

VILLAGE OF SHERMAN

DRAFT

**PAVEMENT INVENTORY
REPAIR PROGRAM
OVERLAY PROGRAM**

June 7, 2011

Performed by I.E. consultants
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PAVEMENT REHABILITATION PLAN

The Village of Sherman has maintenance jurisdiction for over 25 miles of streets and roadways. A list of those streets as well as some information about each street's length, pavement structure, repairs needed, and age are included in EXHIBIT A.

The large majority of Sherman's streets are construction of asphalt pavement. The expected life of an asphalt pavement depends upon several factors including the pavement structure, traffic loads and frequency, drainage of the subsoil, etc. A typical average expected life for asphalt pavements of residential streets in the Village of Sherman can be expected to be about 30 years. There are several locations within the village where pavement has exceeded the expected life.

A survey of the Village of Sherman's streets was completed in the spring of 2011. The survey identified areas where patching was needed, sinkholes in the pavement, quantities and locations of cracks larger than 1" wide, bad pavement joints and other deficiencies. A map of the survey can be found in Exhibit E. Pavement cracks smaller than 1" were too numerous to quantify so some general notations and estimates were made regarding cracks smaller than 1".

Pavement Repair Options

The following options exist for various pavement repairs:

Pavement Overlay – Mill 2" of existing asphalt surface and overlay with 2" to 2.5" of new asphalt surface. This repair would be used on large areas of entire street width where the asphalt has reached its expected life or is failing. Approximate Cost = \$50 per square yard.

Hot Patch – Remove loose asphalt and patch with hot asphalt mix. Patch is rolled and compacted after placement. This repair would be used on larger potholes or settled areas. Approximate Cost = \$50 per square yard.

Cold Patch – Remove loose asphalt and patch with cold mix. Patch is hand compacted. This repair can be used on potholes of small to medium size. Approximate cost = \$31 per square yard.

Spray Patch – Remove loose asphalt and fill hole by spraying layers of oil emulsion and stone to fill hole. The repair can be used on any size pothole or settled area. Approximate Cost = \$27 per square yard.

Standard Crack Repair Greater than 1" width – Clean out crack with compressed air. Install foam backer rod and fill with hot poured rubber sealer. Approximate cost by contractor = \$4.06 per linear foot.

Emulsion Crack Repair Greater than 1" width – Clean out crack with compressed air. Install foam backer rod and fill with oil emulsion/rock mix. Approximate cost = \$2.04 per linear foot. (Includes machine + material + village labor)

PAVEMENT REHABILITATION PLAN

Standard Crack Repair Less than 1" width – Clean out crack with compressed air. Fill with hot poured rubber sealer. Approximate cost by contractor = \$2.55 per linear foot.

Emulsion Crack Repair Less than 1" width – Clean out crack with compressed air. Fill with oil emulsion/sand mix. Approximate cost = \$1.02 per linear foot. (Includes machine + material + village labor)

Pavement Rehabilitation Recommendations.

Repair Program. There are several locations within the Village which need immediate repairs. Those repairs may include potholes, alligated areas, sinkholes, settled areas, cracks wider than 1", and cracks less than 1" wide. These areas were estimated by a pavement survey done in the spring of 2011. Damaged areas are shown in EXHIBIT E.

All of these repairs could be completed by the Village Public Works Department if some additional equipment was purchased or leased.

EXHIBIT C shows a repair program showing two possible scenarios:

The first scenario is based on the Public Works crew performing cold patch repairs to potholes and a contractor providing crack repairs.

The second scenario is based on the 5 year lease/purchase of a spray patch machine with the Public Works Crew performing all patching and crack sealing. Note that even with the purchase of the equipment, the cost of the second scenario is approximately \$70,000 less over a 5 year period.

The Repair Program would be required in addition to any overlay program. The Repair Program is necessary to extend the life of the Village streets so that resurfacing can be put off as long as possible.

Repair Recommendations. It is recommended that the Village research and purchase a spray patch machine which has the capabilities of performing patching as well as crack sealing operations. This machine is recommended for the following reasons:

- Spray patching is the most cost effective method patching method for potholes.
- Spray patching equipment can be used to cement alligator cracked areas in place.
- Spray patching can be used to build up sink holes and settled areas without having to cut out pavement.
- Spray patching equipment has crack sealing capabilities.
- Spray patching can be done throughout the year and does not have to wait for asphalt plants to open.

PAVEMENT REHABILITATION PLAN

Overlay Program. There are a few locations within the Village of Sherman where the asphalt surface has failed and is rapidly deteriorating. The cause of this failure is primarily due to the age of the pavement. These locations involve large areas of streets and are candidates for pavement overlays.

Pavement overlays require specialized equipment including: Pavers, rollers, milling machines, etc. and are outside the capabilities of the Village Public Works Department and would need to be completed by an outside contractor hired thru a bidding process.

The areas immediately recommended for overlay are listed below in order of priority

1. Cabin Smoke Trail, Rail Meadows
2. Woodsmill Road, Birch Lakes
3. Flaggland Drive, Flaggland Park
4. Crown Point Drive, Crown Point
5. Charter Oak Drive, Birch Lakes
6. Lansdowne Drive, Crown Point
7. Windamere Drive, Crown Point
8. Old Tipton School Road
9. St John's Drive

Two different possible programs for completing the overlays are shown in EXHIBIT D.

Under the \$100,000 per year program, 100% of the streets noted above would be resurfaced in a 10 year period for a total cost of approximately \$1,000,000.

Under the \$50,000 per year program, the worst 50% of these streets would be resurfaced over a 10 year period for a total cost of approximately \$500,000.

Note that Old Tipton School Road and St John's Drive are eligible for Federal funds and under either program the Village should plan to apply for Federal Funds to assist in the overlay of those streets.

Also note that when the 10 year Overlay Program is complete, it is likely that there will be additional streets requiring overlays. Following the 10 year program, a new assessment of street condition should take place new priorities for overlays should be developed.

Sherman Street Network Table

Subdivision	Street Name	Length (Feet)	MILES	CONDITION	EST. YEAR BUILT	Patches - Immediate (sq Yd)	Joint Repair Mill (6' Strip & more) [feet]	Cracks 1" or less [feet]	Cracks 1" or less [feet]	EX PAVEMENT DESIGN		TRAFFIC (VIN)	
										TIF (sq Yd)	Sinkhole		
Flagland Park	ADRIAN DRIVE	280	0.05	Fair	1976		54	69.5	29	6" Agg Base - 2" Bit Surf Crse		LOW N	
Steppchase	AINTRIE CHASE	695	0.13	Fair	1999					6" Agg Base - 2" Bit Surf Crse		LOW N	
Flagland Park	AMHERST DRIVE	500	0.09	Fair	1976		50	570.6	62	6" Agg Base - 3" Bit Surf Crse		MEDIUM N	
Steppchase	ARLINGTON CHASE	5706	1.08	Fair	1993		149	185	286.9	11/2" Bit Conc Surf Crse - 5" Bit Base Crse		LOW N	
Steppchase	ASCOT CHASE	2889	0.54	Fair	1994		101	51.9	51.9	11/2" Bit Conc Surf Crse - 1/2" Bit Conc Blnd Crse - 4" BAM		HIGH N	
Rail Estates	AUTUMN RIDGE COURT	625	0.12	Fair	1994		27	62.5	0.4	2" Bit Conc Surf Crse - 5" Bit Base Crse		LOW N	
Vailord	BACK BAY DRIVE	607	0.11	Good	2004		27	60.7	0.4	4" Bit Binder Crse, CL, 1/2" Bit Surf Crse - Comp Sub		LOW N	
Flagland Park	BAYLOR	214	0.04		1976					12" Bit Surf Crse - 5" Bit Binder Crse - 1/2" Lime		LOW N	
Steppchase	BELMONT CHASE	425	0.08	Fair	1994		27	77	42.5	16" Agg Bass - 2" Bit Surf Crse		LOW N	
Spring Lake Estates	BIRCH LAKE DRIVE	2447	0.46	Fair	1975		244.7	0.9	6" Agg Bass - 2" Bit Surf Crse		MEDIUM N		
Waterford	BLUE SPRINGS DRIVE	1051	0.20	Good	2004		54	105.1	0.4	2" Bit Surf Crse - 5" Bit Binder Crse - 1/2" Lime		LOW N	
Flagland Park	BRIDGEPORT	340	0.06		1972				34	6" Agg Bass - 2" Bit Surf Crse		LOW N	
Britt's Place South	BROOKSIDE GLEN	653	0.12		1994		16	65.3	2.2	2" Bit Conc Surf Crse - 5" Bit Surf Crse		LOW N	
Brookside Glen	BROOKSIDE GLEN DRIVE	1929	0.37	Fair	1999		108	138	192.9	2" Bit Conc Surf Crse - 5" Bit Base Crse - Comp Sub		MEDIUM N	
Rail Estates	CABIN SMOKE TRAIL	4781	0.91	Fair/Poor	1985		80.0	478.1	0.9	8" Agg Bass - 3" Compacted Bituminous Surface		HIGH N	
Rail Estates	CHARTER OAK DRIVE	1673	0.32	Fair	1986		27	167.3	0.9	6" Agg Bass - 2" Bit Surf Crse		LOW N	
Rail Estates	CHIMNEY VIEW LANE	765	0.14	Fair	1985				76.5	6" Agg Bass - 3" Compacted Bituminous Surface		MEDIUM N	
Brookside Glen	CORNISLICK COURT	226	0.04	Good	2004				22.6	2" Bit Surf Crse - 5" Bit Binder Crse - Comp Sub		LOW N	
Route 66 Crossing	CORNETTE DRIVE	1488	0.28	Good	2006				148.8	12" Agg Bass - 2" Bit Surf Crse - 1/2" Lime		LOW Y	
The Crossing	CROSSING DRIVE	955	0.18	Fair/Good	1989				95.5	0.9	16" Agg Bass - 2" Bit Surf Crse - CL		LOW N
Crown Point	CROWN POINT DRIVE	1642	0.31	Fair/Poor	1979		27	164.2	164.2	8" Agg Bass, 2" Bit Surf Crse		MEDIUM N	
Flagland Park	DUNBARTON	741	0.14		1977				74.1	6" Agg Bass - 2" Bit Surf Crse		LOW N	
Flagland Park	EVERGREEN WALK	309	0.06		1974				30.9	6" Agg Bass - 2" Bit Surf Crse		LOW N	
The Prairie at Brookside Glen	FIELDSIDE LANE	937	0.18	Good	2005				93.7	2" Bit Surf Crse - 5" Bit Binder Crse - Comp Sub		LOW N	
Old Sherman / Juan Ridge	FIRST STREET	278	0.05	Fair	2006		11.1	27	27.8	12" Agg Bass - 3" Compacted Bituminous Surface		LOW N	
Flagland Park	FLAGLAND DRIVE	5594	1.06	Good/Fair	2000		54	559.4	1.2	12" Agg Bass, 1 1/2" Bit Binder Crse, 1 1/2" Bit Surface Crse		HIGH N	
Waterford	FLEETWOOD DRIVE	628	0.12	Good	2002		60	27	62.3	16" Agg Bass - 2" Bit Surf Crse		LOW N	
Old Tipton Estates	FOUNTAIN PARK DRIVE	987	0.19	Good	2005		27	98.7	0.4	2" Bit Surf Crse - 5" Bit Binder Crse - Comp Sub		MEDIUM N	
Route 66 Crossing	GALAXIE DRIVE	622	0.12	Good	2006				62.2	16" Agg Bass - 2" Bit Surf Crse - 1/2" Bit Bind		LOW N	
Georgetown Oaks	GEORGETOWN ROAD	798	0.15	Fair	1984		162	79.8	0.4	16" Agg Bass, 3" Compacted Bituminous Surface		LOW N	
Rail Estates	GOLF CREST COURT	958	0.18	Fair	1984		81	95.8	0.4	4" Bit Binder Crse, CL, 1/2" Bit Surf Crse - Comp Sub		LOW N	
Quail Ridge	GOOSENECK TRAIL	842	0.12	Fair	1989				84.2	2" Bit Surf Crse - 4" Bit Binder Crse - Comp Sub		LOW N	
British Place North	GRACIE LANE	830	0.16		1984		27	83	83	16" Agg Bass, 2" Bit Surf Crse		LOW N	
The Prairie at Brookside Glen	GREEN MEADOW DRIVE	467	0.09	Good	2005				46.7	2" Bit Surf Crse, CL, 1/2" Bit Binder Crse - Comp Sub		LOW N	
Quail Ridge	GROUSE COURT	314	0.06	Good	1989				31.4	2" Bit Surf Crse - 4" Bit Binder Crse - Comp Sub		LOW N	
British Place North	HANNAH DRIVE	352	0.07		1994				35.2	6" Agg Bass - 2" Bit Surf Crse		LOW N	
Flagland Park	HARTFORD DRIVE	752	0.14		1973					6" Agg Bass - 2" Bit Surf Crse		LOW N	
The Prairie at Brookside Glen	HARVEST COURT	584	0.11	Good	2005					6" Agg Bass - 2" Bit Surf Crse		LOW N	
Steppchase	HAWTHORNE COURT	840	0.16	Fair	2001		59.4	0.1	27	84	16" Agg Bass, 3" Compacted Bituminous Surface		LOW N
Rail Estates	HICKORY RIDGE LANE	1140	0.22	Fair	1985				114	16" Agg Bass, 3" Compacted Bituminous Surface		LOW N	
Birch Lakes Estates	HILL TOP LANE	337	0.06	Fair	1986		27	33.7	0.9	16" Agg Bass, 2" Bit Surf Crse		LOW N	
Crown Point	JULIA DRIVE	85	0.02	Fair	2005				85	8" Agg Bass, 1 1/2" Bit Binder Crse, 1 1/2" Bit Surface Crse		LOW N	
Kingsway Drive	KINGSWAY DRIVE	850	0.16	Fair	1979		108	85	85	16" Agg Bass, 2" Bit Surf Crse		MEDIUM N	
Lynntale	LAKVIEW DRIVE	696	0.13	Fair	1985		30	69.6	1.9	16" Agg Bass, 1 1/2" Bit Binder Crse, 1 1/2" Bit Surface Crse		LOW Y	
Brookside Glen	LANDSDOWNE DRIVE	1082	0.20	Fair	1987		81	108.2	1.9	2" Bit Surf Crse, 5" Bit Base Crse - Comp Sub		LOW N	
Crown Point	LOST TREE DRIVE	955	0.18	Fair/Poor	1979		5.6	95.5	2" Bit Surf Crse, 2" Bit Surf Crse		LOW N		
Old Sherman	MAIN STREET	2518	0.49	Good	2008				251.8	2" Bit Surf Crse - 5" Bit Binder Crse - Comp Sub		MEDIUM N	
Quail Ridge	MALLARD WAY	711	0.13	Good	2000				71.1	16" Agg Bass, 1 1/2" Bit Binder Crse, 1 1/2" Bit Surface Crse		LOW N	
Old Hickory at the Rail	MASHIE COURT	382	0.07	Fair	1995		54	38.2	0.7	4" BAM - 2" Bit Surf Crse - CL		LOW N	
Brookside Glen	MEADOWLANDS DRIVE	651	0.12	Good	2005				65.1	2" Bit Surf Crse - 5" Bit Binder Crse - Comp Sub		LOW N	
Quail Ridge	MEREDITH DRIVE	960	0.18	Fair	1989		27	96	2.2	4" BAM - 2" Bit Surf Crse - CL		LOW N	
Flagland Park	MIDDLEBURG DRIVE	4456	0.84	Good	2015				445.6	11/2" Bit Conc Surf - 1 1/2" Bit Conc Bass - 4" Agg B		HIGH N	
Flagland Park	MIDDLEBURG DRIVE	1553	0.29		1974				155.3	6" Agg Bass - 2" Bit Surf Crse		MEDIUM N	

EXHIBIT A - STREET INVENTORY 1/3

Sherman Street Network Table

Subdivision	Street Name	Length (Feet)	MILES	CONDITION	EST. YEAR BUILT	Patches - Immediate (sq Yd)	Joint Repair Overlay (Feet)	Millig Strip & Cracks 1" or less (Feet)	Cracks 1" or less (Feet)	Sinkhole (sq Yd)	EX PAVEMENT DESIGN		TRAFFIC (VIN)	TIF (VIN)
											2" Bit Surf Crse - 5" Bit Bind Crse - Comp Sub	2" Bit Surf Crse - 2" Bit Bind Crse - Comp Sub		
Old Hickory at the Rail	NIBLICK LANE	420	0.08	Good	2005			42	73.6				LOW	N
Old Tipton Estates	NINE ROCK ROAD	736	0.14	Good	2005				59.2				LOW	N
Spring Lake Estates	NINO DRIVE	980	0.19	Good	2001				59				LOW	N
Old Sherman	OLD TIPTON SCHOOL ROAD	5980	0.13	Fair	1979			2.8					HIGH	N
Waterford	OPAL LANE	146	0.03	Fair	2004				7" Aug - 2" Bit				LOW	N
The Prairie at Brookside Glen	PARKVIEW DRIVE	442	0.08	Good	2005				7" Aug Base, 1 1/2" Bit Binder Crse, 1 1/2" Bit Surface Crse				LOW	N
Lynndale	PARKWAY DRIVE	3056	0.58	Fair	1995			17.1					LOW	N
Quail Ridge	PARRY RIDGE PASS	415	0.08	Good	2000				44.2				LOW	Y
Quail Ridge	PHEASANT RUN	1273	0.24	Fair	1999			27	305.6				LOW	N
Steppchase	PIMLICO CHASE	484	0.19	Fair	1994			27	41.5				LOW	Y
Birch Lakes E Estates	PINE DRIVE	2703	0.51	Fair	1986			27	127.3				LOW	N
Flagland Park	PONDER WAY	158	0.13		1991			77	48.4				LOW	N
Brookside Glen	PORTLAND DRIVE	308	0.06	Good	1976				15.8				LOW	N
Prairie Lakes Estates	POSSUM PASS COURT	532	0.10	Good	2003			53.2					MEDIUM	N
The Prairie at Brookside Glen	PRairie DRIVE	1735	0.33	Good	2009				173.5				LOW	N
Lynndale	PRAYER PLACE	138	0.03	Good	2004				13.6				LOW	N
Villa East	PRINCE DRIVE	475	0.09	Fair / Poor	1995			0.9	47.5				LOW	Y
Villa West	PRIVATE ROAD	821	0.16	Good	1998				82.1				LOW	Y
Quail Ridge	PRIVATE ROAD	628	0.12	Good	1989				62.8				LOW	N
Lynndale	QUEENROOST COURT	551	0.10	Fair	1999			7.1	55.1				LOW	N
Flagland Park	QUEENSMAY DRIVE	1202	0.23	Fair	1995				120.2				LOW	Y
Quail Ridge / Brookside Glen	RADFORD DRIVE	535	0.10		1981				33.5				MEDIUM	Y
Old Tipton Estates	RAMBLEWOOD LANE	2018	0.38	Fair	2001				201.8				LOW	N
Birch Lakes E Estates	RED BUD RUN	1637	0.31	Good	2005			0.9	163.7				MEDIUM	Y
Flagland Park	RIDGEVIEW DRIVE	811	0.15	Fair / Poor	1996				81.1				LOW	N
Steeplechase	RUTGERS DRIVE	356	0.07		1977				35.6				MEDIUM	N
Old Sherman	SARATOGA CHASE	2410	0.16	Good	1994			216	68				LOW	N
Old Sherman	SEERING ROAD	2746	0.52	Good	1994			24.1	3.3				MEDIUM	N
Old Sherman	SECOND STREET	788	0.15	Good	2001				274.6				MEDIUM	Y
Old Sherman	ROYAL DRIVE	181	0.03	Fair	1995			108	116				LOW	Y
Old Sherman	SOUTH STREET	1380	0.26	Good	1974			216	68				MEDIUM	N
Old Sherman	STARDUST DRIVE	1158	0.22	Fair	1974			10.0	115.8				LOW	N
Flagland Park	STONEHILL DRIVE	2058	0.39	Fair / Poor	1977			44.4	205.8				MEDIUM	N
Brookside Glen	SUNKIST DRIVE	1610	0.22	Fair	2004			381.6					HIGH	N
Old Sherman	THIRD STREET	794	0.15	Good	2001			27	116				LOW	N
Quail Ridge	THRUSH COURT	174	0.03	Good	2004			27	79.4				LOW	Y
Brookside Glen	TIMBER EDGE DRIVE	1055	0.20	Good	2004				17.4				LOW	N
Birch Lakes Estates	TIMBERCREST DRIVE	949	0.18		1974				105.5				LOW	N
Timberline Estates	TIMBERLINE LANE	1048	0.20	Good	1999				94.9				LOW	N
Quail Ridge	TURTLE DOVE DRIVE	847	0.16	Good	2000			27	81				LOW	N
Flagland Park	TRENTON DRIVE	816	0.15		1976			3.3					LOW	N
Flagland Park	VANDERILT	735	0.14		1972				73.5				LOW	N
Route 66 Crossing	VILLAGE CENTER DRIVE	3502	0.68	Good	2008				380.2				LOW	N
Flagland Park	WESTHAMPTON	1036	0.20		1973				103.6				LOW	N
Georgetown Oaks	WILLIAMS ROAD	425	0.08	Fair	1984				42.5				LOW	N
Spring Lake Estates	WILLOW HILL DR.	256	0.05		1992			27	25.6				LOW	N
Watervord	WILLOW BAY	390	0.07	Good	2004			27	39				LOW	N
Brookside Glen	WILLOWLANE	230	0.04	Good	1999				23				LOW	N
Crown Point	WINDAMERE DRIVE	1021	0.19	Fair/Poor	1979			8.9	189				LOW	N
Flagland Park	WINGATE DRIVE	570	0.11		1968				102.1				LOW	N
Quail Ridge	WOOD DUCK COURT	275	0.05	Good	1999			27	57				LOW	N
The Prairie at Brookside Glen	WOODRIDGE DRIVE	411	0.08	Good	2003			54	41.1				LOW	N
Birch Lakes Estates	WOODS MILL ROAD	2290	0.43	Fair / Poor	1986			150	229				LOW	N
			229		116.7			11.6	6 Aug Base 2" Bit Surf Crse				LOW	N

EXHIBIT A - STREET INVENTORY 2/3

Sherman Street Network Table

Subdivision	Street Name	Length (Feet)	MILES	CONDITION	EST. YEAR BUILT	Varieties - Immediate	On Repair Mill 6" Strip & Overlay (Feet)	Cracks 1" or more (Feet)	Cracks 1" or less (Feet)	Sinkhole (\$sq Yd)	EX PAVEMENT DESIGN	TRAFFIC (YIN)	TIF (YIN)
Sherman Chase	WORTHINGTON CHASE	580	0.11	Fair	1999		27	54	58	0.4	5" Blt Base Cess, 2" Blt Surf Cess Cl	LOW	N
Flagland Park	XAVIER DRIVE	324	0.06		1977			32.4	485.6	6" Aug Base, 2" Bl Surf Cess	EX 8" & VAR PR 1 1/2" BINDER, PR 1 1/2" SURFACE BITUMINOUS	LOW	N
	ZIMMERMAN DRIVE	4856	0.92	Good	2006							HIGH	N
	<u>TOTAL</u>						763.0	2281.0	1885.0	1328.4			N
	<u>TOTAL ROAD MILES =</u>		25.09										

Village of Sherman
Pavement Inventory

STREET REPAIR COSTS

PURCHASE SPRAY PATCHER

Item	Unit	Price
Purchase Price Machine	Each	\$57,500.00
5 Year Lease Purchase	Year	\$13,400.00
Machine Cost (20 Days/Yr)	\$/Day	\$ 670.00
Machine Cost (40 Days/Yr)	\$/Day	\$ 335.00
Production Rate Patch	Tons/Day	13
Patch Area per Ton (4" Thick)	SY/Ton	4.5
Production Rate	SY/Day	58.0
Production Rate Crack Seal	FT/Day	1000.0
Labor Required	Men/Day	2
Labor Rate (\$19.20/hour)	\$/Day/Man	\$154.00
Rock Material Cost	\$/Ton	\$15.00
Oil Material Cost	\$/Gallon	\$2.50
Rock Required for 10 Tons Patch	Tons	9.5
Oil Required for 10 Tons Patch	Gallon	130
Patch Material Cost per Ton	\$/Ton	\$46.75
Patch Labor Cost per Ton	\$/Ton	\$23.69
Equipment Cost per Ton (40 days/yr)	\$/Ton	\$ 25.77
Equipment Cost per Ton (20 days/yr)	\$/Ton	\$ 51.54
Total Patch Cost per Ton (40 days)	\$/Ton	\$ 96.21
Total Patch Cost per Ton (20 days)	\$/Ton	\$ 121.98
Total Patch Cost per SY (40 days)	\$/SY	\$ 21.55
Total Patch Cost per SY (20 days)	\$/SY	\$ 27.32
Volume of 2000 Ft Crack 1" x 4"	Cu Ft	27.39
Crack Oil Material for 2000' x 1" x 4"	Gallon	204.86
Sand for 2000' x 1" x 4"	Ton	1
Torpedo Sand Material Cost	Ton	15.15
Crack Material Cost per Foot	\$/Ft	\$0.53
Crack Labor Cost per Foot	\$/Ft	\$0.31
Crack Equipment Cost per Foot (40 days)	\$/Ft	\$0.34
Crack Equipment Cost per Foot (20 days)	\$/Ft	\$0.67
Total Crack Cost per Foot (40 days/yr)	\$/Ft	\$1.17
Total Crack Cost per Foot (20 days/yr)	\$/Ft	\$1.51

COLD PATCH

Item	Unit	Price
Cold Patch Material Cost	Ton	\$76.50
Production Rate	Ton/Day	5
Labor Required	Men/Day	2
Labor Rate (\$19.20/hour)	\$/Day/Man	\$154.00
Patch Area per Ton (4" Thick)	SY/Ton	4.5
Production Rate	SY/Day	22.3
Patch Material Cost per Ton	\$/Ton	\$76.50
Patch Labor Cost per Ton	\$/Ton	\$81.60
Total Patch Cost per Ton	\$/Ton	\$138.10
Total Patch Cost per SY	\$/SY	\$30.93

CONTRACTOR BIDS - Lowes Paving 3/9/2011

Item	Unit	Price
Hot Patch - Mill and Patch 4"	SY	\$64.00
Crack Seal - Route, Seal, & Band 1" wide or less	Ft	\$2.55
Crack Seal - Route, Seal, & Band 1" and wider	Ft	\$4.08
Multiple Cracks - Mill, Patch 16" x 2" Seal Edges	Ft	\$10.11

STREET OVERLAY

Item	Unit	Price
Furnish & Place HMA Surface Course	Ton	\$ 200.00
HMA Surface Course 2.5"	SY	\$ 28.00
HMA Surface Removal (Milling)	SY	\$ 10.00
20% Contingency	SY	7.6
Resurfacing Total (Mill 2.0" + Surf 2.5")	SY	\$ 45.60
Use \$50/SY		

MATERIAL PRICES FROM PH BROUGHTON

3/22/2011

Item	Unit	Price
Cold Patch	Ton	\$ 76.50
Emulsion Oil HFE 90 or HFE 150	Gallon	\$ 4.18
3/8" Rock	Ton	\$ 26.32
Torpedo Sand	Ton	\$ 15.15

Tom Hampton Expected Prices

Item	Unit	Price
Emulsion Oil	Gallon	\$ 2.50
3/8" Rock	Ton	\$ 12.00

2.5

EXHIBIT B - UNIT PRICES AND PRODUCTION RATES

IMMEDIATE STREET REPAIRS FROM 2011 SURVEY		REPAIR WITH COLD PATCH BY VILLAGE & CRACK REPAIR & JOINT REPAIR BY CONTRACTOR																				
Repair	Street	2011	20% Est	2012	2012	2012	2013	2013	2013	2014	2014	2014	2015	2015	2015	2016	2016	2016	2012-2015	2012-2015		
		Quantity of Repair	Annl Growth	Est. Unit Price	Quant	Costs	Date	Quant	Costs	Date	Quant	Costs	Date	Quant	Costs	Date	Quant	Costs	Date	Total Costs	Total Days	
Pothole Repair (SY)	Village Wide	688	140	\$31.00	540	\$16,740	24.5	230	\$7,130	10.5	198	\$6,138	9.0	140	\$4,340	5.4	1400	\$4,340	6.4	\$8,688	56.7	
Crack Repair < 1" (LF)	Village Wide	13528	2700	\$2.55	2,000	\$5,100	7,000	\$17,950	7,000	\$17,850	5,728	\$14,668	27,000	\$17,850	5,728	\$14,668	\$6,885	\$62,261	0.0			
Crack Repair > 1" (LF)	Village Wide	1885	380	\$4.06	1,000	\$4,060	1,000	\$4,060	1,000	\$4,060	1,000	\$4,060	1,000	\$4,060	1,000	\$4,060	3800	\$1,543	\$13,824	0.0		
Joint Repair (LF)	Village Wide	2281	460	\$10.71	1,000	\$10,710	1,000	\$10,710	1,000	\$10,710	661	\$6,683	661	\$6,683	661	\$4,651	\$4,651	\$41,683	0.0			
Sinkhole Repair (SY)	Village Wide	58	12	\$31.00	58	\$1,798	2.6	12	\$372	0.5	12	\$372	0.5	12	\$372	0.5	\$3,206	\$3,206	4.8	\$159,753	61.5	

IMMEDIATE STREET REPAIRS FROM 2011 SURVEY		REPAIR WITH SPRAY PATCH MACHINE ALL BY VILLAGE STAFF																					
Repair	Street	2011	20% Est	2012	2012	2012	2013	2013	2013	2014	2014	2014	2015	2015	2015	2016	2016	2016	2012-2015	2012-2015			
		Quantity of Repair	Annl Growth	Est. Unit Price	Quant	Costs	Date	Quant	Costs	Date	Quant	Costs	Date	Quant	Costs	Date	Quant	Costs	Date	Total Costs	Total Days		
Pothole Repair	Village Wide	688	140	\$37.32	540	\$14,753	9.3	288	\$8,284	4.0	198	\$5,493.36	3.4	140	\$3,824.50	2.4	1400	\$3,825	2.4	\$34,095.36	21.5		
Crack Repair < 1"	Village Wide	13628	2700	\$1.02	2,000	\$24,040	2.0	14328	\$7,140	7.0	10,028	\$7,140.00	7.0	5,728	\$5,842.56	5.7	27,000	\$27,754	2.7	\$24,916.56	24.4		
Crack Repair > 1"	Village Wide	1885	380	\$2.04	1,000	\$2,040	2.0	1,265	\$2,040.00	2.0	645	\$1,000	2.0	25	\$51.00	0.1	3800	\$2,775	0.8	\$6,916.20	6.6		
Joint Repair	Village Wide	2281	460	\$4.55	1,000	\$4,550	5.7	1,741	1,000	\$4,550	5.7	1,701	1,000	\$4,550.00	5.7	661	\$3,007.55	3.8	4600	\$2,053	2.6	\$19,500.55	23.7
Sinkhole Repair	Village Wide	58	12	\$27.32	58	\$1,585	1.0	12	\$328	0.2	12	\$328	0.2	12	\$328	0.2	12,0	\$328	0.2	\$159,753	1.8		

RESURFACING PROGRAM (\$100,000 Per Year for 10 Years)

STREETS RANKED IN ORDER OF PRIORITY			Est. Total											
Est. Quant. of Repair (SY)	Est. Unit Price Cost	Est. Total	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	
Resurface Cabin Smoke Trail	Woodsmill Road	Rail Meadows Birch Lakes Flagland Park	Surface is failing, Installed 1985	\$50	\$239,050	\$100,000	\$50,000	\$39,050	\$50,000	\$50,000	\$50,000	\$29,050		
Resurface Cabin Smoke Trail	Woodsmill Road	Rail Meadows Birch Lakes Flagland Park	Surface is failing, Installed 1986	\$50	\$114,500	\$50,000	\$50,000	\$64,500	\$50,000	\$50,000	\$114,500			
Resurface Crown Point Drive	Flagland Drive	Flagland Park	Surface is failing, Installed 1988	\$50	\$132,000	\$50,000	\$50,000	\$52,000	\$50,000	\$50,000	\$132,000			
Resurface Charter Oak Drive	Crown Point Drive	Birch Lakes	Surface is failing, Installed 1979	\$642	\$50	\$82,100	\$50	\$82,100	\$50	\$82,100	\$82,100			
Resurface Landsdowne Drive	Charter Oak Drive	Birch Lakes	Surface is failing, Installed 1986	\$673	\$50	\$33,650	\$50	\$33,650	\$50	\$33,650	\$83,650			
Resurface Windamere Drive	Landsdowne Drive	Crown Point	Surface is failing, Installed 1979	\$955	\$50	\$47,750	\$50	\$47,750	\$50	\$47,750	\$47,750			
Resurface * Old Tipton School Rd	Old Tipton School Rd	St. John's Drive	Surface is failing, age unknown	\$50	\$50	\$239,500	\$50	\$48,950	\$50	\$10,950	\$50	\$59,900		
Resurface * St. John's Drive	St. John's Drive	Flagland Park	In case Federal Funds Not available Reserve	\$50	\$50	\$102,900	\$50	\$20,580	\$50	\$20,580	\$50	\$20,580		
* Old Tipton School Road and St. John's Drive are eligible for Federal Funds. Plan to obtain Fed Funds for 2019, 2020, 2021			\$1,152,500	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$95,500	\$100,000	\$271,130	\$82,320	\$321,920	
* Old Tipton School Road and St. John's Drive are eligible for Federal Funds. Plan to obtain Fed Funds for 2020, 2021			\$1,152,500	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$95,500	\$100,000	\$271,130	\$82,320	\$321,920	

RESURFACING PROGRAM (\$50,000 Per Year for 10 Years)

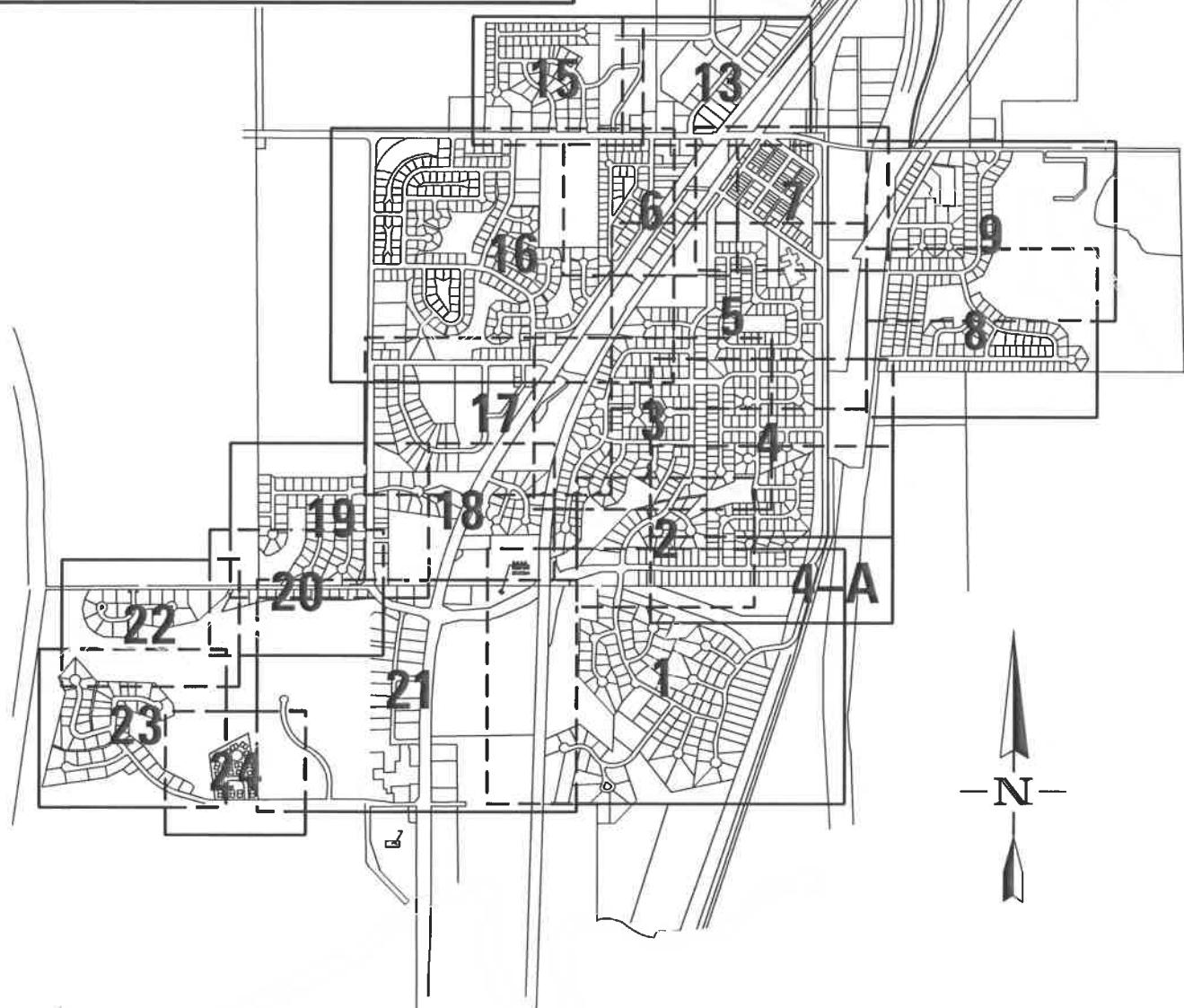
STREETS RANKED IN ORDER OF PRIORITY			Est. Total											
Est. Quant. of Repair (SY)	Est. Unit Price Cost	Est. Total	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total	
Resurface worse 50% Cabin Smoke Trail	Blitch Lakes	Surface is failing, Installed 1985	\$50	\$239,050	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$100,000	
Resurface worse 50% Woodsmill Road	Flagland Drive	Surface is failing, Installed 1986	\$50	\$114,500	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$229,050	
Resurface worse 50% Flagland Drive	Crown Point	Surface is failing, Installed 1988	\$50	\$132,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$132,000	
Resurface worse 50% Charter Oak Drive	Birch Lakes	Surface is failing, Installed 1979	\$642	\$50	\$82,100	\$50	\$82,100	\$50	\$82,100	\$50	\$82,100	\$82,100		
Resurface worse 50% Landsdowne Drive	Crown Point	Surface is failing, Installed 1979	\$955	\$50	\$47,750	\$50	\$47,750	\$50	\$47,750	\$50	\$47,750	\$47,750		
Resurface * Old Tipton School Rd	St. John's Drive	Surface is failing, age unknown	\$50	\$50	\$239,500	\$50	\$48,950	\$50	\$10,950	\$50	\$59,900	\$59,900		
Resurface * St. John's Drive	Flagland Park	Surface is failing, age unknown	\$50	\$50	\$102,900	\$50	\$20,580	\$50	\$20,580	\$50	\$20,580	\$20,580		

* Old Tipton School Road and St. John's Drive are eligible for Federal Funds. Plan to obtain Fed Funds for 2019, 2020, 2021
Under this option, the worst areas would be designated for resurfacing.

EXHIBIT D - RESURFACING PROGRAM

MAP INDEX

- | | |
|--|--|
| 1. STEEPLECHASE | 13. ROUTE 66 CROSSING |
| 2. QUAILRIDGE (SOUTH) | 14. WATERFORD |
| 3. QUAILRIDGE (NORTH) | 15. CROWN POINT |
| 4. THE PRAIRIE AT BROOKSIDE GLEN | 16. FLAGLAND PARK |
| 4-A. THE PRAIRE AT BROOKSIDE GLEN | 17. NORTH HAVEN / VILLA WEST /
VILLA EAST |
| 5. BROOKSIDE GLEN | 18. RED BUD / GEORGETOWN OAKS |
| 6. LYNNDALE / THE CROSSING | 19. OLD TIPTON ESTATES |
| 7. ORIGINAL SHERMAN | 20. THE RAIL |
| 8. BIRCH LAKES ESTATES | 21. RAIL POINTE |
| 9. SPRING LAKE ESTATES /
GOLDEN POND PLACE / BRIER WOOD | 22. RAIL ESTATES |
| 10. BRITTN PLACE NORTH | 23. RAIL MEADOWS |
| 11. BRITTN PLACE SOUTH | 24. OLD HICKORY AT THE RAIL |
| 12. TIMBERLINE ESTATES | |



SHERMAN

STEEPLECHASE

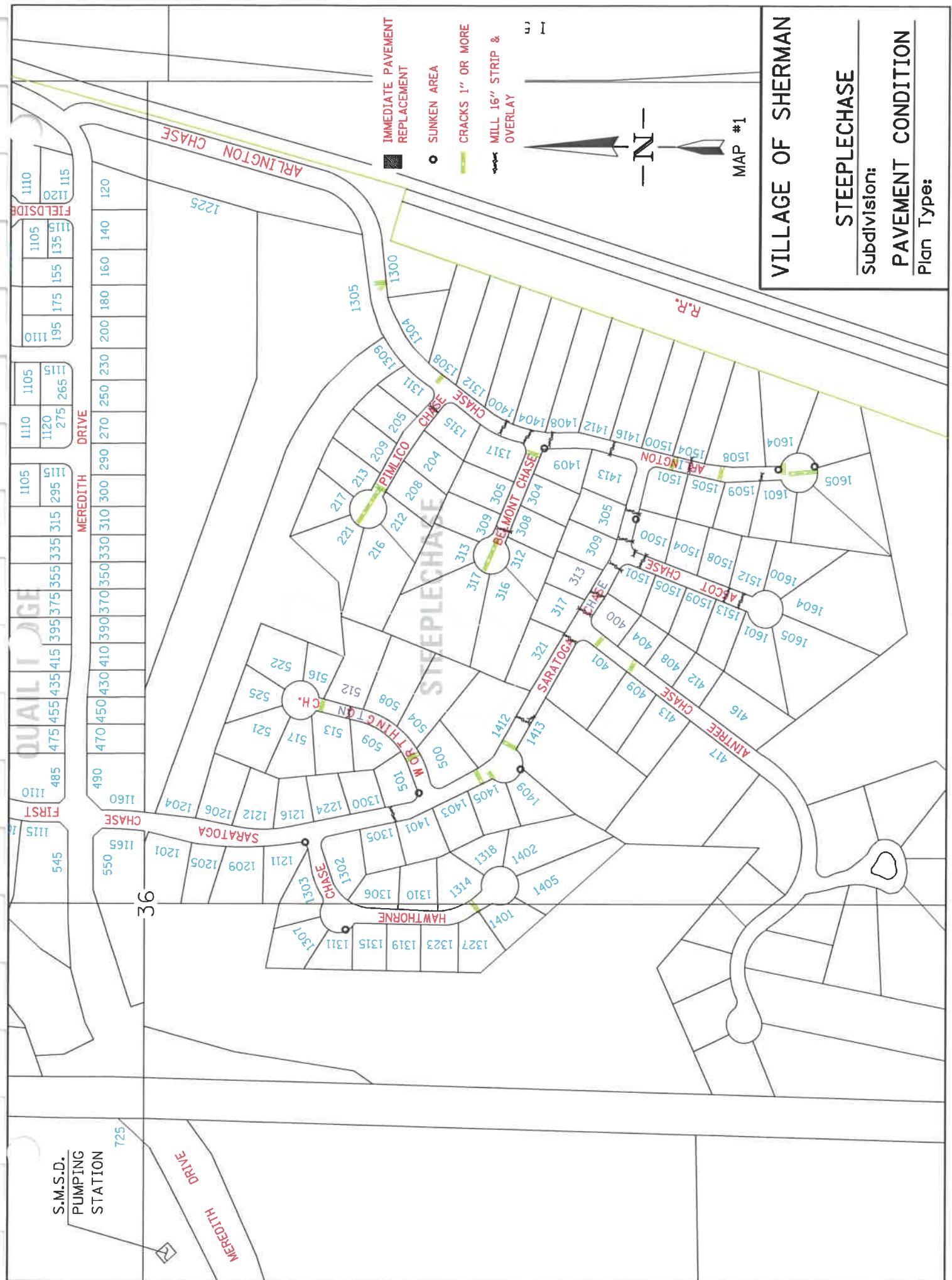
Subdivision:
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Plan Type:

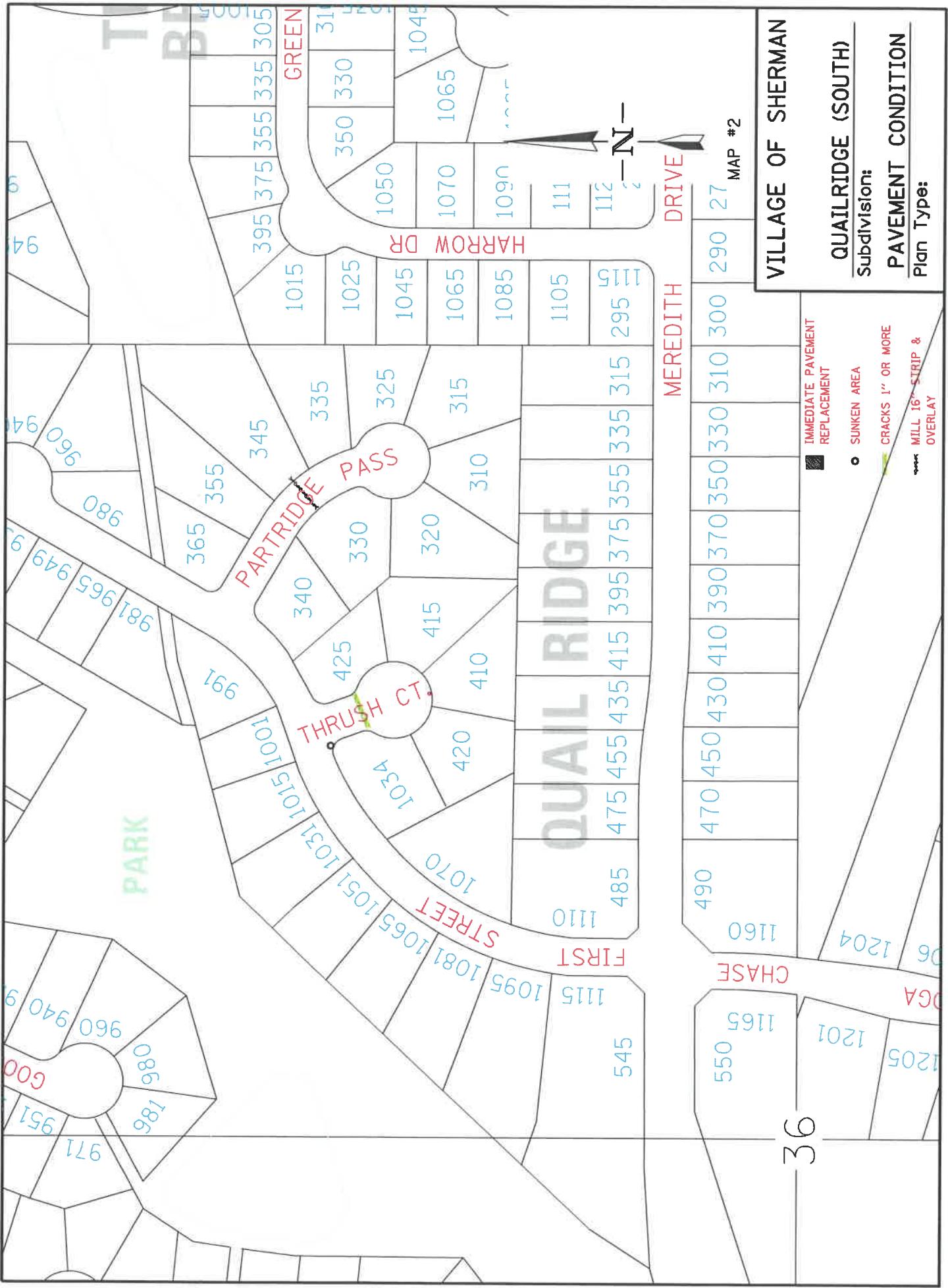
VILLAGE OF SHERMAN

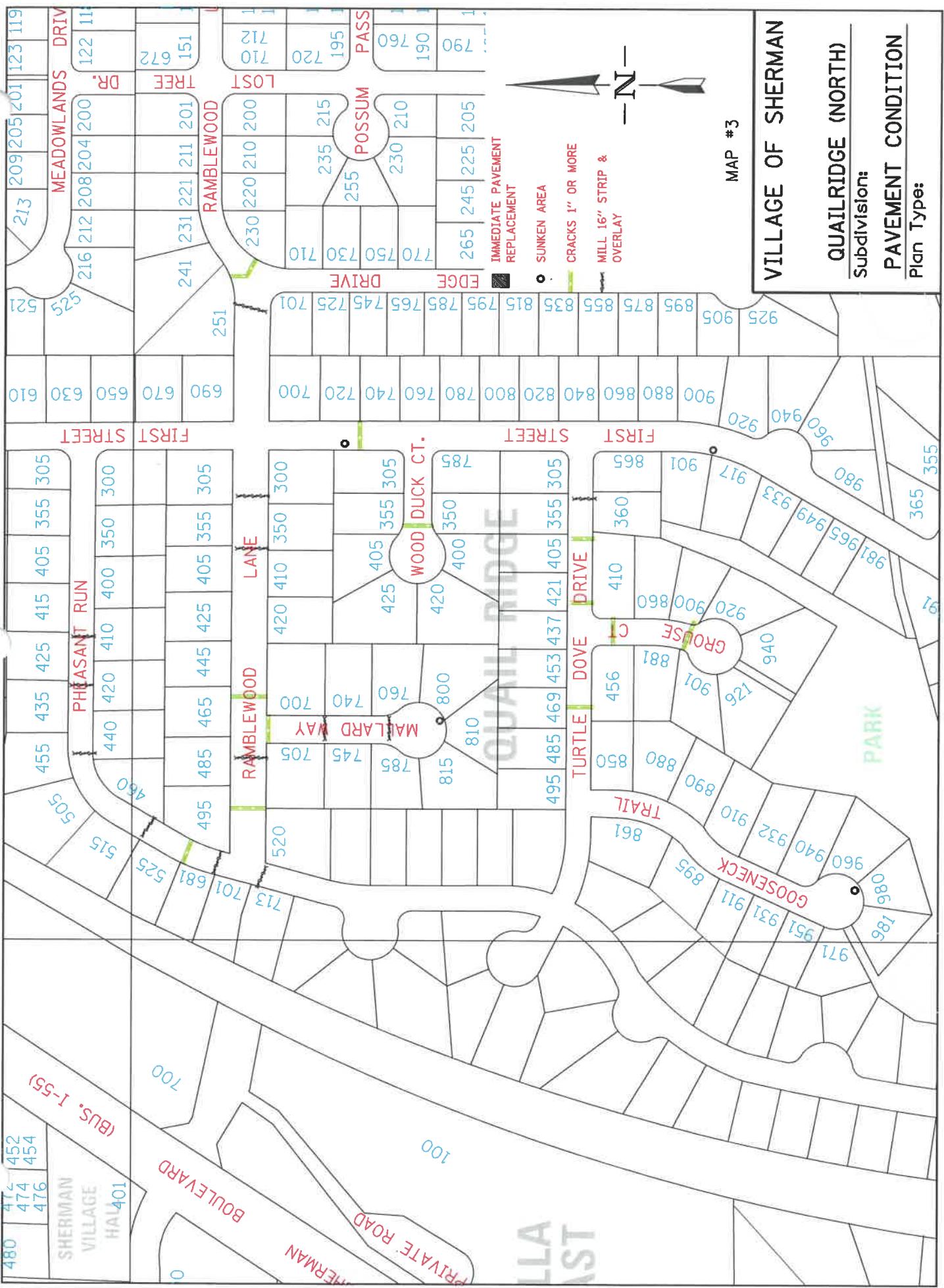
MAP #1

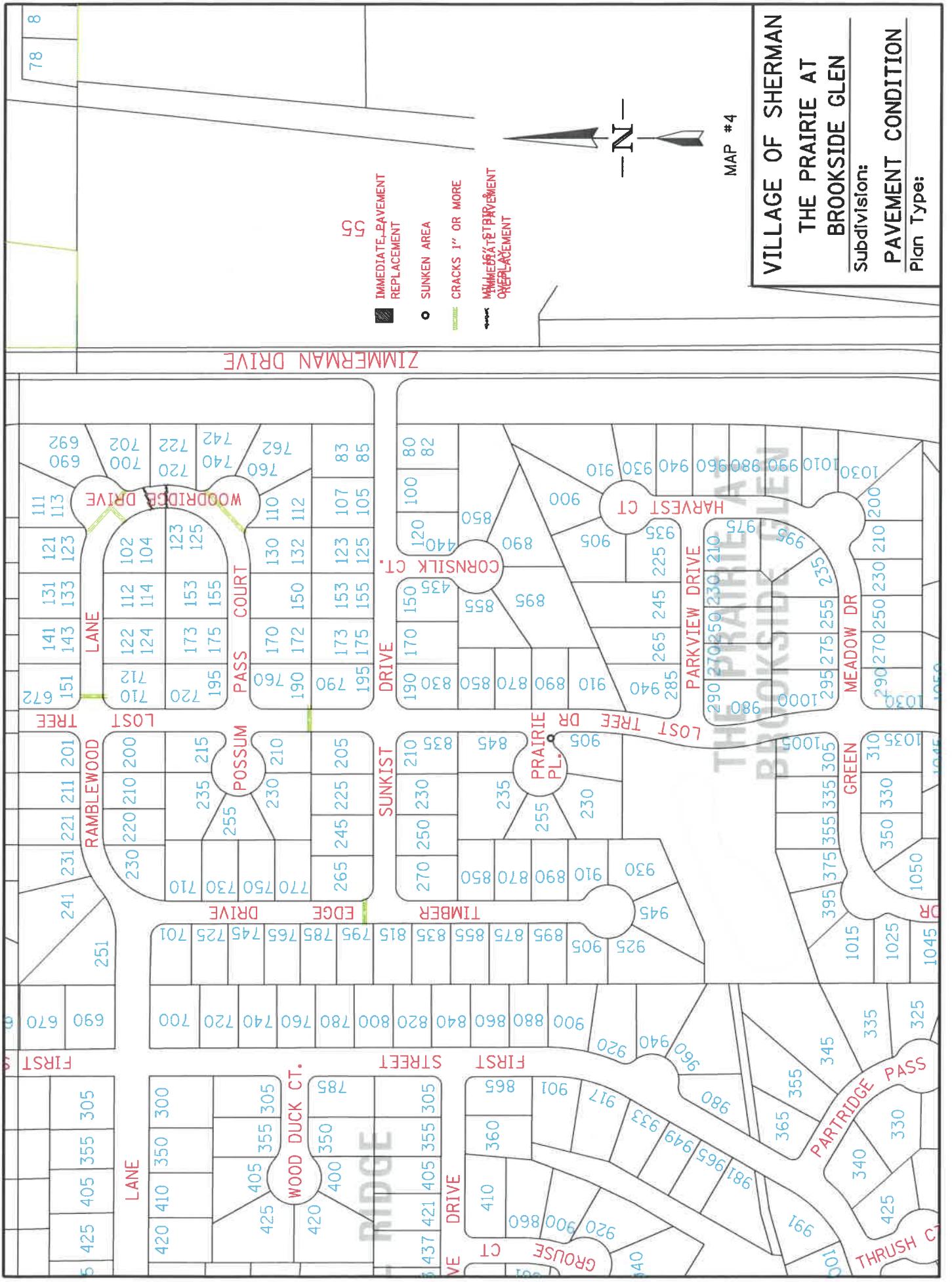
R.R.

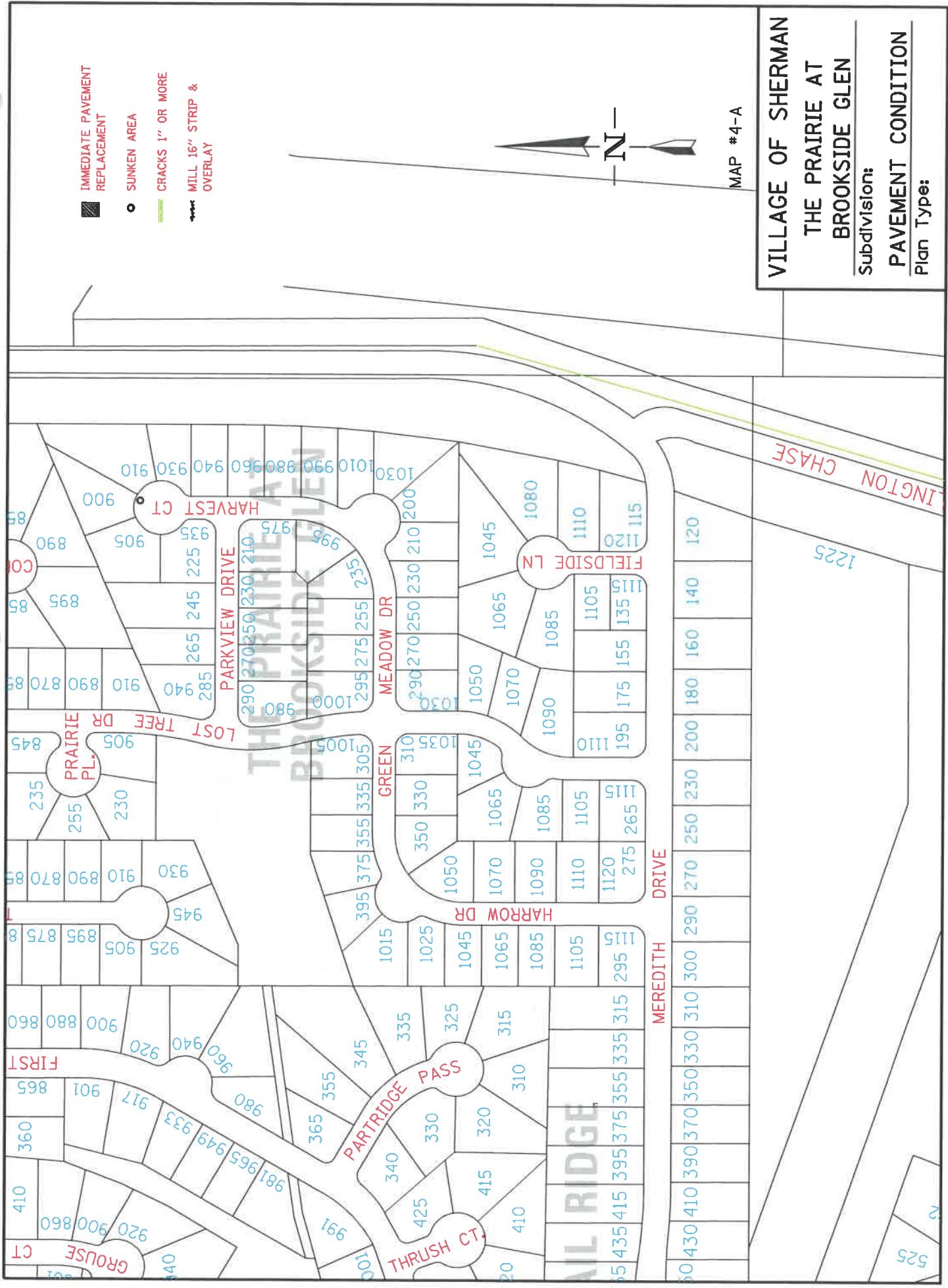
- IMMEDIATE PAVEMENT REPLACEMENT
- SUNKEN AREA
- CRACKS 1" OR MORE
- MILL 16" STRIP & OVERLAY

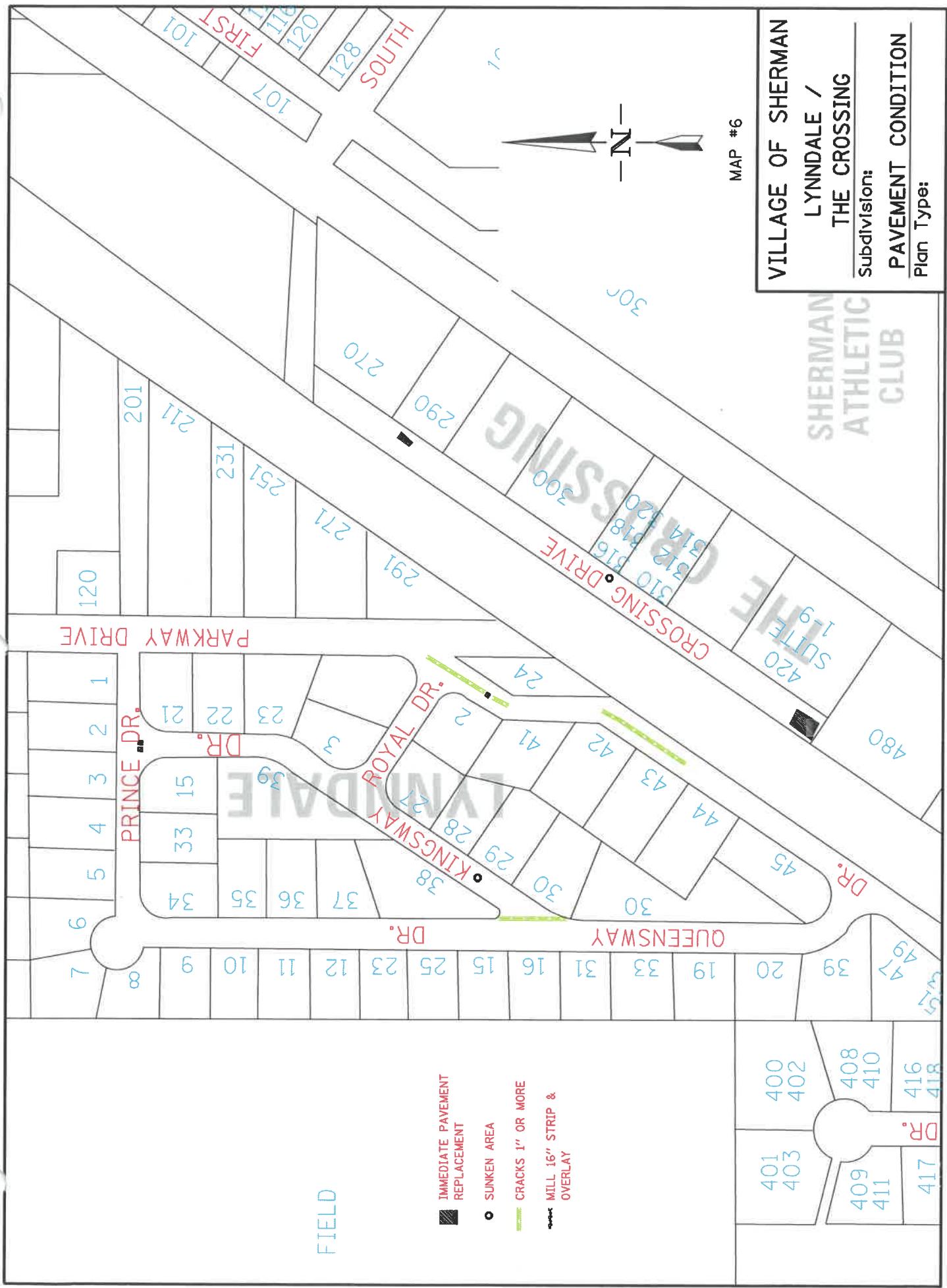










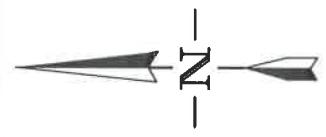


MAP #8

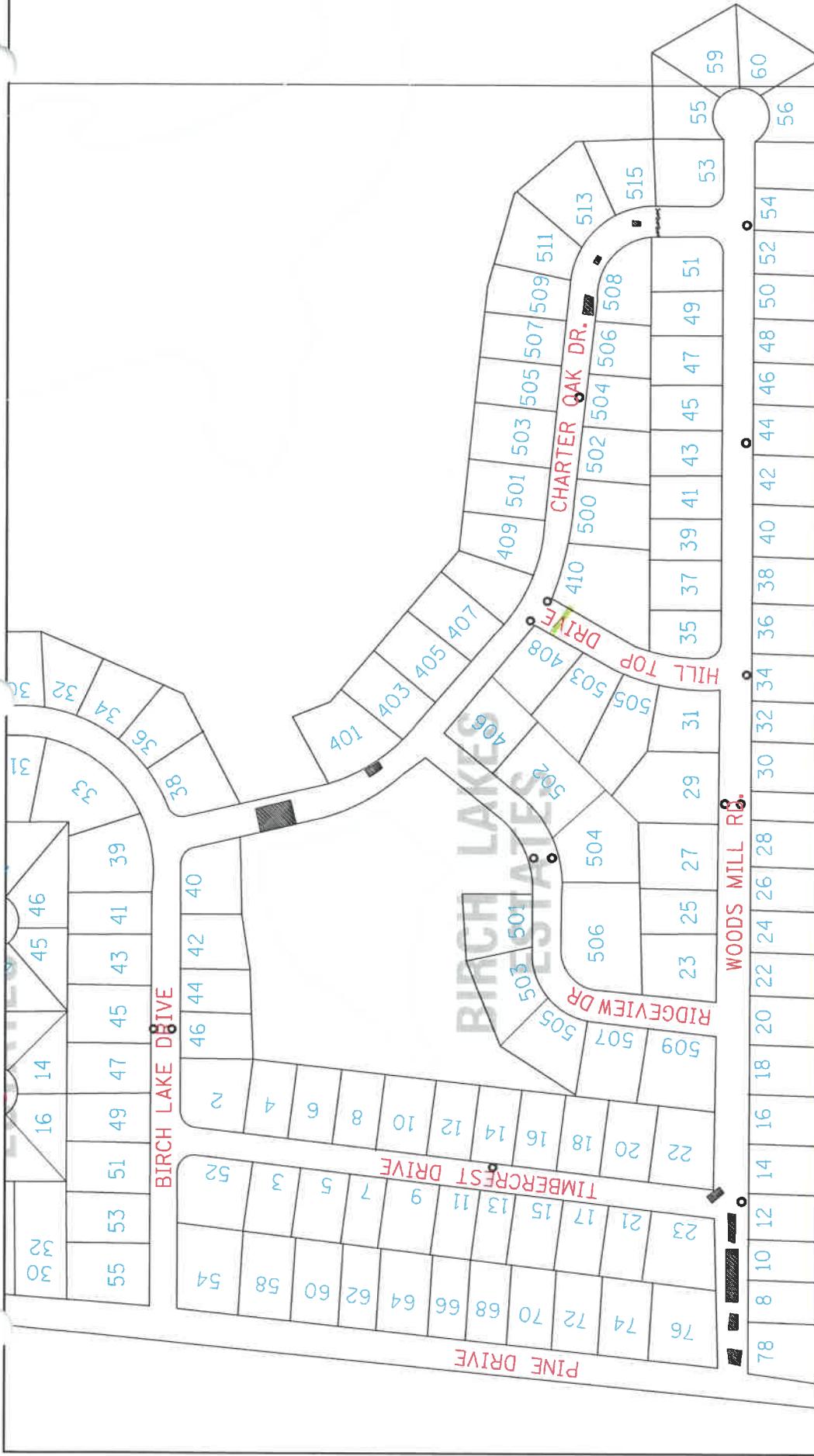
VILLAGE OF SHERMAN

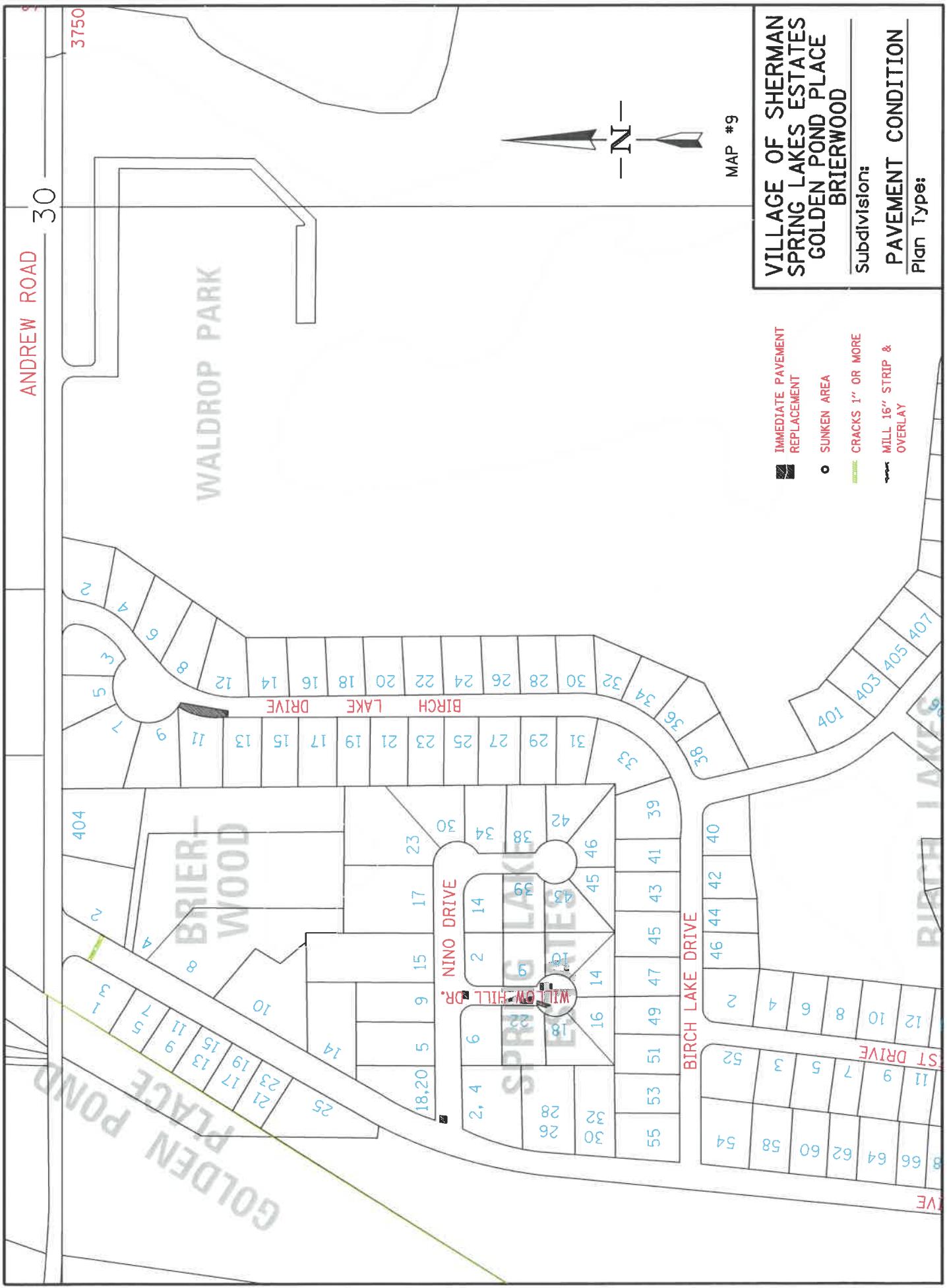
BIRCH LAKES ESTATES
Subdivision:

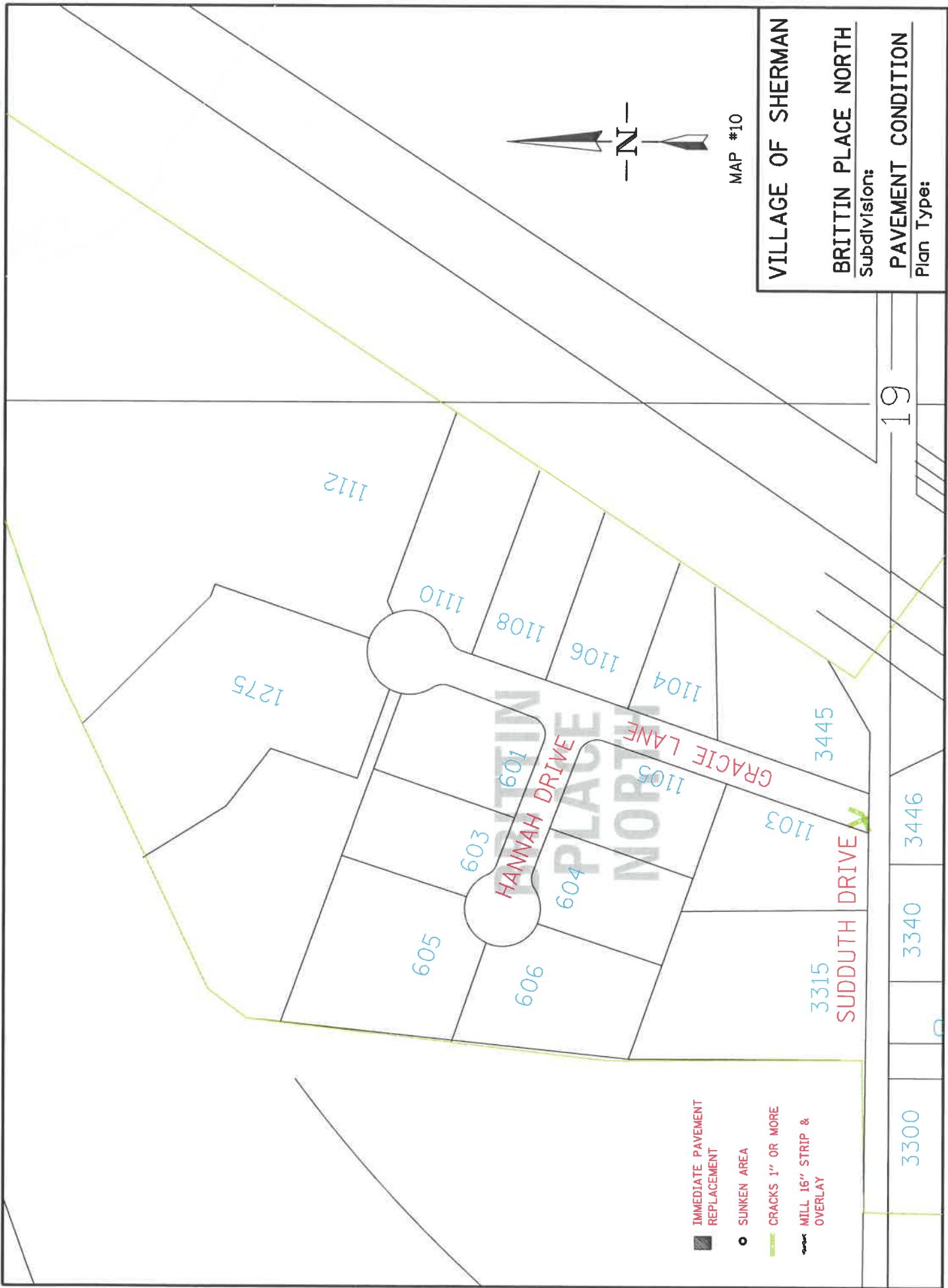
PAVEMENT CONDITION
Plan Type:

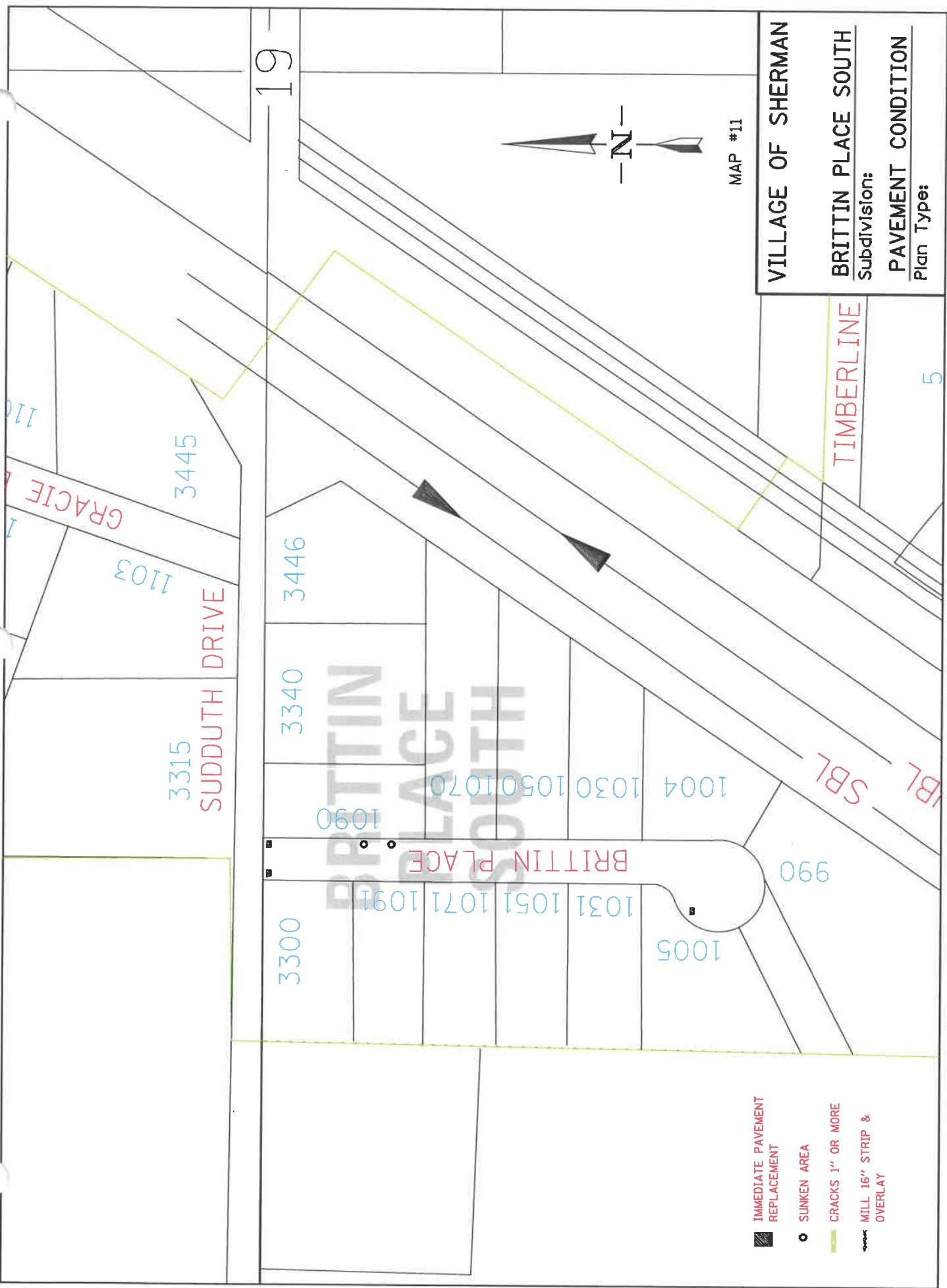


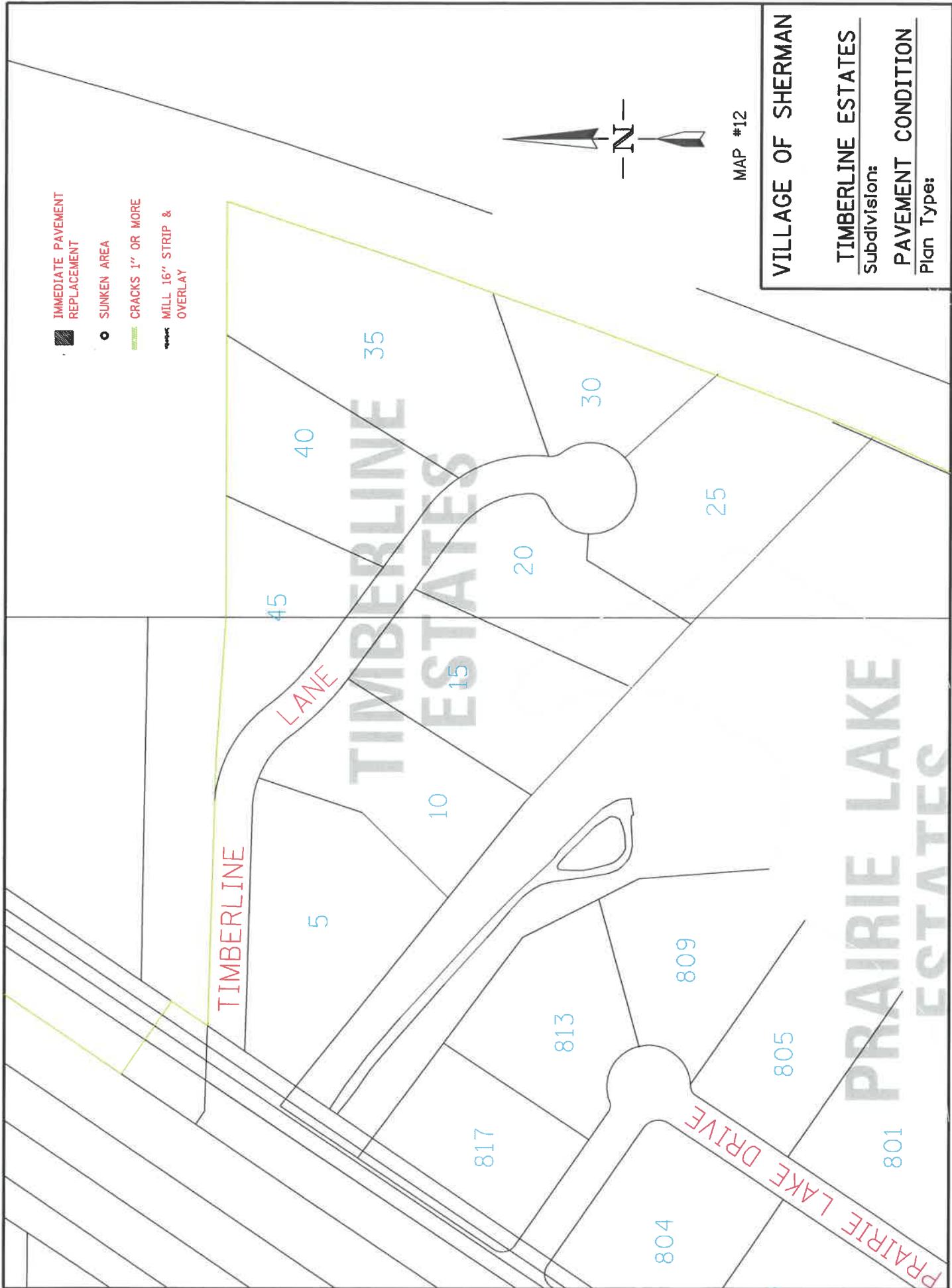
- IMMEDIATE PAVEMENT REPLACEMENT
- SUNKEN AREA
- CRACKS 1" OR MORE
- MILL 16" STRIP & OVERLAY

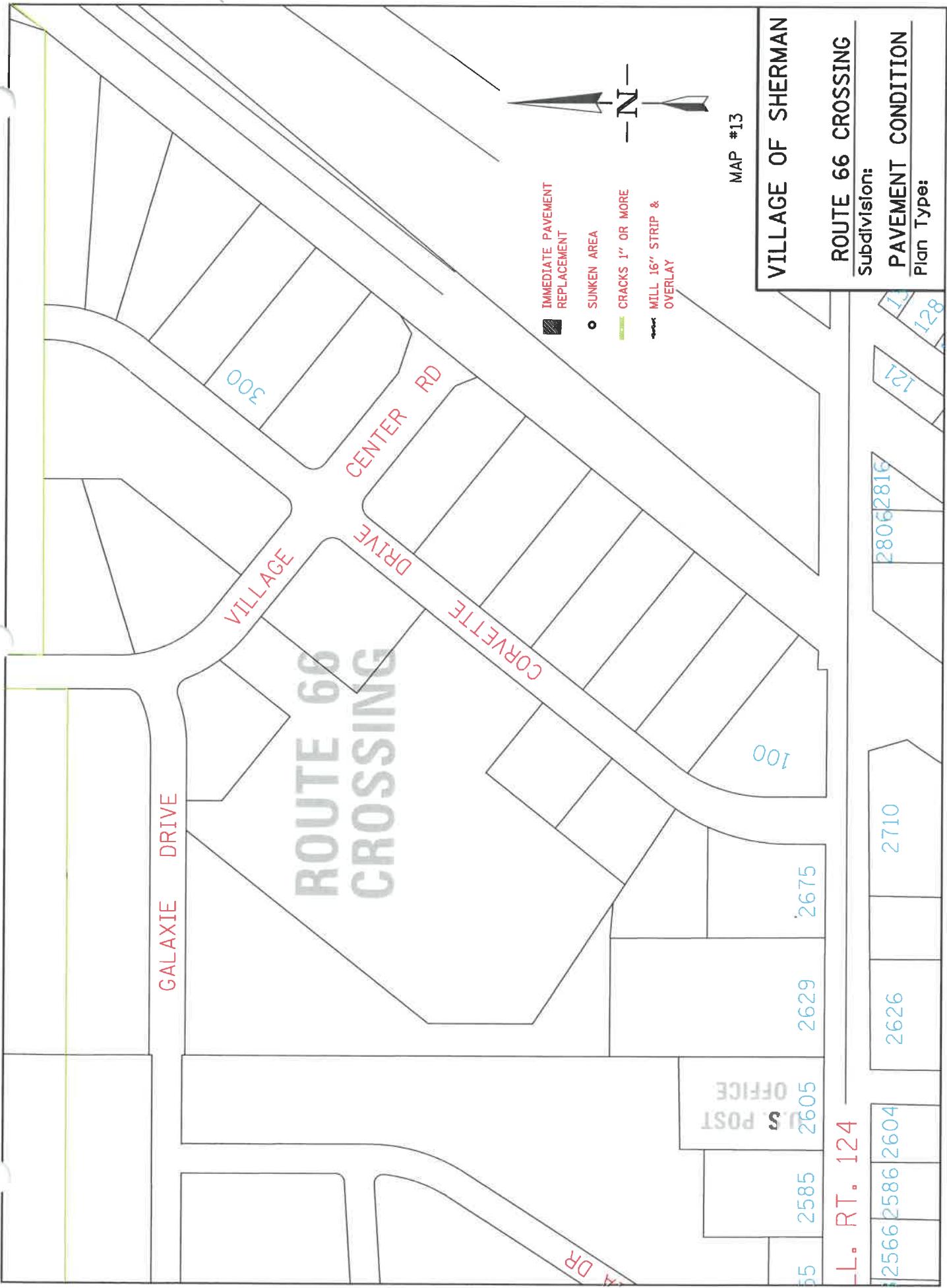


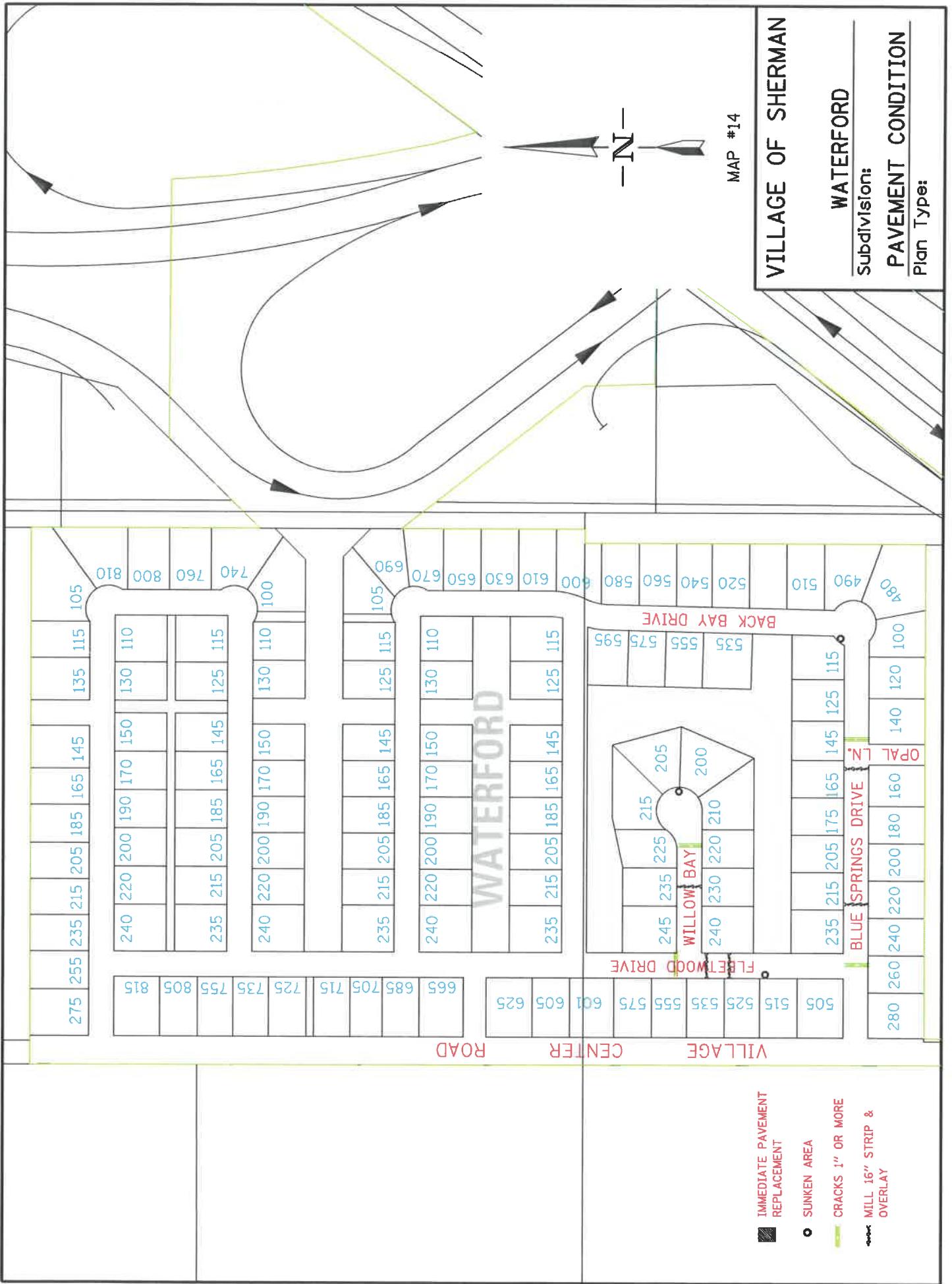


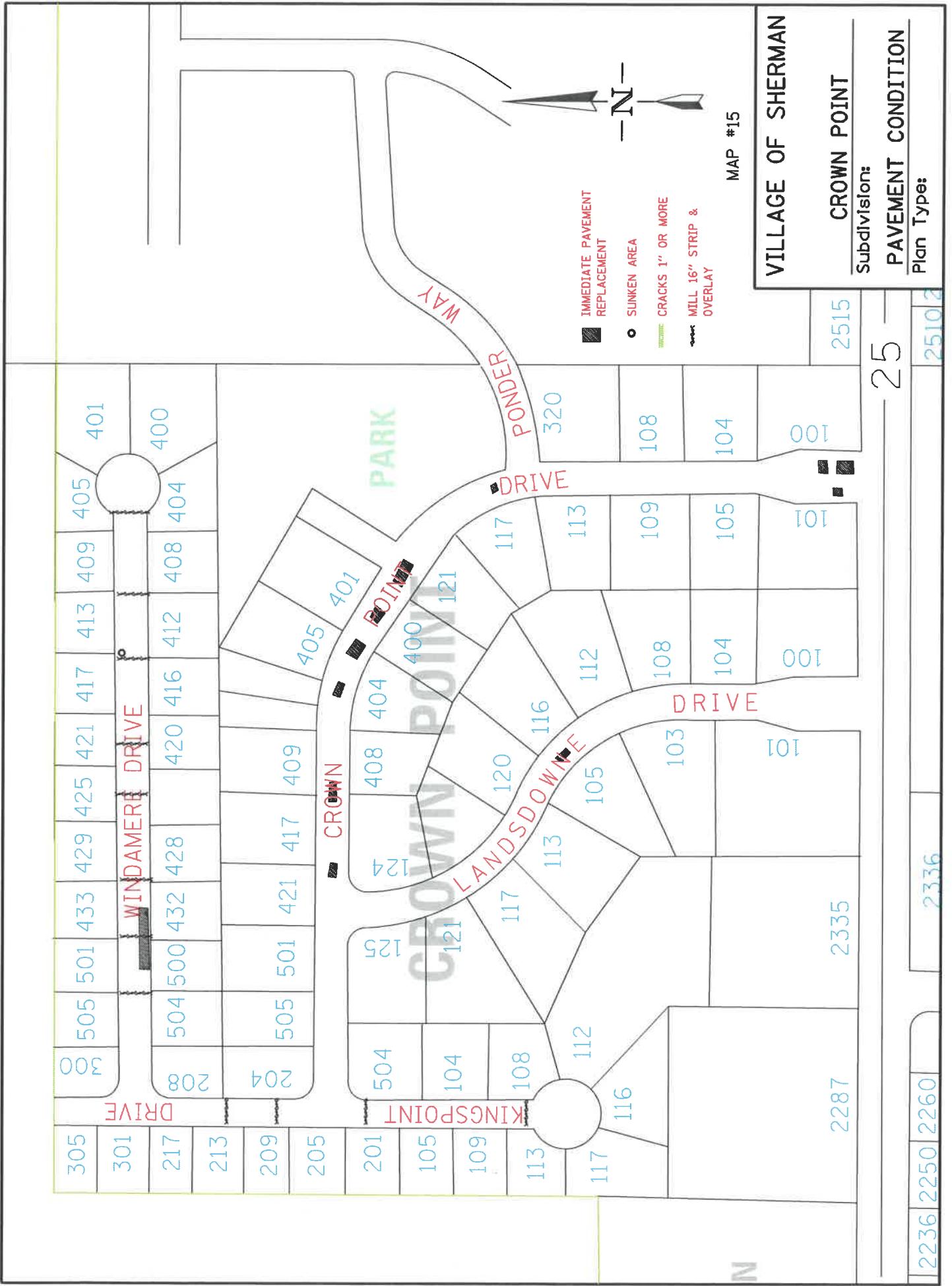


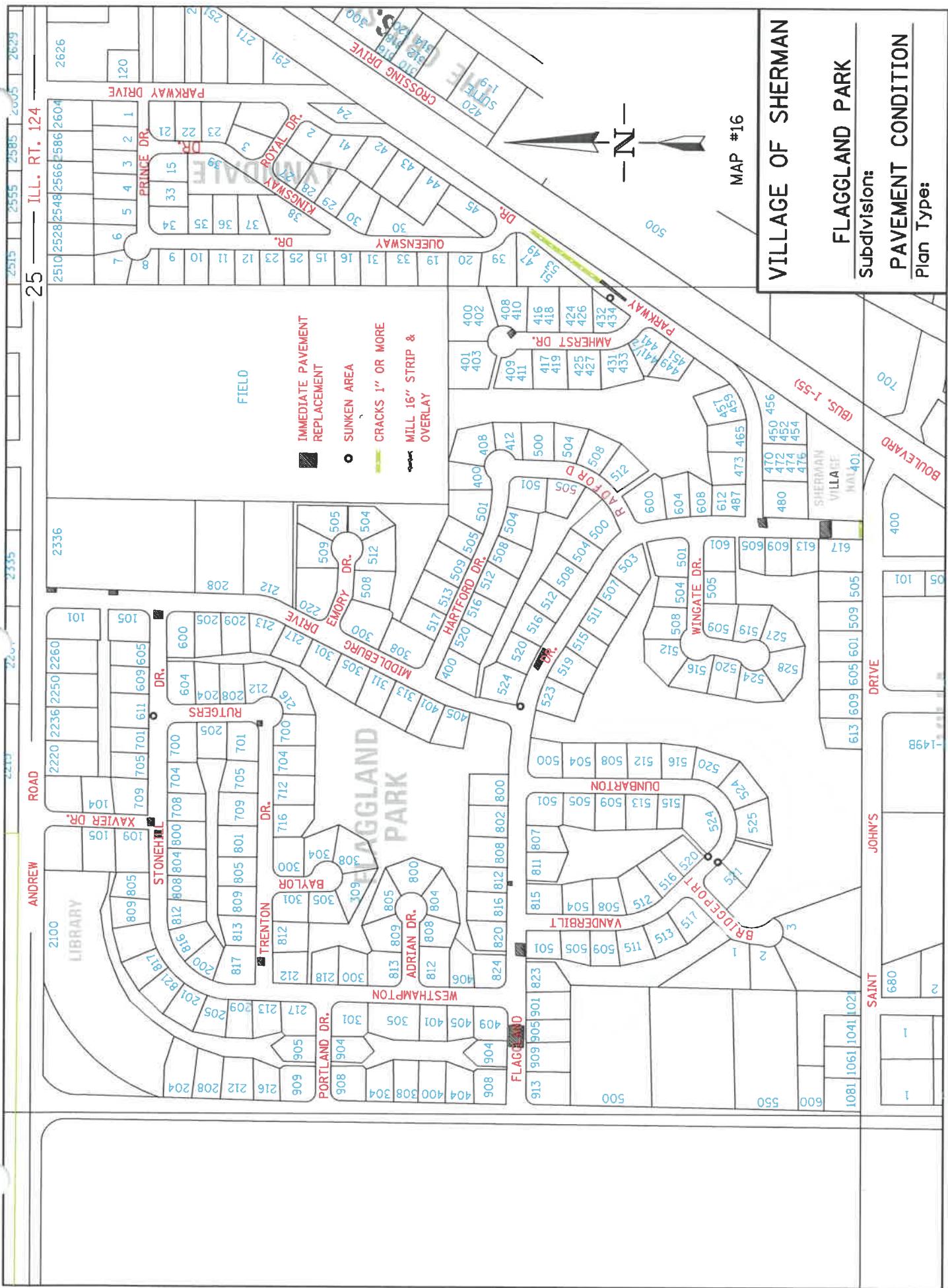


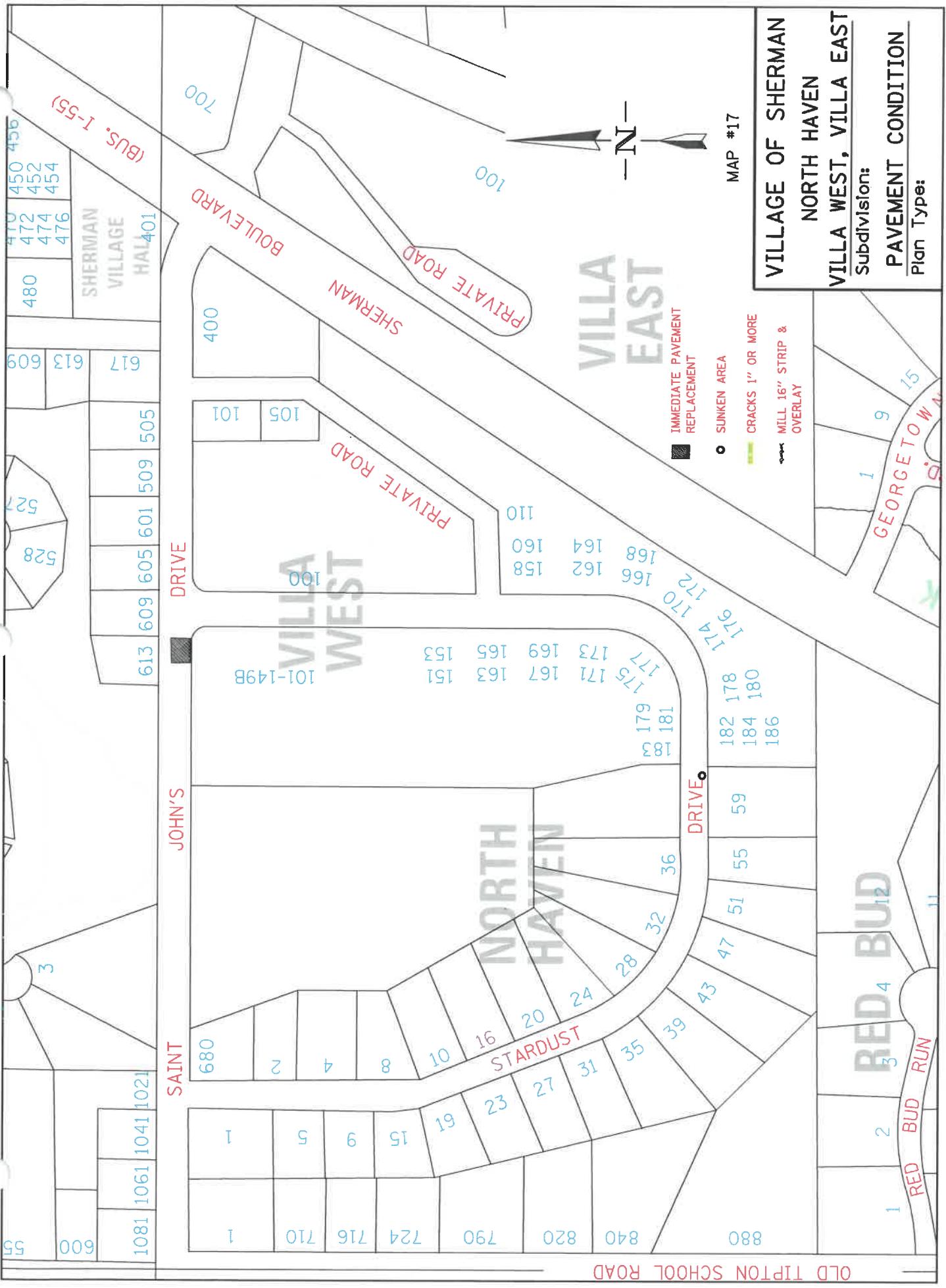


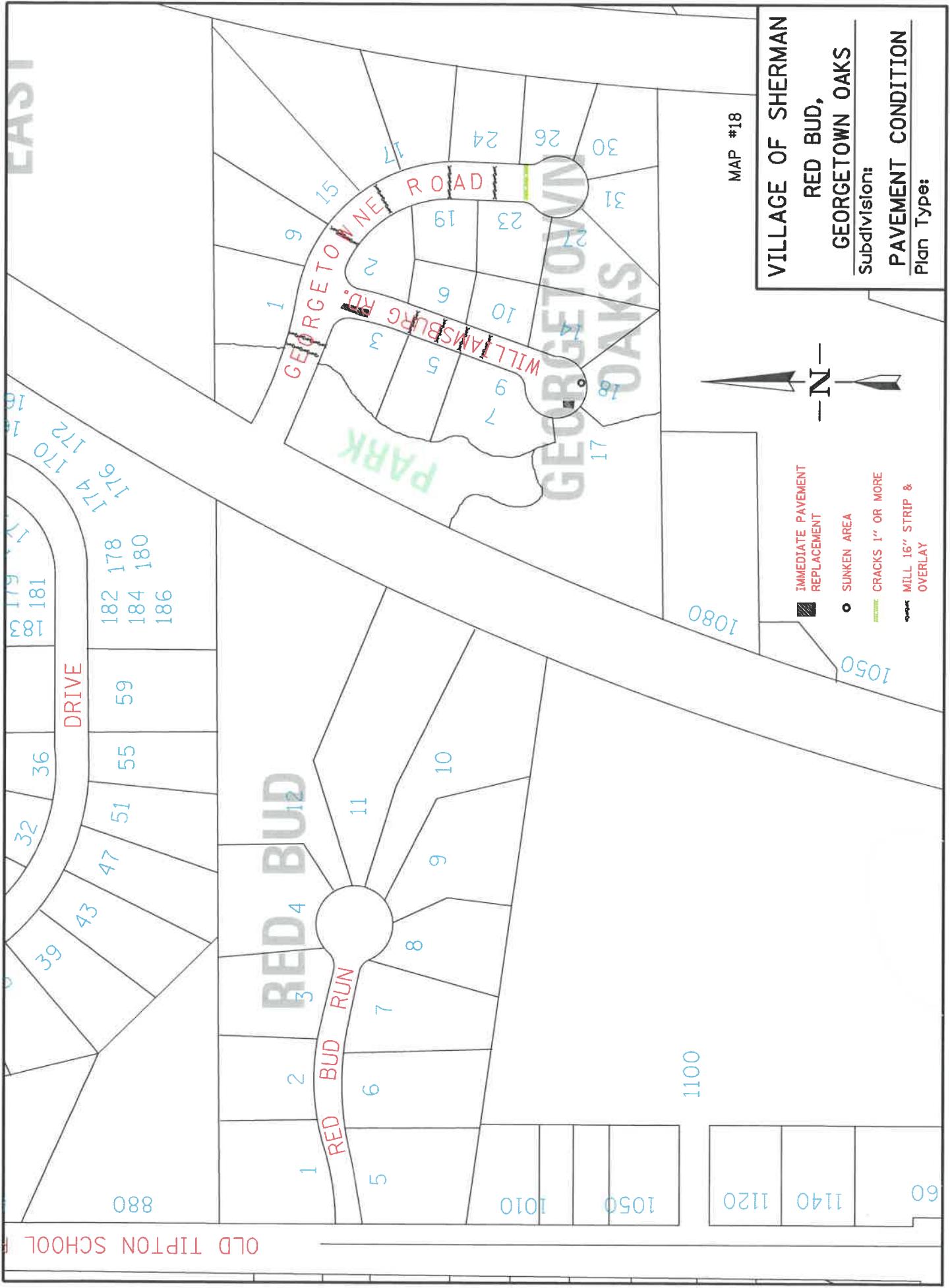


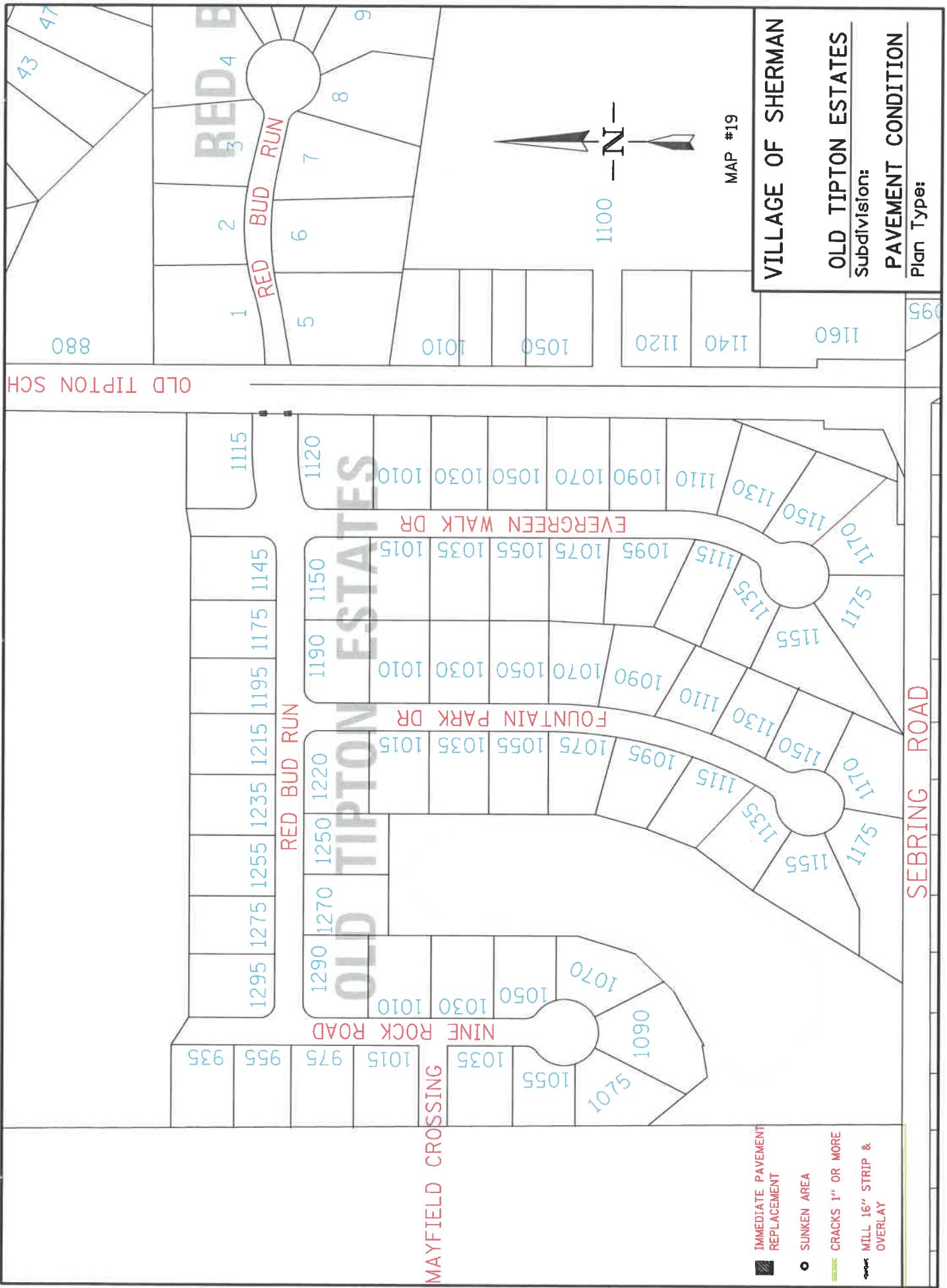


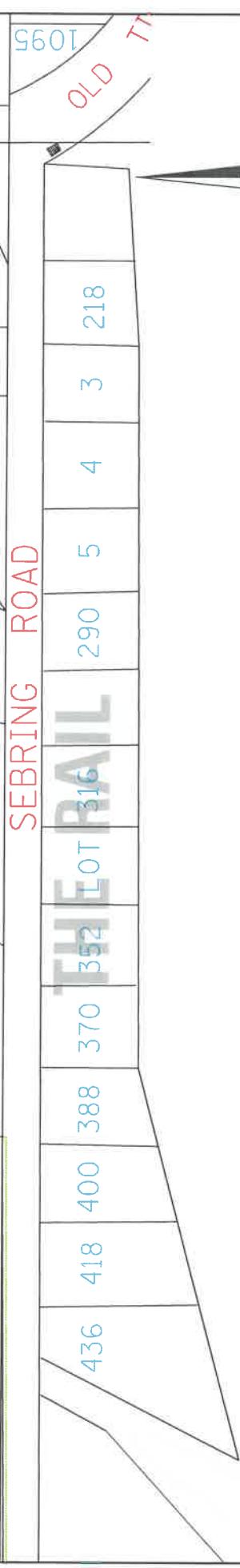
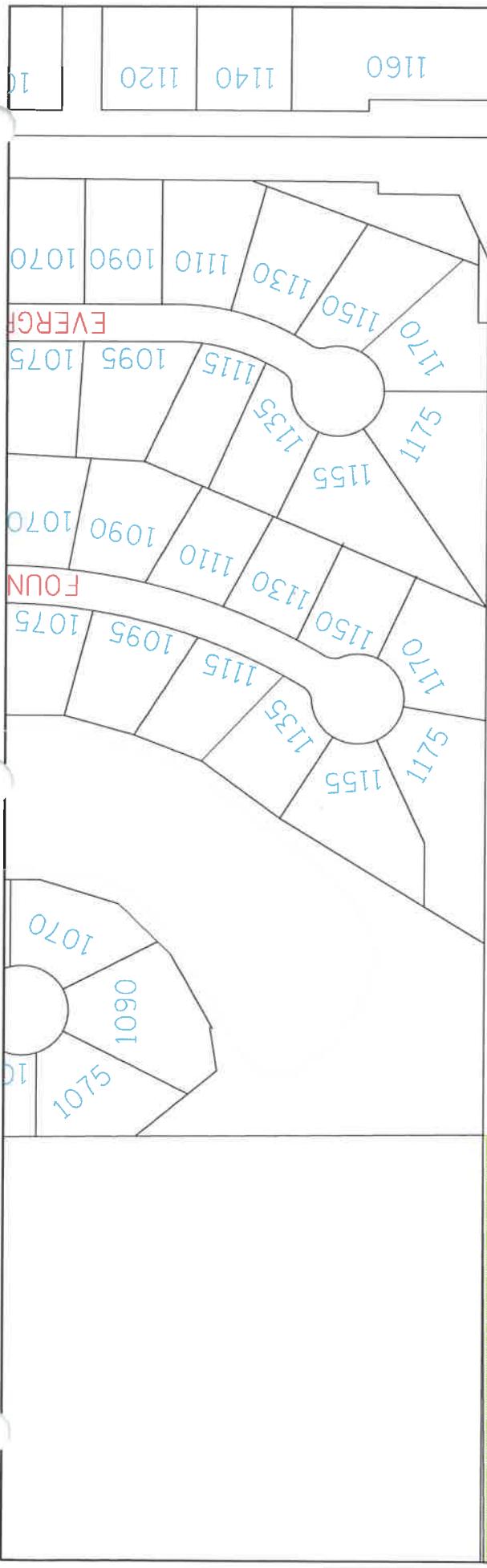






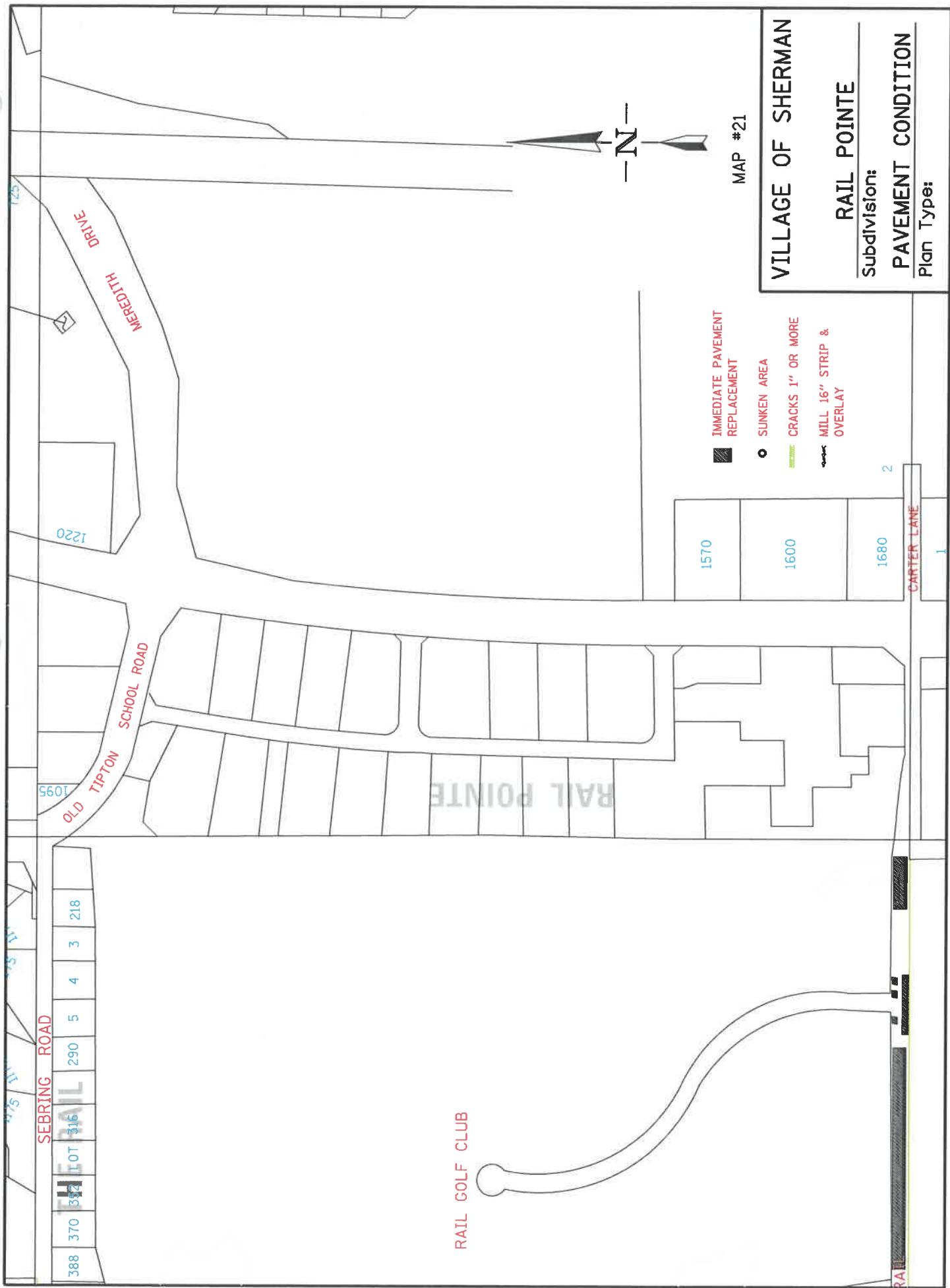


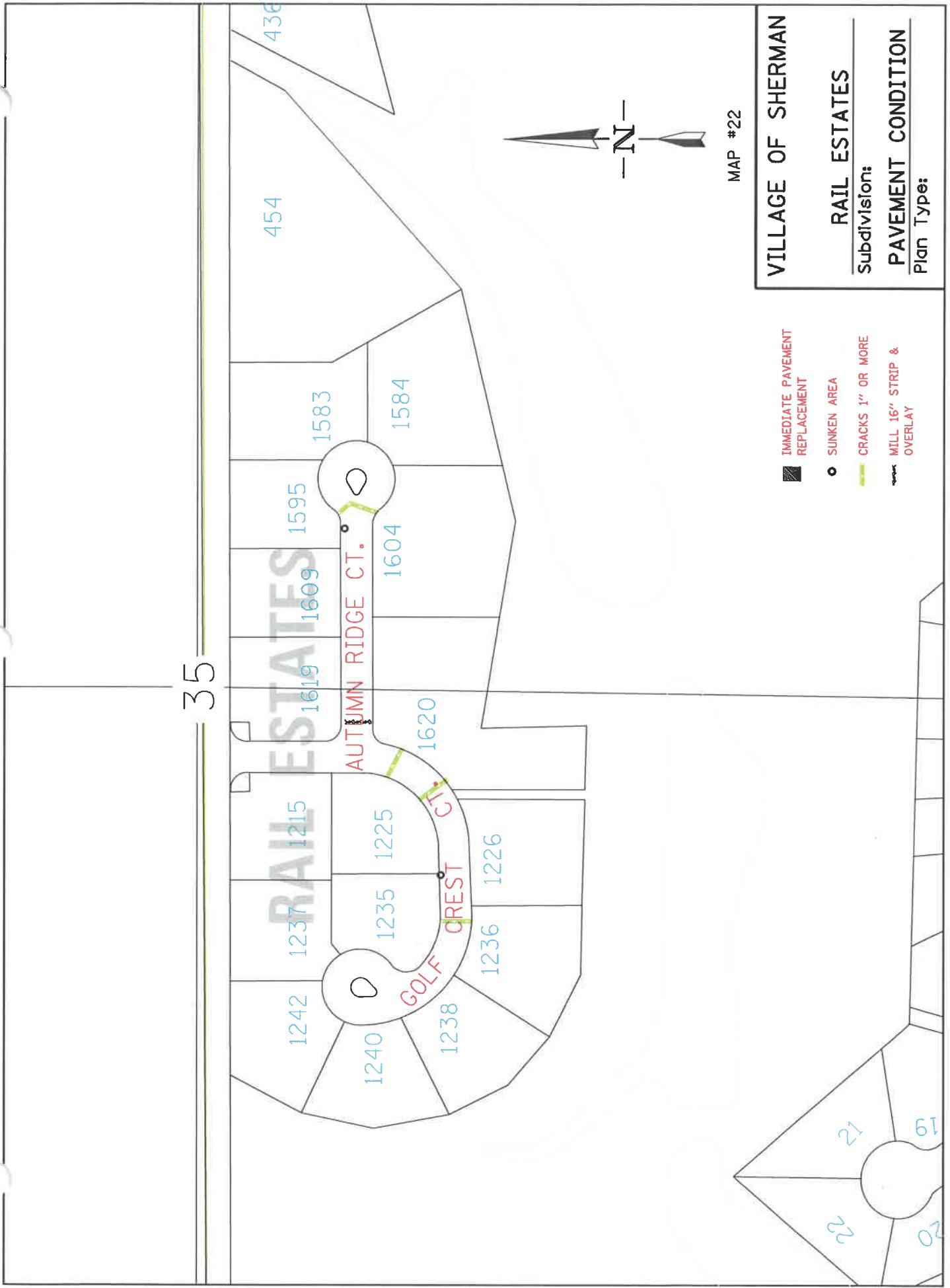




VILLAGE OF SHERMAN
MAP #20
THE RAIL
Subdivision:
PAVEMENT CONDITION
Plan Type:

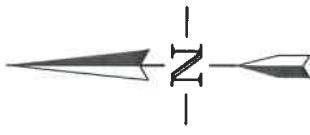
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- SUNKEN AREA
- CRACKS 1" OR MORE
- MILL 16" STRIP & OVERLAY



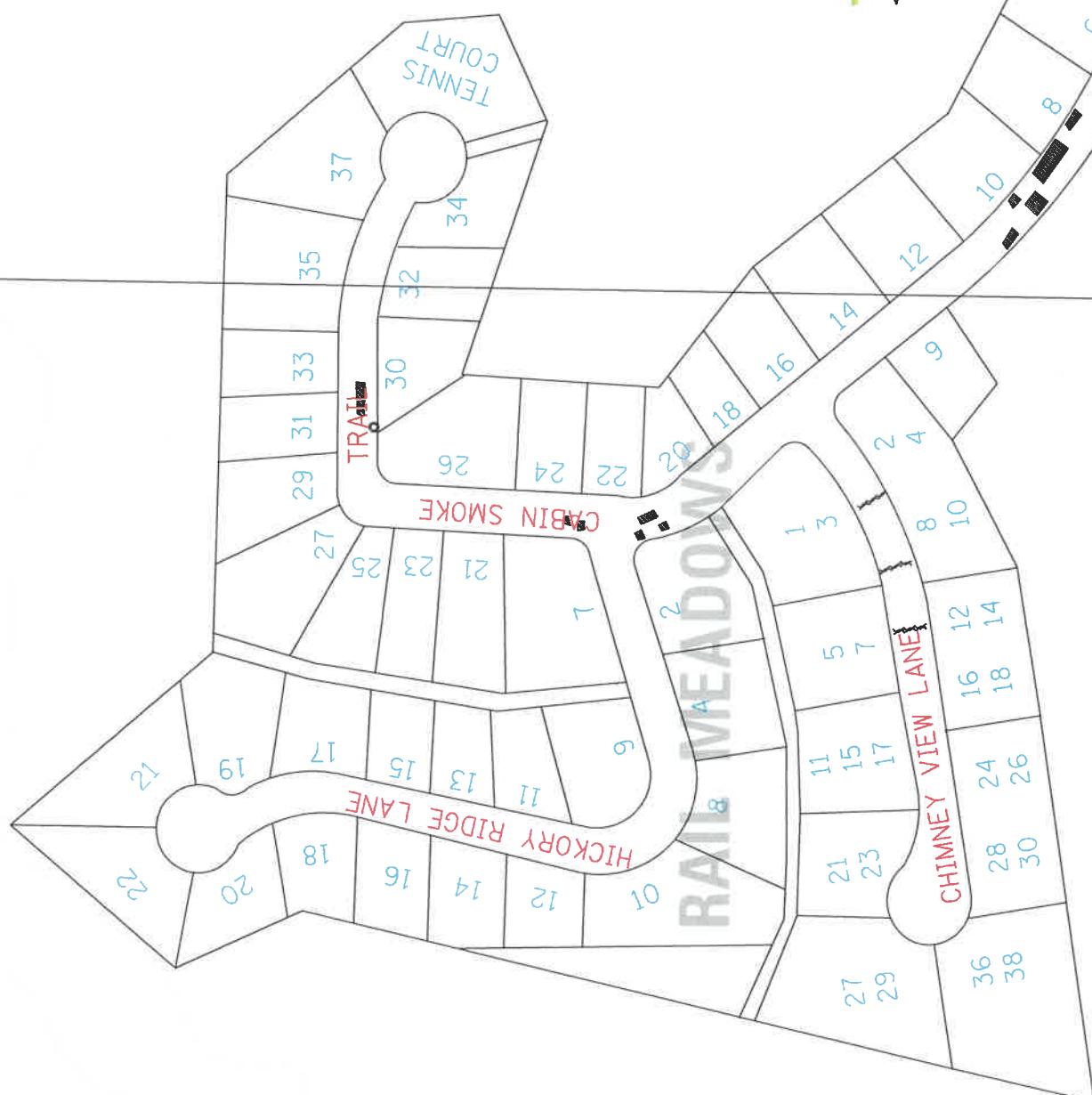


RAIL MEADOWS
Subdivision:
PAVEMENT CONDITION
Plan Type:

VILLAGE OF SHERMAN
MAP #23



IMMEDIATE PAVEMENT
REPLACEMENT
● SUNKEN AREA
— CRACKS 1" OR MORE
— MILL 16" STRIP &
OVERLAY



OLD HICKORY AT THE RAIL



VILLAGE OF SHERMAN
OLD HICKORY
AT THE RAIL

Subdivision:
PAVEMENT CONDITION
Plan Type: