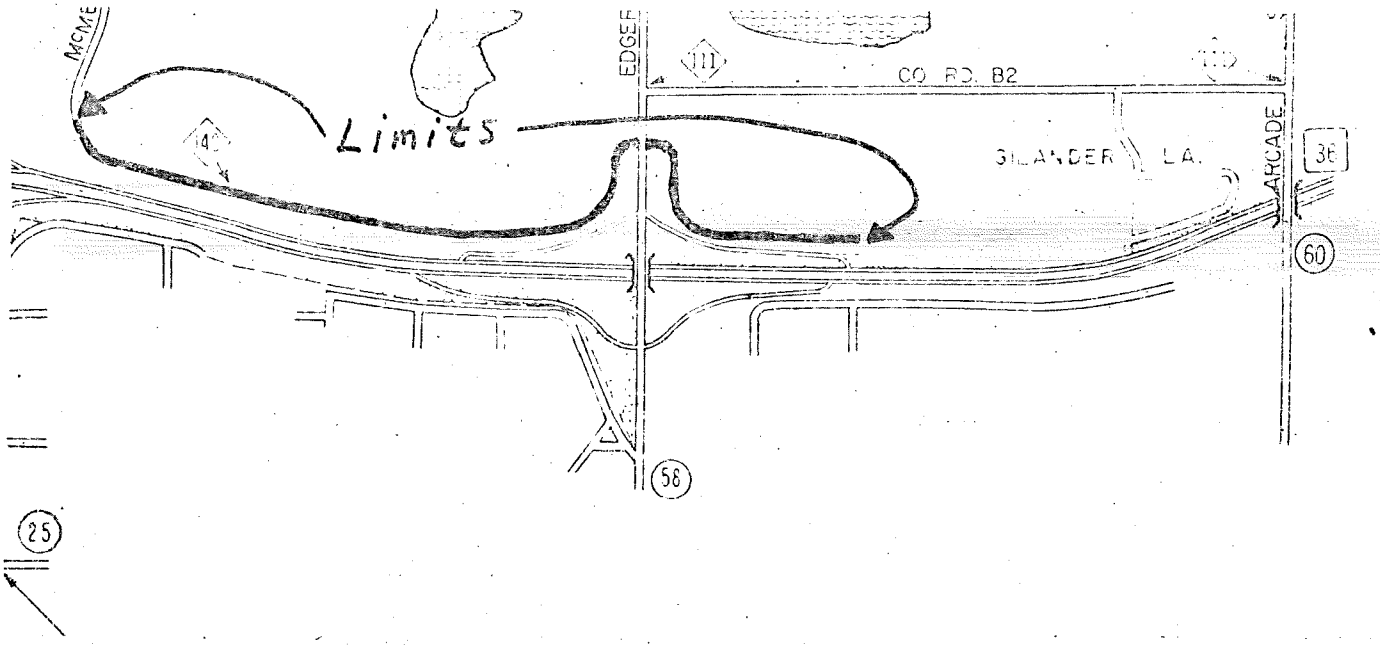
1. MAINTENANCE AGREEMENT No. 1255
with VILLAGE of LITTLE CANADA
(7-17-67)

I-35E



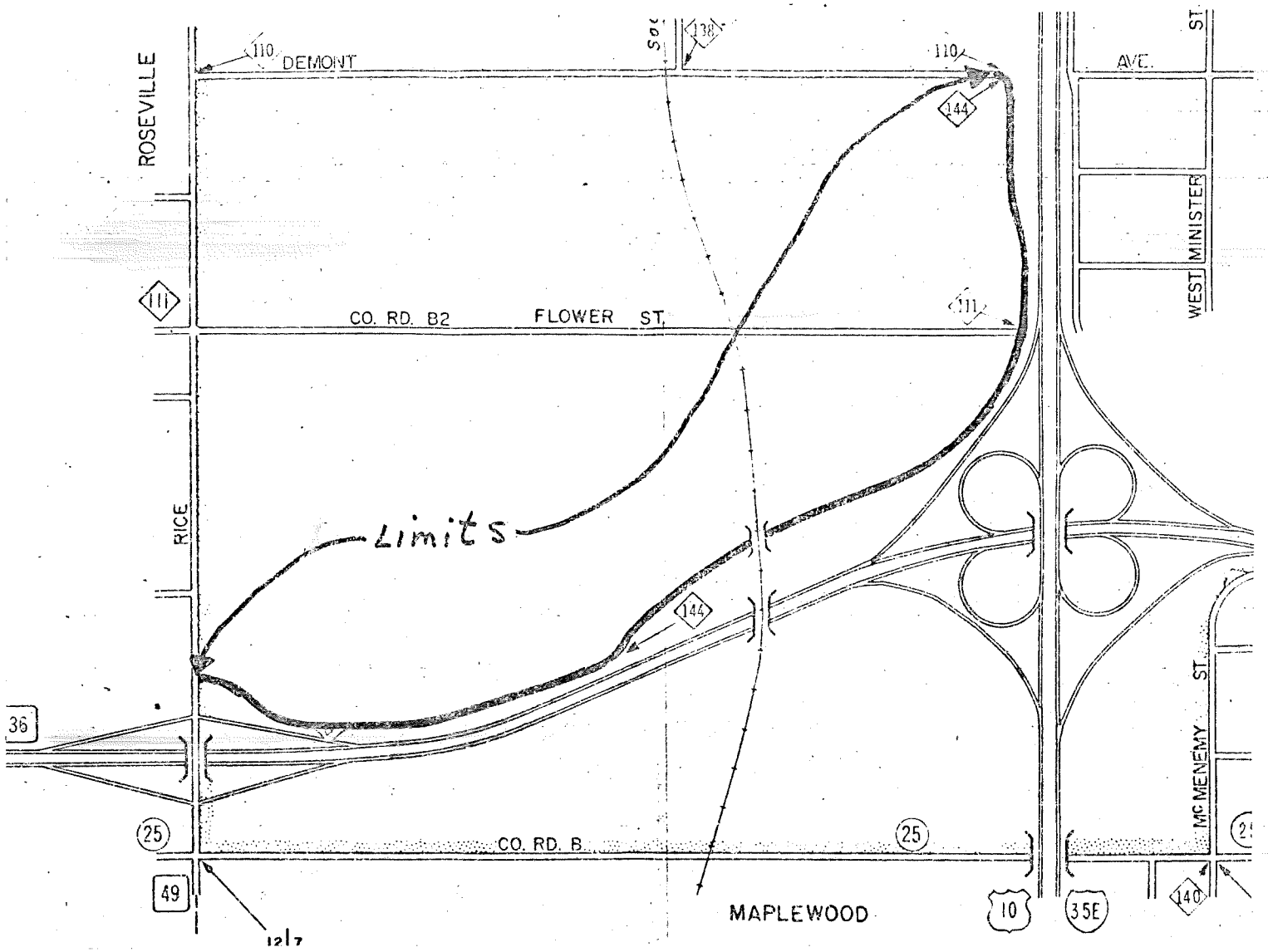
1. MAINTENANCE AGREEMENT No. 1194 (12-6-66) with DAKOTA COUNTY - Exhibit "A"

I-35E & T.H. 10



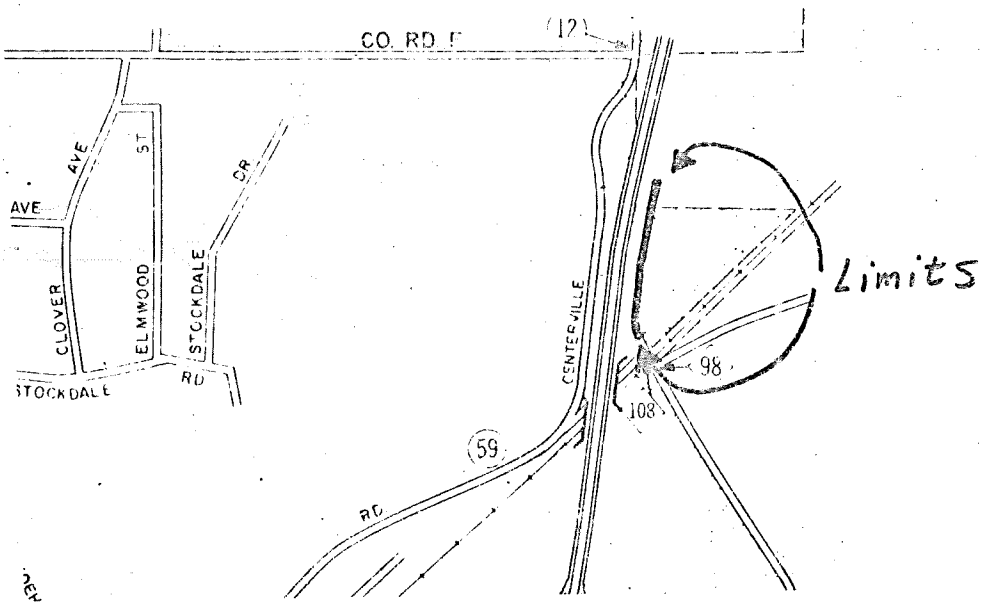
1 MAINTENANCE AGREEMENT No. 1284 (7-10-67)
with the VILLAGE of LITTLE CANADA - Exhibit "A"

I-35E, T.H. 36



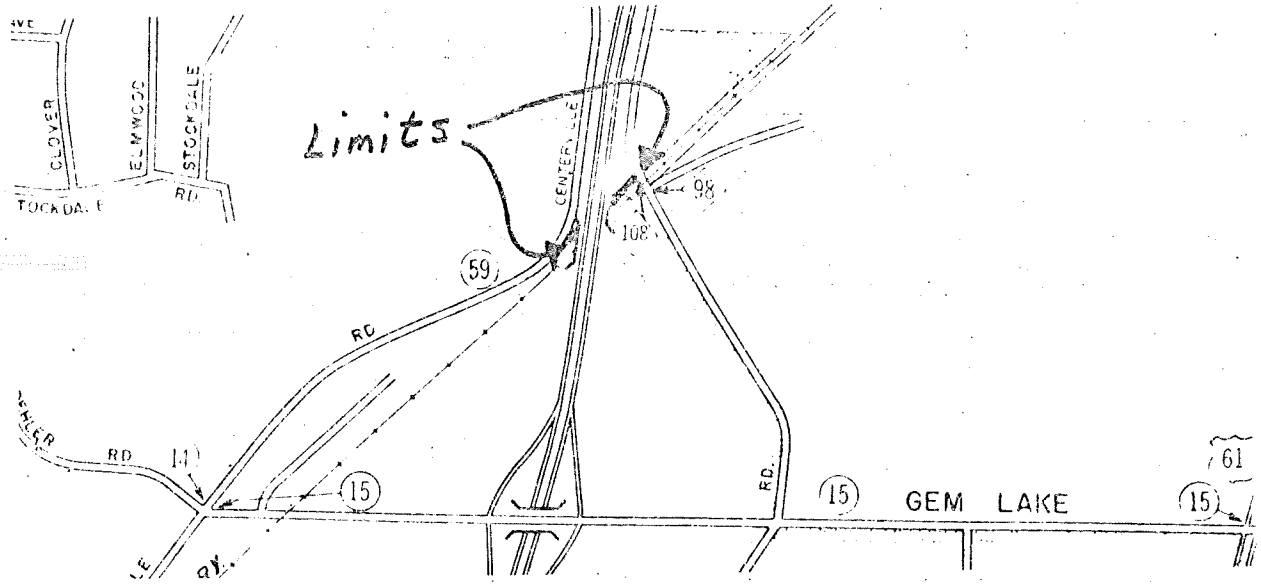
1. MAINTENANCE AGREEMENT No. 1280 (2-26-68) with RAMSEY COUNTY - Exhibit "A"

I-35E, T.H. 36

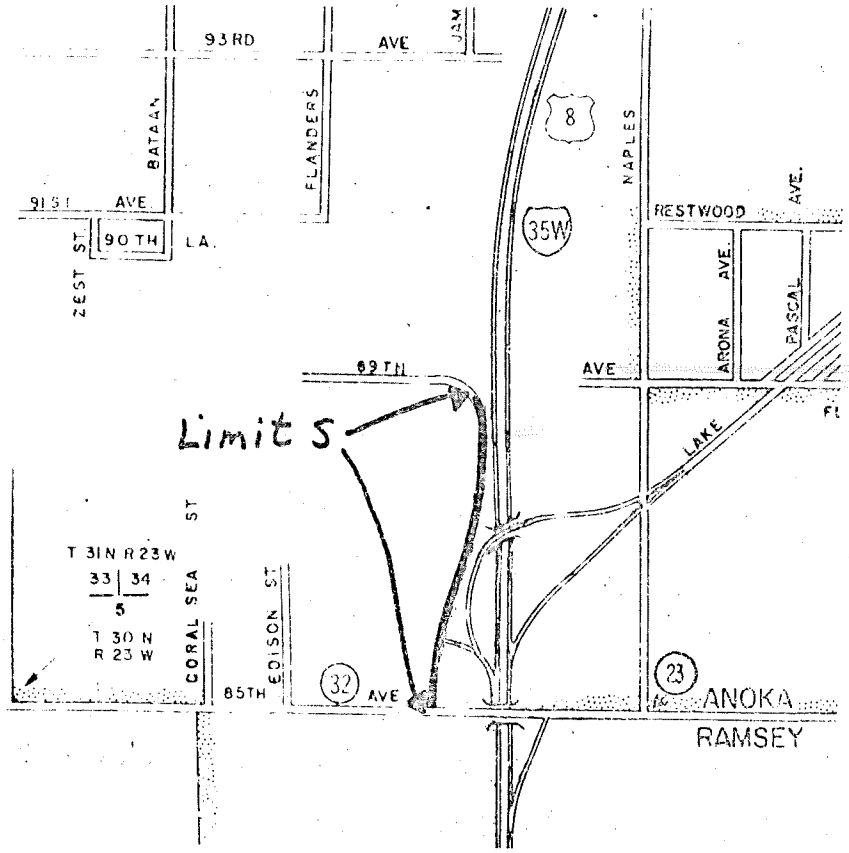


1. MAINTENANCE AGREEMENT No. 1293 (4-8-68)
with the VILLAGE of VADNAIS HEIGHTS - Exhibit "A"

I-35E

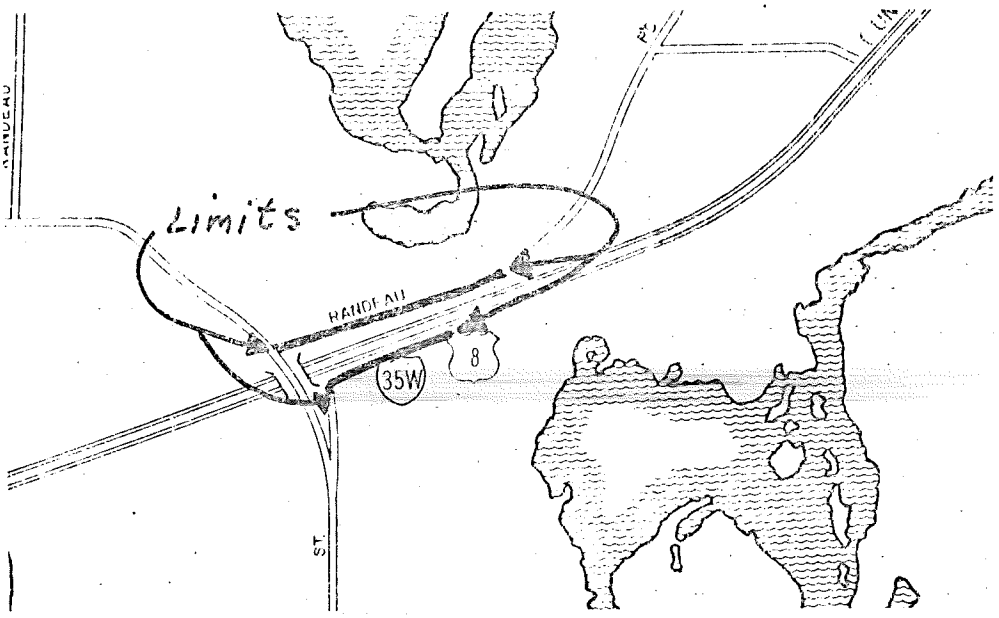


1. MAINTENANCE AGREEMENT No. 1248 (5-29-67) with RAMSEY COUNTY - Exhibit "A"



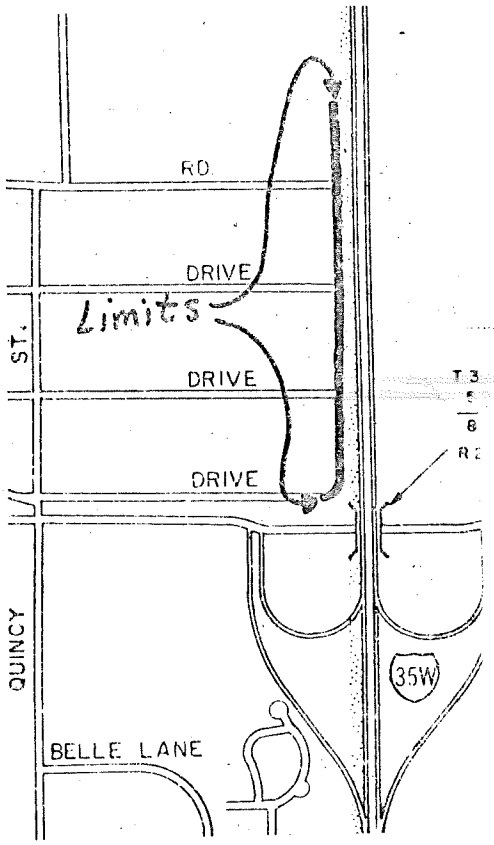
1. MAINTENANCE AGREEMENT No. 1324 (5-6-68) with the VILLAGE OF BLAINE - Exhibit "A"

I-35W, T.H. 8



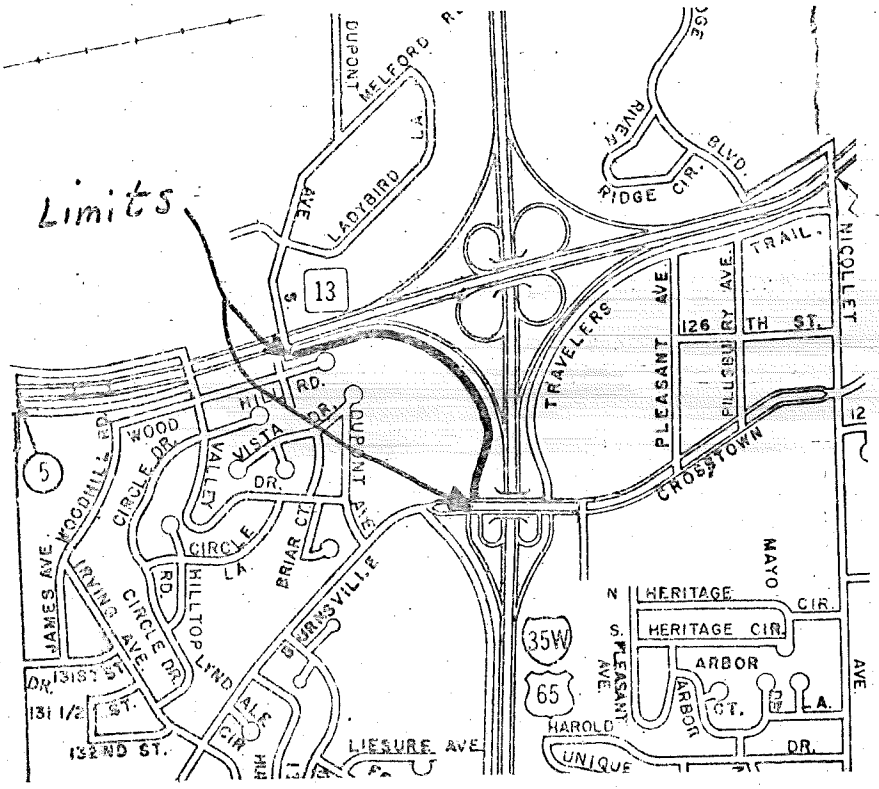
1. MAINTENANCE AGREEMENT No. 1160 (3-16-66) with the VILLAGE of LINO LAKES - Exhibit "A"

I-35W, T.H. 8



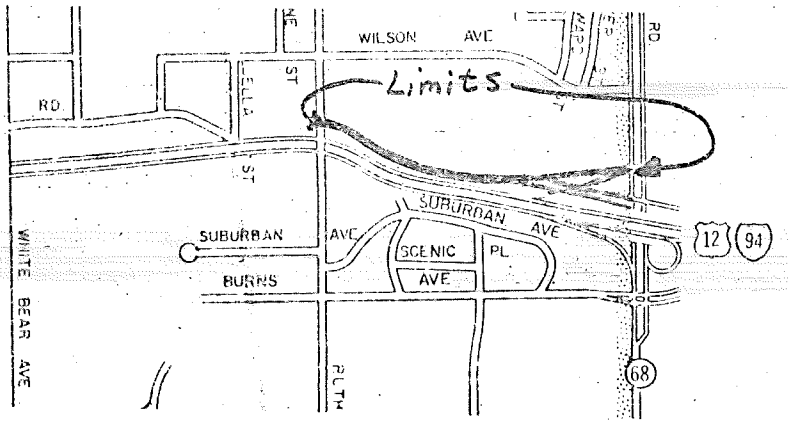
1. MAINTENANCE AGREEMENT No. 1189 (9-13-66)
with VILLAGE of MOUNDS VIEW

I-35W



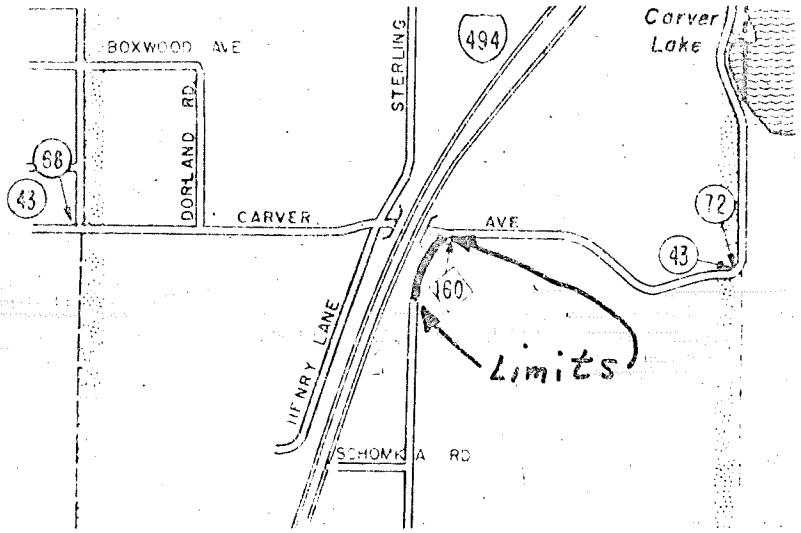
1. MAINTENANCE AGREEMENT No. 1086 (10-23-64) with the VILLAGE of BURNSVILLE - Exhibit "A"

I-35W, T.H. 13

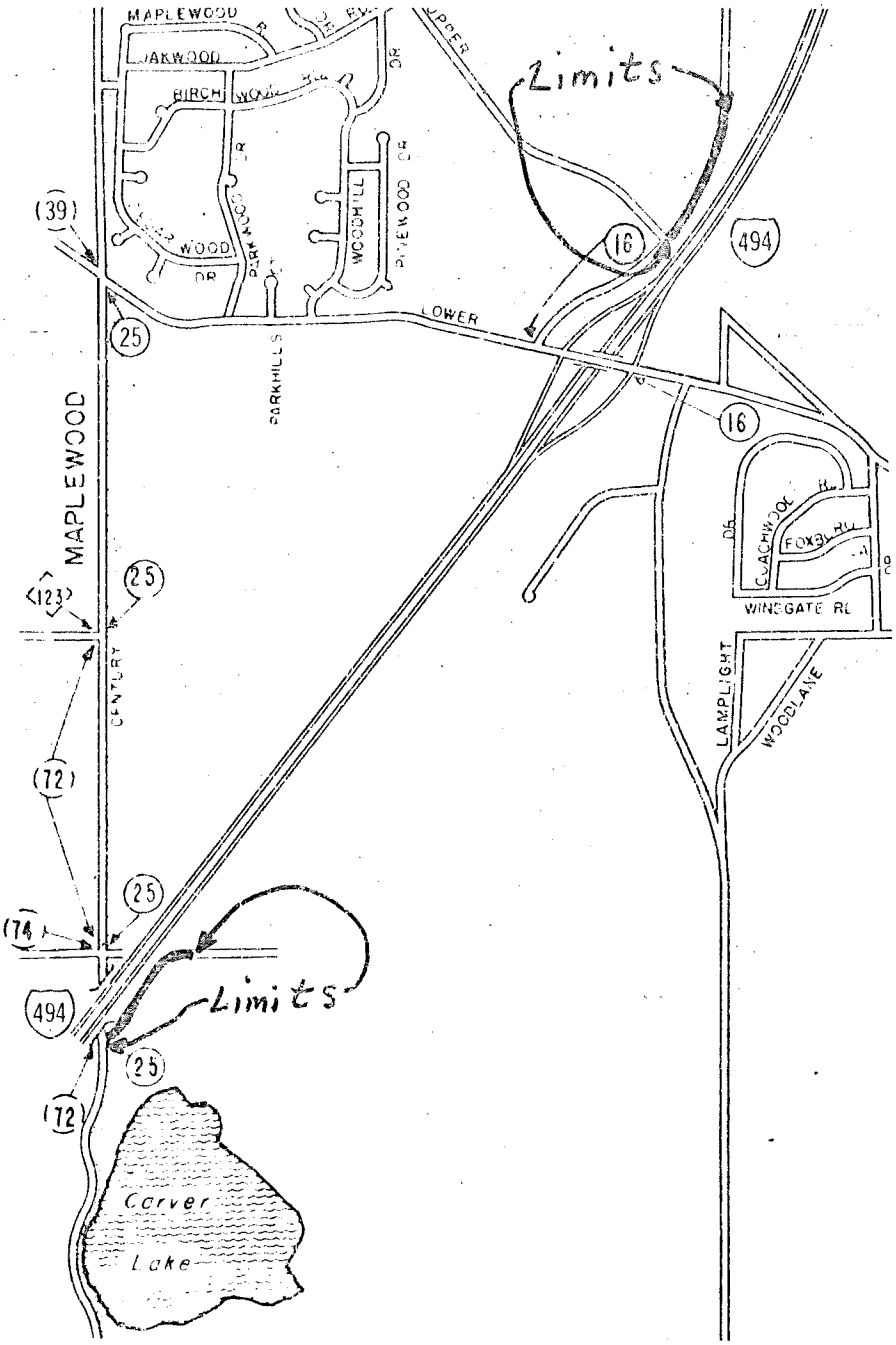


1. MAINTENANCE AGREEMENT No. C-1746
with the City of St. Paul

I-94 (T.H. 12)

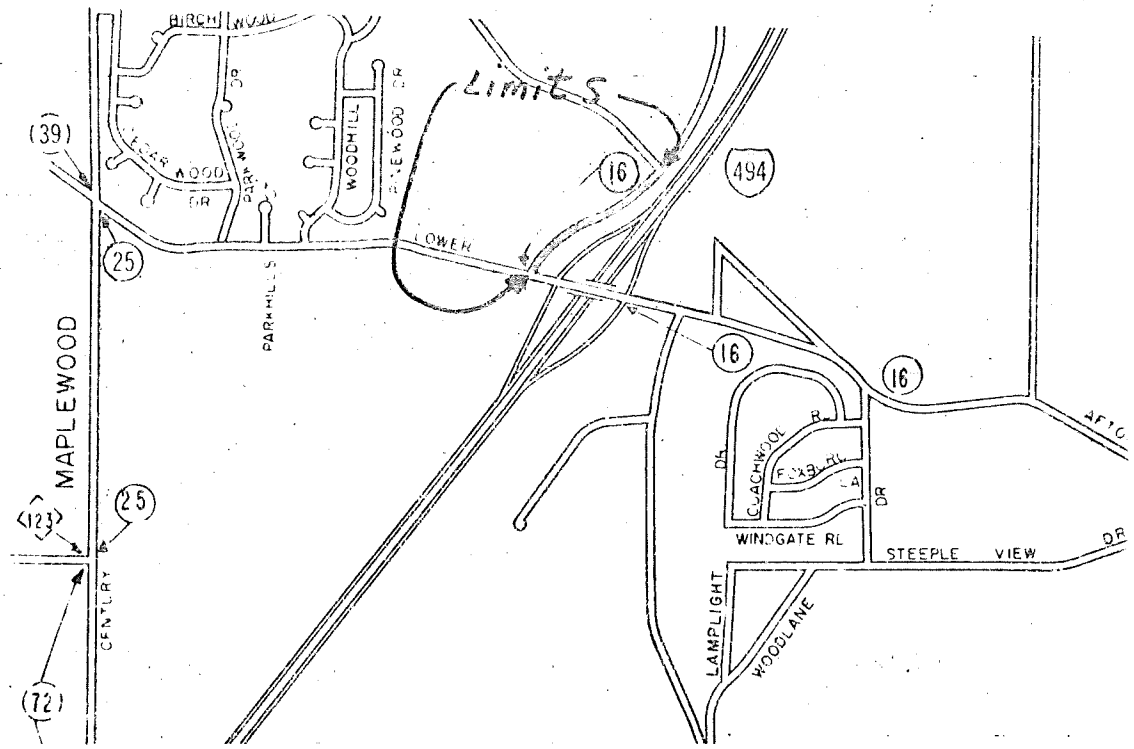


1. MAINTENANCE AGREEMENT No. 1281 (2-16-68) with RAMSEY COUNTY - Exhibit "A"

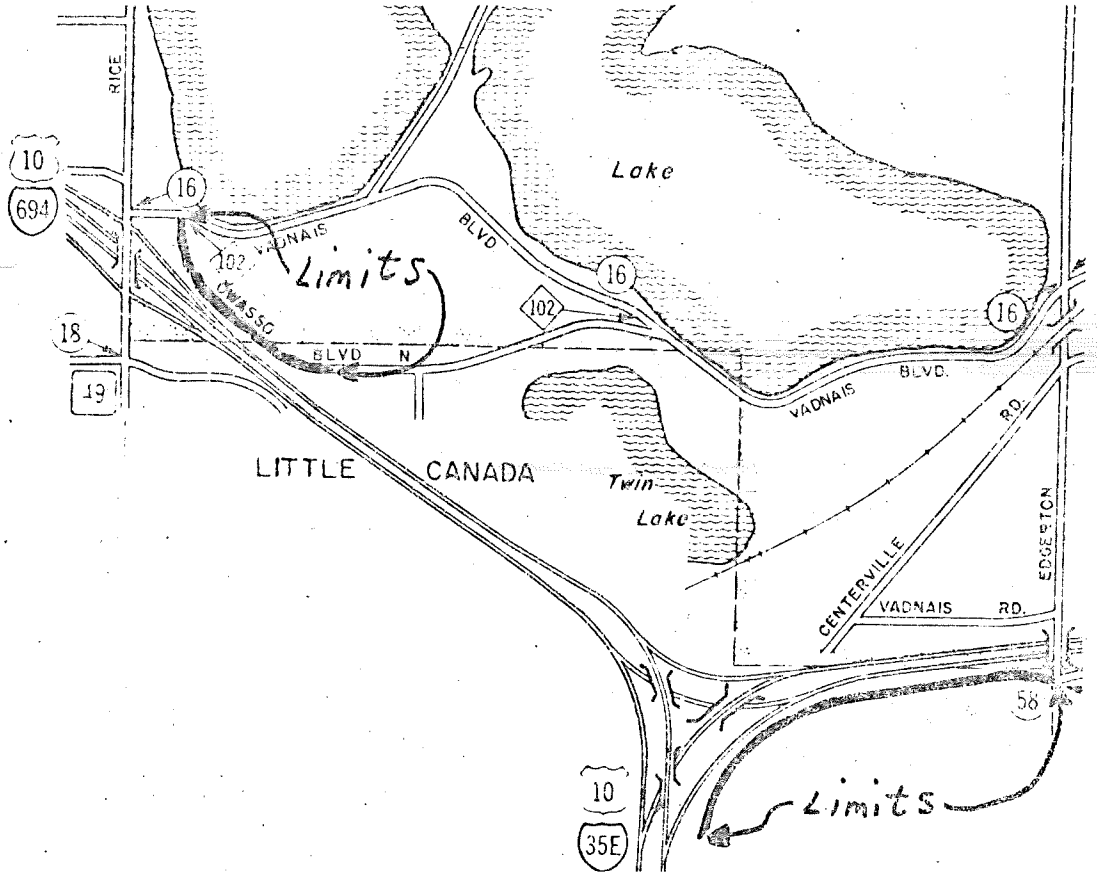


1. MAINTENANCE AGREEMENT No. 1258 (4-3-63)
with the VILLAGE of WOODBURY

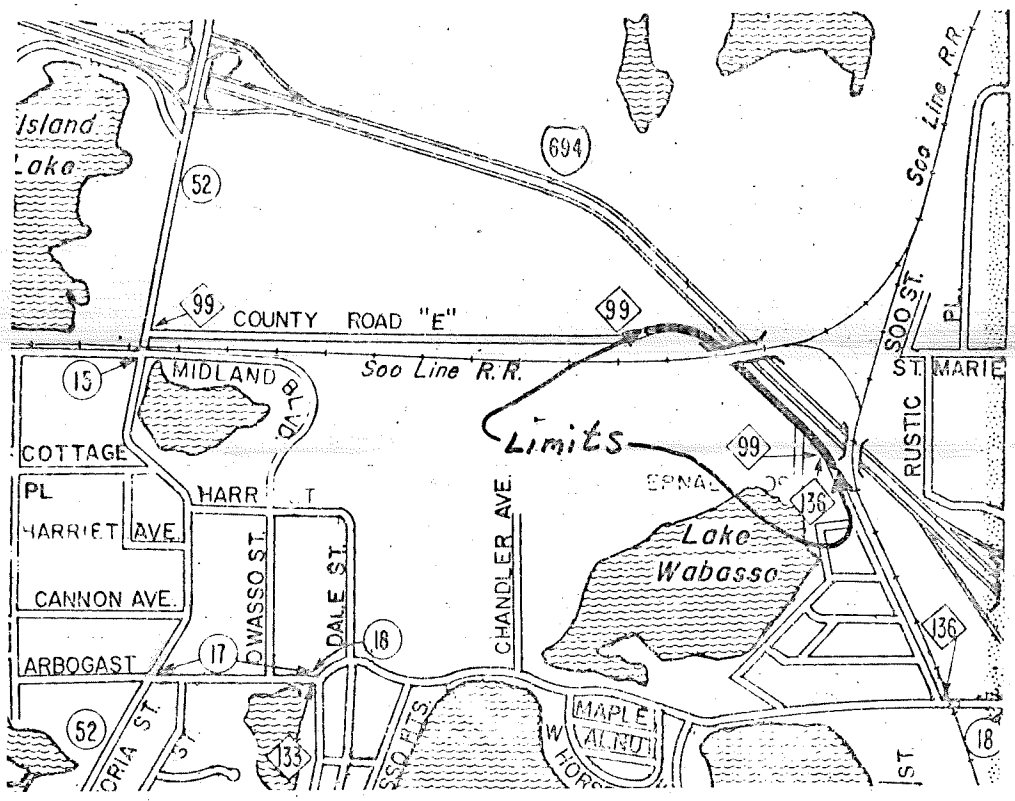
I-494, T.H. 120



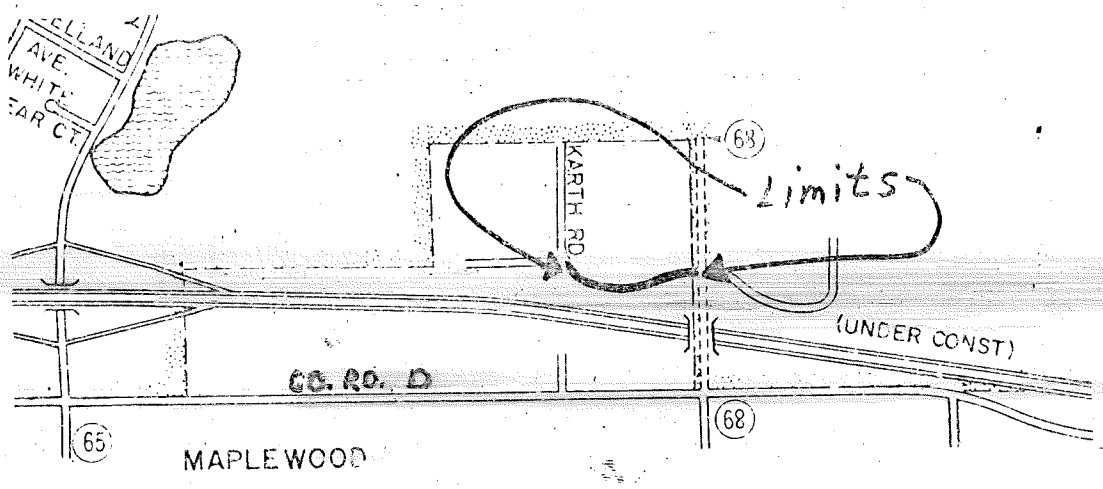
1. MAINTENANCE AGREEMENT No. 1002 (4-8-63)
with the VILLAGE of WOODBURY



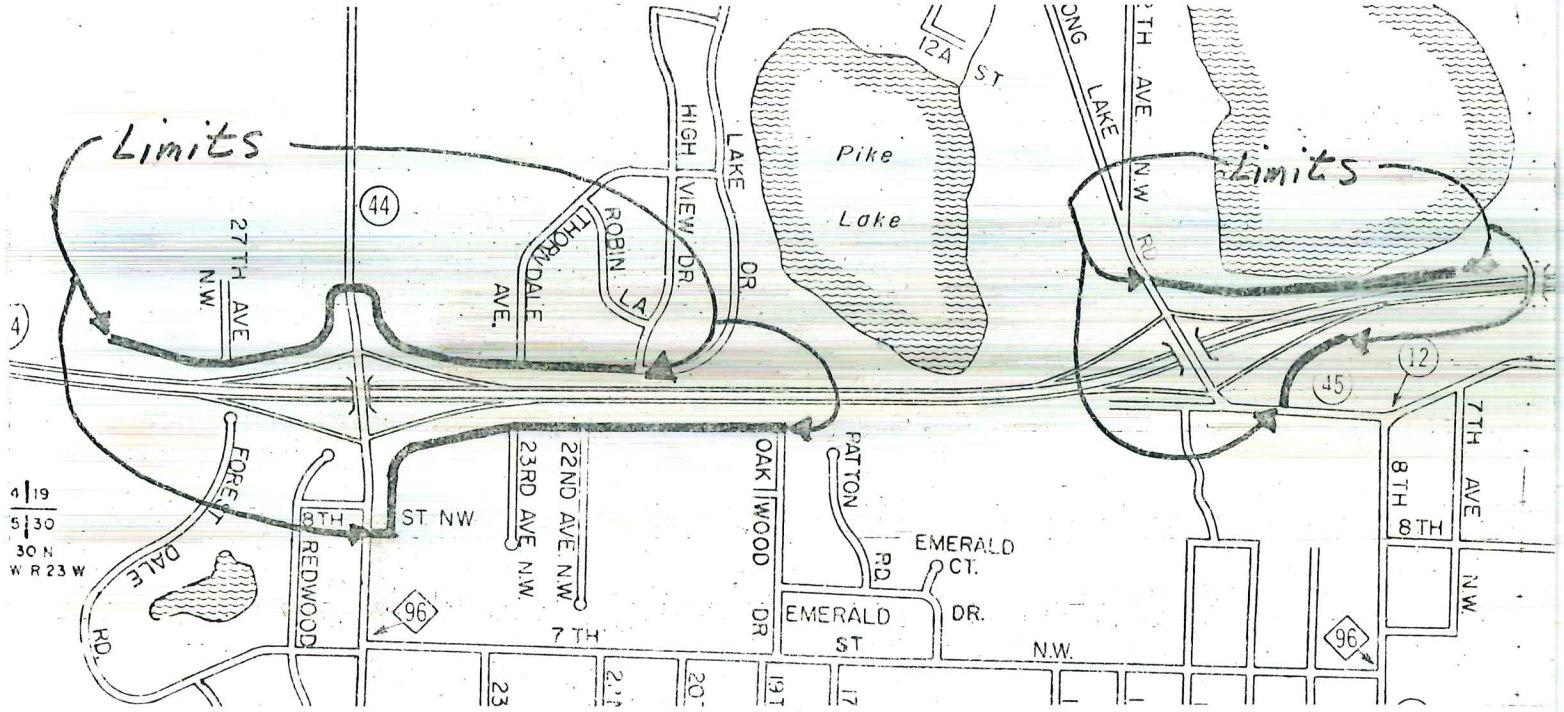
1. MAINTENANCE AGREEMENT No. 1247 (5-9-67) with RAMSEY COUNTY - Exhibit "A" & "B"



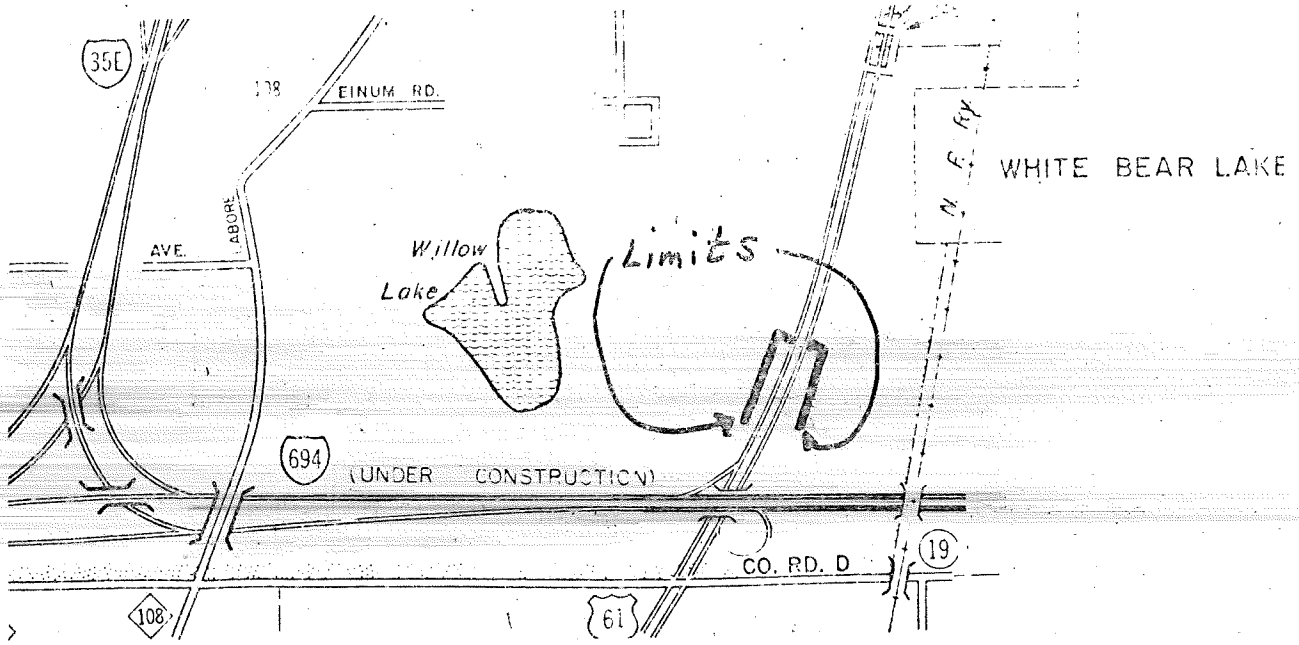
1. MAINTENANCE AGREEMENT No. 1247 (5-29-67)
with Ramsey County - Exhibit "C"



1. MAINTENANCE AGREEMENT No. 1283 (2-21-68)
with WHITE BEAR TOWNSHIP



1. MAINTENANCE AGREEMENT No. 1177 (7-11-66)
with the VILLAGE of NEW BRIGHTON - Exhibit "A"



1. MAINTENANCE AGREEMENT No. 1292 (4-8-68) with the VILLAGE of VANDAIS HEIGHTS - Exhibit "A"