H. MANALO CONSULTING LTD.

1402 Notre Dame Avenue,
Winnipeg, MB, R3E 3G5
Phone: (204) 697-3854

CORYDON PAVEMENT CORING

PROJECT NO. 60732322

Prepared for

Thomas L Findlay, P.Eng.
AECOM Canada Ltd.
99 Commerce Drive, Winnipeg
MB R3P 0Y7

October 28, 2024

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Introduction

H. Manalo Consulting Ltd. (HMCL) received authorization from Thomas L Findlay, P.Eng., representing AECOM Canada Ltd., to proceed with the scope of work as described in the email dated August 23, 2024. The purpose of the work is to gather information by obtaining pavement cores to help assess the existing road condition.

Field Work Program

The investigation program was performed following the guidelines listed in the City of Winnipeg. Plans for core location reference were provided by AECOM Canada Ltd. Pavement core samples were obtained between September 16, 2024 until September 19, 2024. The pavement samples were cored with 100-mm diameter coring bit using a coring equipment. The pavement section was backfilled with aggregates and asphalt cold mix. All pavement samples were returned to HMCL laboratory for data gathering and further review.

Sample Review and Data Reporting

The asphalt pavement thickness ranges from 35mm to 180mm and the concrete pavement thickness ranges from 50mm to 240mm. Thickness measurements are documented for each core samples including pictures for reference. Three concrete core samples were tested for compressive strength test. The result ranges from 37.5 MPa to 54.5 MPa. The report is included in the appendix.

We appreciate the opportunity to assist you in this project. Please call the undersigned if you require further information.

Prepared by:

Mayumi Kawano, EIT
Supervisor, Field and Laboratory

Reviewed by:

Paul Bevel
Manager, Field and Laboratory Services

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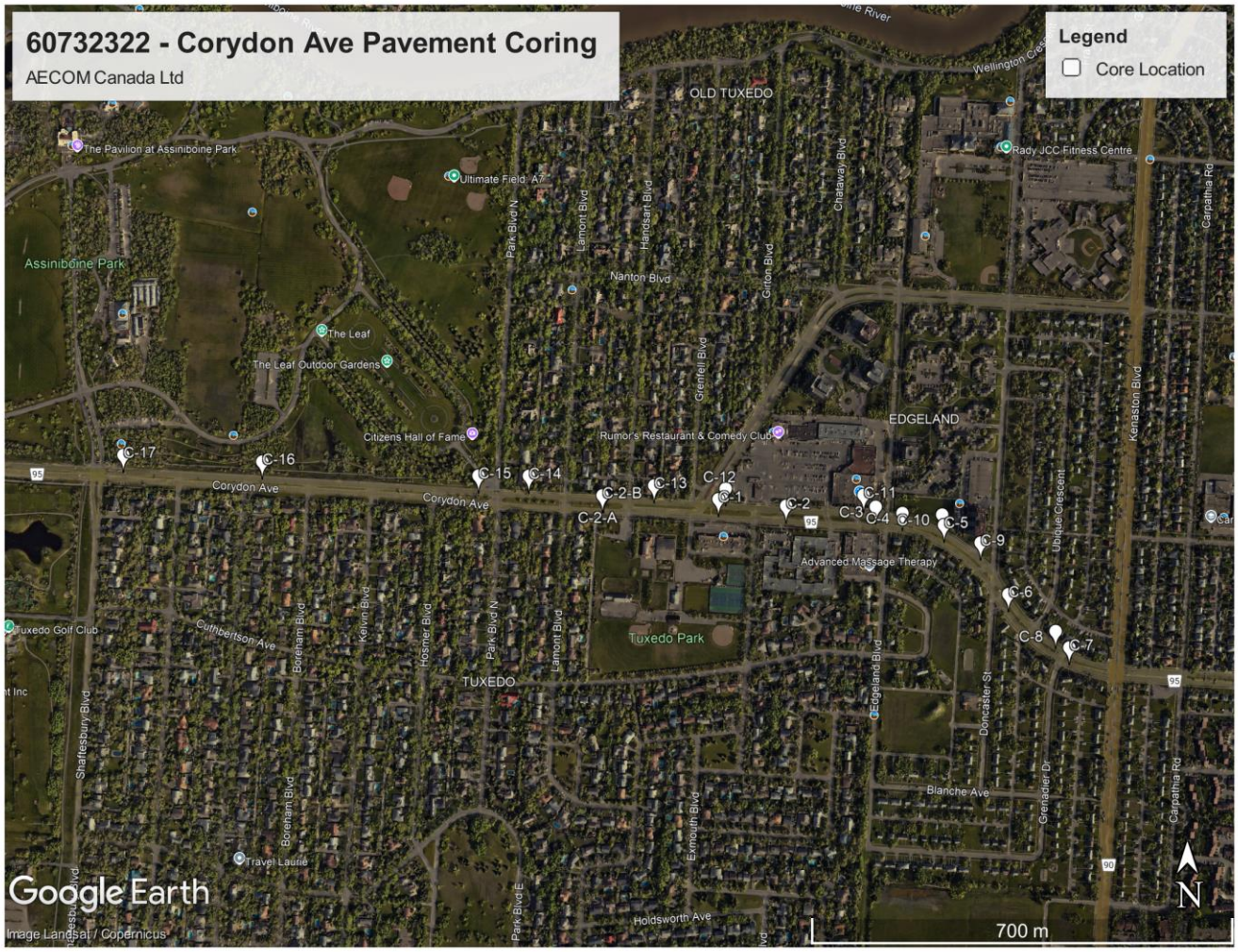
Appendix A

Core Location



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Corydon Avenue

Core Location with Coordinates

Core No.	Location	Coordinates
1	EBL, Median Lane, 1.8m from at Mid Slab	(49°51'59.3"N 97°12'54.6"W)
2	EBL, Median Lane, 0.3m from at Mid Slab	(49°51'59.0"N 97°12'49.0"W)
2A	EBL, Curb Lane, 0.3m from curb at joint	(49°51'59.5"N 97°13'04.2"W)
2B	EBL, Curb Lane, 0.3m from curb at joint	(49°51'59.5"N 97°13'04.3"W)
3	EBL, Median Lane, 0.3m from curb at joint	(49°51'58.9"N 97°12'41.5"W)
4	EBL, Curb Lane, 0.3m from curb at joint	(49°51'58.6"N 97°12'39.3"W)
5	EBL, Curb Lane, 0.3m from curb at joint	(49°51'58.0"N 97°12'35.9"W)
6	EBL, Median Lane, 0.3m from curb at Mid Slab	(49°51'54.2"N 97°12'30.5"W)
7	EBL, Median Lane, 0.3m from curb at Mid Slab	(49°51'51.4"N 97°12'25.5"W)
8	WBL, Curb Lane, 0.3m from curb at joint	(49°51'52.3"N 97°12'26.6"W)
9	WBL, Curb Lane, 0.3m from curb at Mid Slab	(49°51'57.0"N 97°12'32.8"W)
10	WBL, Curb Lane, 0.3m from curb at Mid Slab	(49°51'58.5"N 97°12'36.0"W)
11	WBL, Curb Lane, 0.3m from curb at Mid Slab	(49°51'59.6"N 97°12'42.5"W)
12	WBL, Median Lane, 0.3m from curb at joint	(49°51'59.7"N 97°12'48.0"W)
13	WBL, Median Lane, 0.3m from curb at Mid Slab	(49°51'59.9"N 97°12'54.0"W)
14	WBL, Curb Lane, 0.3m from curb at Mid Slab	(49°52'00.1"N 97°12'60.0"W)
15	WBL, Median Lane, 0.3m from curb at joint	(49°52'00.6"N 97°13'10.4"W)
16	WBL, Curb Lane, 0.3m from curb at Joint	(49°52'00.6"N 97°13'14.6"W)
17	WBL, Median Lane, 0.3m from curb, at joint	(49°52'01.3"N 97°13'32.6"W)

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Appendix B

Pavement Structure Measurements

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Corydon Avenue

Pavement Structure Measurements

Core No.	Lane	Asphalt Thickness (mm)	Concrete Thickness (mm)
1	EBL, Median Lane, 1.8m from at Mid Slab	90	240
2	EBL, Median Lane, 0.3m from at Mid Slab	70	230
2A	EBL, Curb Lane, 0.3m from curb at Joint	180	185
2B	EBL, Curb Lane, 0.3m from curb at Joint	130	165
3	EBL, Median Lane, 0.3m from curb at Joint	140	230
4	EBL, Curb Lane, 0.3m from curb at Joint	170	170
5	EBL, Curb Lane, 0.3m from curb at Joint	35	180
6	EBL, Median Lane, 0.3m from curb at Mid Slab	50	170
7	EBL, Median Lane, 0.3m from curb at Mid Slab	75	190
8	WBL, Curb Lane, 0.3m from curb at Joint	50	170
9	WBL, Curb Lane, 0.3m from curb at Mid Slab	95	185
10	WBL, Curb Lane, 0.3m from curb at Mid Slab	70 + 50	200
11	WBL, Curb Lane, 0.3m from curb at Mid Slab	50 + 30	170
12	WBL, Median Lane, 0.3m from curb at Joint	50	140
13	WBL, Median Lane, 0.3m from curb at Mid Slab	85	210
14	WBL, Curb Lane, 0.3m from curb at Mid Slab	70	190
15	WBL, Median Lane, 0.3m from curb at Joint	90	140
16	WBL, Curb Lane, 0.3m from curb at Joint	60	100
17	WBL, Median Lane, 0.3m from curb, at Joint	40	140

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Appendix C

Picture of Cores

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, Core 1
(Asphalt Thk 90mm, Concrete Thk 240mm)

, Core 2
(Asphalt Thk 70mm, Concrete Thk 230mm)

, Core 2A

, Core 2A
(Asphalt Thk 180mm)

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Core 2B

Core 2B
(Asphalt Thk 130mm)

Core 3
(Asphalt Thk 140mm, Conc Thk 230mm)

Core 4
(Asphalt Thk 170mm, Conc Thk 170mm)

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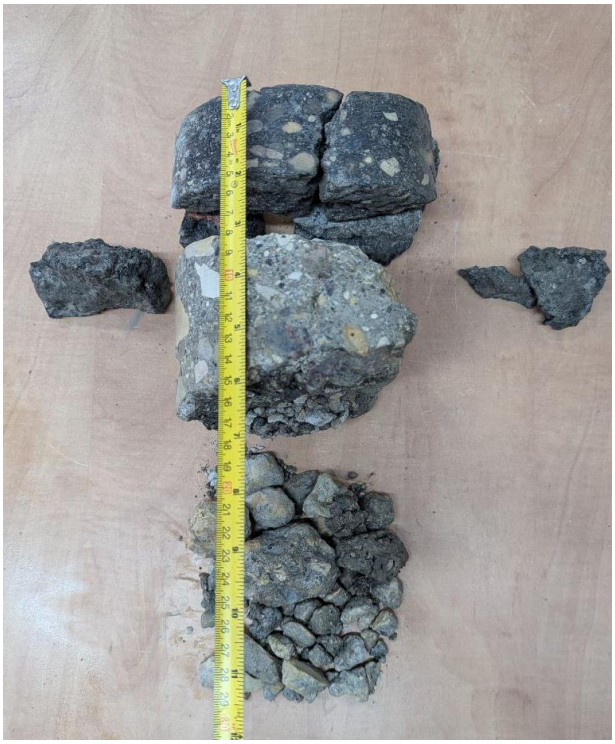
Core 5
(Asphalt Thk 35mm, Conc Thk 180mm)

Core 6
(Asphalt Thk 50mm, Concrete 170 Thk mm)

Core 7
(Asphalt Thk 75mm, Conc Thk 190mm)



Core 8
(Asphalt Thk 50mm, Conc Thk 170mm)

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Core 8

Core 9
(Asphalt Thk 95mm, Conc Thk 185mm)

Core 10
(Top Asp Thk 70mm, Bot Asp Thk 50mm,
Conc Thk 200mm)

Core 11
(Top Asp Thk 50mm, Bot Asp Thk 30mm,
Conc Thk 170mm)

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Core 12

Core 12
(Asphalt Thk 50mm, Conc Thk 140mm)

Core 13
(Asphalt Thk 85mm, Conc Thk 210mm)

Core 14
(Asphalt Thk 70mm, Conc Thk 190mm)

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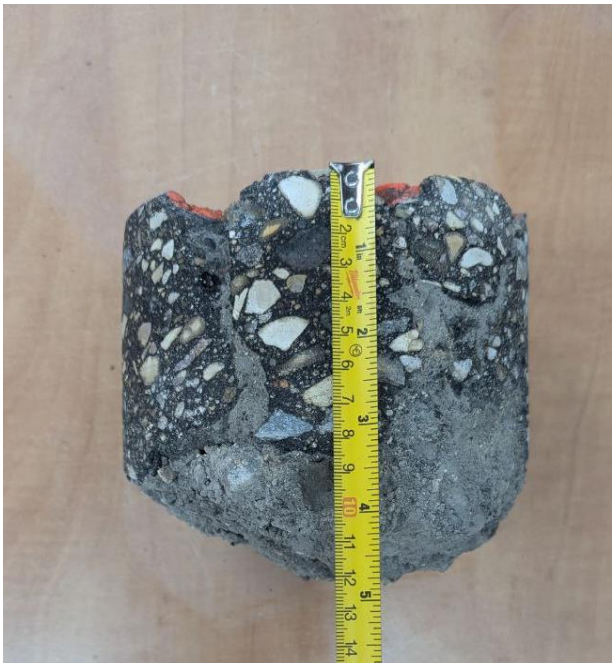
Core 15



Core 15
(Asphalt Thk 90mm, Conc Thk 140mm)

Core 16

Core 16
(Asphalt Thk 60mm, Conc Thk 100mm)

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Core 17

Core 17
(Asphalt Thk 40mm, Conc Thk 140mm)

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Appendix D

Compressive Strength Test of Concrete Cores

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CONCRETE CORE COMPRESSIVE STRENGTH TEST REPORT (CSA A23.2 14C)

CLIENT:	AECOM Canada Ltd.	DATE:	October 16, 2024
	Corydon Avenue between Kenaston and Shaftsbury	FILE NO:	112-2407
		REPORT NO:	24-2859
ATTENTION:	Blair Cockrell	TECHNOLOGIST:	Samuel de Guzman
PROJECT:	60732322 - Corydon Pavement Coring	DATE CORES TAKEN:	October 15, 2024
		DOCUMENT NO:	24-001
STRUCTURE:	Road Slab	DATE RECEIVED IN LAB:	October 15, 2024

Core Location	Length as Drilled (mm)	Core Diameter (mm)	Core Length (mm)	Length / Diameter (mm)	Correction Factor	Mass (grams)	Age at Break (days)	Date of Break	Type of Fracture	Comp. Strength as Calculated (MPa)	Comp. Strength as Corrected (MPa)
Core no. 9	185	98	173	1.77	0.981	3160	-	2024-10-26	1	38.2	37.5
Core no. 13	210	98	195	1.99	0.99	3520	-	2024-10-26	1	55.1	54.5
Core no. 14	190	98	175	1.79	0.982	3200	-	2024-10-26	2	48.7	47.8

Remarks:

Reviewed by:

Mayumi Kawano, Supervisor
Field & Lab Testing Services

Approved by:

Paul Bevel, Manager
Field & Lab Testing Services