



Quarterhill Inc.

Management's Discussion and Analysis
For the nine months ended September 30, 2023 and 2022

November 7, 2023



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INTRODUCTION

This Management's Discussion and Analysis of Quarterhill Inc. (this "MD&A") is dated November 7, 2023. References in this MD&A to "Quarterhill", "the Company", "we", "us" and "our" refer to Quarterhill Inc. and its consolidated subsidiaries during the periods presented, unless the context requires otherwise. References to "Common Shares" in this MD&A refer to common shares in the capital of Quarterhill. References to "Convertible Debentures" in this MD&A refer to Quarterhill's 6.0% Convertible Unsecured Subordinated Debentures due October 30, 2026.

The Common Shares and Convertible Debentures are listed under the symbols "QTRH" and "QTRH.DB" respectively on the Toronto Stock Exchange (the "TSX") and the Common Shares are listed on the United States OTCQX Best Market (the "OTCQX") under the symbol "QTRHF".

Quarterhill is a growth-oriented Canadian company operating in the intelligent transportation system ("ITS") industry. We are a global leader in ITS that manages attractive technology companies in the intelligent transportation systems industry and its adjacent markets.

This MD&A provides information for the three and nine months ended September 30, 2023 and up to and including November 7, 2023. This MD&A should be read in conjunction with Quarterhill's interim condensed consolidated financial statements ("financial statements") and the notes thereto for the nine months ended September 30, 2023, which have been prepared in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board ("IASB").

Unless otherwise indicated, all financial information in this MD&A is reported in thousands of Canadian dollars, except for Common Share and earnings per share data which is reported in number of Common Shares and Canadian dollars respectively. The tables and charts included in this document form an integral part of this MD&A.

This MD&A has been prepared with reference to National Instrument 51-102 - Continuous Disclosure Obligations of the Canadian Securities Administrators. Additional information filed by us with the Canadian Securities Administrators, including quarterly reports, annual reports and our Annual Information Form for the years ended December 31, 2022 and 2021 (our "AIF"), is available online at www.sedarplus.ca and also on our website at www.Quarterhill.com.

Quarterhill and our operating subsidiaries operate in ever-changing business and competitive economic environments that expose us to a number of risks and uncertainties, many of which are discussed under the heading "Risks and Uncertainties" in this MD&A and/or under the heading "Risk Factors" in our AIF available online at www.sedarplus.ca.

Our management is responsible for establishing appropriate information systems, procedures and controls to ensure that all financial information disclosed externally, including in this MD&A, and used internally by us, is complete and reliable. These procedures include the review and approval of our financial statements and

associated information, including this MD&A, first by our management's Disclosure Committee, then by the Audit Committee of our Board of Directors (the "Board") and, finally, by our Board as a whole.

THIRD QUARTER 2023 HIGHLIGHTS

Business Performance and Future Business Developments

Revenues for the three and nine months ended September 30, 2023 were \$45,685 and \$135,865 compared to \$42,185 and \$119,192 in the comparative prior year period, respectively. The increase in revenue is primarily driven by stronger performance in North American enforcement revenue streams.

During the period, through our wholly owned subsidiaries, we announced new long-term customer contracts worth approximately \$16.5 million in lifetime contract value to provide a variety of ITS products, solutions and services to several US government agencies. The initial term of these contracts currently ranges from two to five years with renewal options to extend services.

CEO Appointment

On September 5, 2023, the Company announced the appointment of Chuck Myers as Chief Executive Officer replacing former Board Chair, John Gillberry, who had assumed the Interim CEO role in March 2023. Mr. Myers recently joined Quarterhill's Board of Directors in May 2023 and brings more than 25 years of leadership experience as a CEO, board member, and founder of private and public companies. Prior to joining Quarterhill, Mr. Myers served as CEO and board member of Cogniac Corporation, a San Jose, California-based provider of enterprise-class AI deep learning solutions.

Sale of WiLAN

On June 15, 2023 the Company sold its subsidiary WiLAN Inc. and its related entities ("WiLAN") for a combination of cash, equity and other non-cash proceeds totaling estimated fair market value of \$ 53,789. During the three months ended September 30, 2023, the Company finalized closing costs, net working capital adjustments and liability settlements resulting in an additional \$497 of cash consideration. This adjusted the fair market value of the proceeds of sale to \$54,286, resulting in a pre-tax loss \$11,505. Equity consideration retained consists of 10% of WiLAN, currently recognized at fair market value on the statement of financial position. WiLAN represented the Company's Licensing segment since its inception and, thus, upon disposition, the Company currently has a single operating segment comprised solely of its ITS operations. The sale of WiLAN was an essential step in Quarterhill's transition to a pure-play ITS entity.

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This MD&A contains forward-looking statements and forward-looking information within the meaning of Canadian securities laws, including such statements relating to:

- assumptions and expectations described in our critical accounting policies and estimates;
- our expectation regarding the adoption and impact of certain accounting pronouncements;
- our expectation regarding the growth rates of our subsidiaries' businesses;
- our estimates regarding our effective tax rate;
- our expectations regarding our ability to acquire additional businesses to further our growth; and
- our expectations with respect to the sufficiency of our financial resources.

The words "expect", "anticipate", "estimate", "may", "will", "should", "would", "intend", "believe", "plan", "continue", "project", "could", the negatives of these words or other variations on these words, comparable terms and similar expressions are intended to identify forward-looking statements and forward-looking information. Forward-looking statements and forward-looking information are based on estimates and assumptions made by us in light of our experience and our perception of historical trends, current conditions and expected future developments, as well as other factors that we believe are appropriate in the circumstances.

We provide forward-looking statements and forward-looking information to assist external stakeholders in understanding our management's expectations and plans relating to the future as of the date of this MD&A and such statements and information may not be appropriate for any other purposes. The forward-looking statements and forward-looking information in this MD&A are made as of the date of this MD&A only. We have no intention and undertake no obligation to update or revise any forward-looking statements or forward-looking information, whether as a result of new information, future events or otherwise, except as required by law.

NON-IFRS FINANCIAL MEASURES AND NON-IFRS RATIOS

Non-IFRS Financial Measures and Non-IFRS Ratios

Quarterhill uses both IFRS and certain non-IFRS financial measures to assess performance. Non-IFRS financial measures are financial measures disclosed by a company that (a) depict historical or expected future financial performance, financial position or cash flow of a company, (b) with respect to their composition, exclude amounts that are included in, or include amounts that are excluded from the composition of the most directly comparable financial measure disclosed in the primary financial statements of the company, (c) are not disclosed in the financial statements of the company and (d) are not a ratio, fraction, percentage or similar representation. Non-IFRS ratios are financial measures disclosed by a company that are in the form of a ratio, fraction, percentage or similar representation that has a non-IFRS financial measure as one or more of its components, and that are not disclosed in the financial statements of the Company.

These non-IFRS financial measures and non-IFRS ratios are not standardized financial measures under IFRS, and, therefore, are unlikely to be comparable to similar financial measures presented by other companies. Management believes these non-IFRS financial measures and non-IFRS ratios provide transparent and useful supplemental information to help investors evaluate our financial performance, financial condition, and liquidity using the same measures as management. These non-IFRS financial measures and non-IFRS ratios should not be considered as a substitute for, or superior to, measures of financial performance prepared in accordance with IFRS.

Adjusted EBITDA - Non-IFRS Financial Measures

In this MD&A, we use the non-IFRS financial measure “Adjusted EBITDA” to mean net (loss) income adjusted for (i) income taxes, (ii) finance expense or income; (iii) amortization and impairment of intangibles; (iv) other charges and other one-time items; (v) depreciation of right-of-use assets and property, plant and equipment; (vi) stock-based compensation; (vii) foreign exchange (gain) loss; (viii) other income which includes equity in earnings from joint ventures; and (ix) dividends received from joint ventures. Adjusted EBITDA is used by our management to assess our normalized cash generated. Adjusted EBITDA is also a performance measure that may be used by investors to analyze the cash generated by Quarterhill. Adjusted EBITDA should not be interpreted as an alternative to net loss and cash flows from operations as determined in accordance with IFRS or as a measure of liquidity. The most directly comparable IFRS financial measure is Net (loss) income. See the Reconciliation of Net (Loss) Income to Adjusted EBITDA within the Overall Performance section of this MD&A.

Adjusted EBITDA per share - Non-IFRS ratio

Adjusted EBITDA per share is calculated as Adjusted EBITDA divided by the basic weighted average of Common Shares. Adjusted EBITDA per share is used by our management and investors to analyze cash generated by Quarterhill on a per share basis. The most comparable IFRS measure is earnings per share.

Supplementary Financial Measures

Supplementary financial measures are financial measures disclosed by a company that (a) are, or are intended to be, disclosed on a periodic basis to depict the historical or expected future financial performance, financial position or cash flow of a company (b) are not disclosed in the financial statements of the company, (c) are not non-IFRS financial measures, and (d) are not non-IFRS ratios.

Key supplementary measures disclosed in this MD&A are as follows:

Gross margin %

Calculated as gross profit as a percentage of revenue.

Working capital

Calculated as total current assets minus total current liabilities.

DESCRIPTION OF OUR BUSINESS

Quarterhill is a disciplined acquirer and manager of established ITS companies. Our goal is to pursue both organic and inorganic growth that capitalizes on attractive market trends in the ITS industry and its adjacent markets. Additionally, in appropriate circumstances, we may also divest certain assets if favourable conditions for such a divestiture are presented.

Strategy

We are focusing our business on building a consistently profitable company through the management and growth of companies in the ITS industry and its adjacent markets.

We believe that if we increase the share of our revenue derived from recurring sources we will also increase the predictability of our revenues and cash flows. This will allow us to better scale our operations to ensure we meet our strategic mandate of operating profitably regardless of the prevailing economic market conditions as we grow both organically and through acquisitions. In appropriate circumstances, we may also divest certain assets if favourable conditions for such a divestiture are presented, exemplified by the sale of WiLAN.

Our existing businesses are fully described in more detail in our AIF.

Our Business

Our businesses are focused on enhancing safety, mobility, efficiency and environmental performance across road and other transportation infrastructure by providing ITS, products, solutions and services. Based on market research, we believe the global ITS industry is expected to exceed US\$90 billion by 2025, influenced by major driving factors such as infrastructure spending, public safety, traffic congestion, smart city development and environmental impact. We believe that we are well positioned to capitalize on these trends.

Our businesses are leading providers of essential ITS products, solutions and services with more than 60 years of combined experience in areas such as commercial vehicle enforcement and tolling. Our customers include government transportation and tolling agencies, traffic engineering operators and industrial, mining and transportation service companies worldwide.

We have predictable and recurring revenue streams derived from selling ITS systems, products and solutions through long-term customer relationships and recurring service contracts. Our businesses offer a portfolio of integrated hardware and software to detect, measure and analyze a variety of transportation metrics which produces a valuable source of analytics and telematics for users. With a variety of product and service offerings throughout our operations in North America, Europe and Latin America, we believe there is an abundance of opportunity to create scale and efficiencies.

Former Licensing Segment

On June 15, 2023, we disposed of our investment in WiLAN, which represented our licensing segment in its entirety, for adjusted net proceeds of \$54,286 through a combination of cash and equity consideration. Net income (loss) from discontinued operations for the three and nine months ended September 30, 2023 were \$365 and \$(21,809), respectively. Included in the net loss for the nine months ended September 30, 2023 is a \$11,505 loss on sale of WiLAN. Net (loss) income for the three and nine months ended September 30, 2022 were \$(4,729) and \$58,061, respectively.

BUSINESS COMBINATIONS

We remain focused on building robust cash flows and controlling expenses throughout all our businesses to facilitate a healthy and sustainable balance sheet capable of supporting both our organic and acquisitive growth strategies.

OVERALL PERFORMANCE

Interim Condensed Consolidated Statements of (Loss) Income

	Three months ended September 30,		Nine months ended September 30,	
	2023	2022	2023	2022
Revenues	\$45,685	\$42,185	\$135,865	\$119,192
Direct cost of revenues	35,120	30,663	106,785	91,549
Gross profit	10,565	11,522	29,080	27,643
Operating expenses				
Depreciation of right-of-use assets	566	546	1,537	1,580
Depreciation of property, plant and equipment	532	602	1,634	1,590
Amortization of intangible assets	2,733	2,679	8,358	8,787
Selling, general and administrative expenses	8,219	11,245	25,859	36,689
Research and development expenses	756	516	3,285	1,953
Other charges	523	1,405	2,571	16,007
	13,329	16,993	43,244	66,606
Results from operations	(2,764)	(5,471)	(14,164)	(38,963)
Finance income	(486)	(130)	(567)	(250)
Finance expense	2,193	2,095	6,730	7,177
Foreign exchange gain	(2,026)	(2,159)	(540)	(2,669)
Other income	(475)	(1,170)	(1,383)	(9,427)
Loss before taxes	(1,970)	(4,107)	(18,404)	(33,794)
Current income tax expense (recovery)	33	437	(3,417)	989
Deferred income tax expense	225	441	13,201	423
Income tax expense	258	878	9,784	1,412
Net loss from continuing operations	(2,228)	(4,985)	(28,188)	(35,206)
Net income (loss) from discontinued operations	365	(4,729)	(21,809)	58,061
Net (loss) income	(1,863)	(9,714)	(49,997)	22,855
Other comprehensive income that may be reclassified subsequently to net (loss) income:				
Foreign currency translation adjustment	6,318	15,215	903	17,764
Comprehensive income (loss)	\$4,455	\$5,501	(\$49,094)	\$40,619
(Loss) income per share - Basic				
From continuing operations	(\$0.02)	(\$0.04)	(\$0.25)	(\$0.31)
From discontinued operations	-	(0.04)	(0.19)	0.51
(Loss) income per share - Basic	(\$0.02)	(\$0.08)	(\$0.44)	\$0.20
(Loss) income per share - Diluted				
From continuing operations	(\$0.02)	(\$0.04)	(\$0.25)	(\$0.31)
From discontinued operations	-	(0.04)	(0.19)	0.51
(Loss) income per share - Diluted	(\$0.02)	(\$0.08)	(\$0.44)	\$0.20

Our revenue streams consist of revenues earned on contracted projects, which are generally recognized over time, product sales, hardware and software system implementations, and service and maintenance contracts. Service and maintenance projects generally range from one to five-year terms but can be renewed with some contracts that could reach up to ten years or more. For project-based work, revenues will routinely vary significantly depending on the timing and nature of the specific projects underway in each reporting period.

Revenues for the three and nine months ended September 30, 2023 were \$45,685 and \$135,865 compared to \$42,185 and \$119,192 in the prior year comparative periods, respectively. The increase in revenue for the three and nine months ended September 30, 2023 as compared to the comparative prior year period was a result of increased activity in North American project revenue. Project revenues in the comparative periods had been affected by lingering aftereffects of the COVID-19 pandemic such as labour shortages and supply chain hindrances.

Gross profit as a value and as a percentage of revenues may be subject to significant variance in each reporting period due to the nature and type of contract and service work currently in process, currency volatility and competitive factors, among other things. Gross profit for the three and nine months ended September 30, 2023 were \$10,565 and \$29,080, or 23% and 21%, as compared to \$11,522 and \$27,643, or 27% and 23% in the prior year comparative periods, respectively. The decrease in gross profit margin percentage compared to the prior year periods is primarily attributed to an implementation delay with one existing tolling project. The delay resulted in additional anticipated costs and a reduced margin profile for the project. This decrease in gross profit margin was partially offset by continuing strong performance in our enforcement operations.

Total operating expenses are comprised of selling, general and administrative costs, R&D costs, depreciation, amortization of intangible assets and other charges. Total operating expenses for the three and nine months ended September 30, 2023 were \$13,329 and \$43,244 compared to \$16,993 and \$66,606 in the prior year comparative periods, respectively. The decrease in the three and nine months ended September 30, 2023 is mainly attributed to the cost reduction initiatives deployed by the Company and the allocation of certain selling, general and administrative personnel costs into cost of revenues as well as the absence of a one-time legal settlement of \$14,600 that was present in the comparative period.

We are committed to continual investments in R&D to enhance our current products and advance the availability of new products within the ITS industry. For the three and nine months ended September 30, 2023, net R&D spending levels as a percentage of revenue were approximately 1.7% and 2.4%, as compared to 1.2% and 1.6% in the comparative prior year periods, respectively. R&D expenses compared to the prior year comparative periods have increased as a result of the Company's continued investment in its ITS products and services.

Income tax expense for the nine months ended September 30, 2023 was \$9,784 compared to \$1,412 for the comparative prior year period. The increase in the current period was caused by an increase in taxable income as well as deferred tax asset write-offs triggered by the disposition of WiLAN.

The Company is exposed to foreign exchange risk primarily relating to its revenue, operating and capital expenditures, net assets held in foreign currencies, and embedded derivative portions of unearned revenue on

certain U.S. dollar denominated sales contracts in its North America and Latin America markets. This is more fully described in the Risks and Uncertainties section.

Other income includes IRD's share of income in its joint venture, Xuzhou-PAT Control Technologies Limited ("XPCT"). XPCT has two business divisions that provide products and services to the ITS industry and construction equipment manufacturers. For the nine months ended September 30, 2023, IRD's share of XPCT's income was \$613 compared to \$1,283 for the comparative prior year period. The decrease in earnings for the nine months ended September 30, 2023 in XPCT is a result of a decrease in the number of concurrent wire harness projects underway in comparison to the same period of the prior year.

Reconciliation of Net Loss to Adjusted EBITDA

Management considers Adjusted EBITDA, a non-IFRS financial measure, to be a useful indicator for the business to capture financial performance in a given period related to the operations of Quarterhill.

We reported Adjusted EBITDA of \$1,935 and \$646 for the three and nine months ended September 30, 2023, compared to \$1,015 and \$(8,976) for the comparative prior year periods, respectively. The increase in Adjusted EBITDA for the three months ended September 30, 2023, compared to the prior year period is due to the changes in revenue and direct costs of revenue as previously explained. Other charges generally consist of advisor fees, accounting and valuation fees, due diligence related expenses and legal fees, restructuring charges, and other one-time items. Although these expenses may recur as we complete additional acquisitions, they are not fundamental to the actual operations of our businesses and, therefore, have been excluded in the calculation of Adjusted EBITDA. The remaining adjustments relate to finance income or expense, depreciation and amortization, impairment loss on intangibles, non-cash stock-based compensation, equity earnings and dividends received from joint venture, other acquisition related accounting items and other one-time charges.

From time to time, we may acquire businesses in purchase transactions that typically result in the recognition of goodwill and other identifiable intangible assets. Acquired goodwill is not amortized but is subject to impairment testing at least annually and as other events and circumstances dictate. Other identifiable intangible assets are typically subject to amortization and, therefore, will likely increase future expenses. The determination of the value of such intangible assets requires us to make estimates and assumptions. We have ascribed value to identifiable intangible assets other than goodwill in our purchase price allocations including, but not limited to, backlog, trade name, non-competition agreements, customers and developed software related intangible assets. To the extent we ascribe values to identifiable intangible assets that have finite lives, we amortize those values over the estimated useful lives of the assets.

Reconciliation of Net Loss to Adjusted EBITDA

	Three months ended September 30,			
	2023		2022	
	\$	Per Share [2]	\$	Per Share
Net loss from continuing operations	(\$2,228)	(\$0.02)	(\$4,985)	(\$0.04)
Adjusted for:				
Income tax expense	258	0.00	878	0.01
Foreign exchange gain	(2,026)	(0.02)	(2,159)	(0.02)
Finance expense, net	1,707	0.02	1,965	0.02
Other charges	523	0.01	1,405	0.01
Depreciation and amortization	3,831	0.03	3,827	0.03
Stock based compensation expense	345	0.00	536	0.01
Dividends received from joint venture	-	-	718	0.01
Other income	(475)	(0.00)	(1,170)	(0.01)
Adjusted EBITDA [1]	\$1,935	\$0.02	\$1,015	\$0.01

Weighted average number of Common Shares

Basic	114,785,188	114,601,779
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[1] Refer to Adjusted EBITDA - Non-IFRS Financial Measures

[2] Refer to Adjusted EBITDA per share – Non-IFRS ratios

	Nine months ended September 30,			
	2023		2022	
	\$	Per Share [2]	\$	Per Share
Net loss from continuing operations	(\$28,188)	(\$0.25)	(\$35,206)	(\$0.31)
Adjusted for:				
Income tax expense	9,784	0.09	1,412	0.01
Foreign exchange gain	(540)	(0.00)	(2,669)	(0.02)
Finance expense, net	6,163	0.05	6,927	0.06
Other charges	2,571	0.02	16,007	0.14
Depreciation and amortization	11,529	0.10	11,957	0.10
Stock based compensation expense	710	0.01	1,305	0.01
Dividends received from joint venture	-	-	718	0.01
Other income	(1,383)	(0.01)	(9,427)	(0.08)
Adjusted EBITDA [1]	\$646	\$0.01	(\$8,976)	(\$0.08)

Weighted average number of Common Shares

Basic	114,692,086	114,305,328
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[1] Refer to Adjusted EBITDA - Non-IFRS Financial Measures

[2] Refer to Adjusted EBITDA per share – Non-IFRS ratios

SELECTED CONSOLIDATED QUARTERLY RESULTS

Selected Quarterly Results from Continuing Operations

Quarter ended	Revenues \$ 000s	Net loss \$ 000s	Net loss per share (basic) \$	Adjusted EBITDA * \$ 000s	Adjusted EBITDA per share *(basic) \$
September 30, 2023	45,685	(2,228)	(0.02)	1,935	0.02
June 30, 2023	51,865	(13,681)	(0.28)	3,901	0.03
March 31, 2023	38,315	(12,279)	(0.11)	(5,190)	(0.05)
December 31, 2022	40,142	(18,945)	(0.17)	(1,491)	(0.01)
September 30, 2022	42,185	(4,895)	(0.04)	1,015	0.01
June 30, 2022	39,240	(20,357)	(0.18)	(8,120)	(0.07)
March 31, 2022	37,767	(9,864)	(0.09)	(1,871)	(0.02)
December 31, 2021	46,453	(6,615)	(0.06)	2,423	0.02

* Adjusted EBITDA and the respective per share amounts are non-IFRS measures; please refer to "Non-IFRS Financial Measures and Non-IFRS Ratios" and "Reconciliation of Adjusted EBITDA" sections of this MD&A.

Historically, our operating results have fluctuated on a quarterly basis and we expect that quarterly results will continue to fluctuate in the future, as revenues derived from the ITS business may be subject to varying project phases and seasonality. The prior periods in the table above have been adjusted to reflect only continuing operations. Operating results for interim periods should not be relied upon as an indication of the results to be expected or achieved in any future period or any fiscal year as a whole. The risk factors affecting our revenue and results, many of which are outside of our control, include those set out under the heading "Risk Factors" in our AIF.

	Three months ended September 30,		Nine months ended September 30,	
	2023	2022	2023	2022
Dividends declared				
Per common share	-	\$0.0125	\$0.0125	\$0.0375
Amount	-	\$1,420	\$1,433	\$4,260

CAPITAL AND LIQUIDITY

The Company's capital management objectives are to maintain financial flexibility in order to pursue its strategy of organic growth and acquisition, and, from time to time, return capital to shareholders. The Company defines our capital as cash, the aggregate of cash and cash equivalents, short-term investments, restricted short-term investments, long-term debt, convertible debentures and shareholders' equity. The Company manages its capital structure in accordance with changes in economic conditions. To maintain or adjust its capital structure, the Company may purchase Common Shares for cancellation pursuant to one or more normal course issuer bids and/or substantial issuer bids, issue new Common Shares, issue convertible debentures or raise or retire our debts.

Our cash, cash equivalents and short-term investments, exclusive of any restricted amounts, totaled \$60,868 as at September 30, 2023 compared to \$67,907 as at December 31, 2022, representing a decrease of \$7,039 primarily due to operational losses, debt repayment, dividends and termination costs, among other working capital fluctuations. At September 30, 2023, we had sufficient working capital of \$111,073 to cover short and long-term obligations. Due to the nature of our business activities, operating cash flows may vary significantly between periods due to changes and timing in working capital balances.

Our cash resources are generally used to fund our operations, provide working capital to any of our subsidiaries if needed and to acquire additional businesses. We may also fund our ongoing cash requirements through the use of additional short-term and long-term debt and, if desirable, based on market conditions, by selling Common Shares and debt securities to the public.

In 2021, generally to finance the ETC acquisition, we entered into a credit agreement to receive senior secured credit facilities from HSBC Bank Canada and Royal Bank of Canada consisting of a revolving credit facility in the maximum amount of US\$15,000 and a term credit facility of US\$50,000. These facilities replaced all existing credit facilities we had with HSBC Bank Canada. The interest rate as at September 30, 2023 was 8.79% and both facilities have a maturity date of September 1, 2026 with a general security agreement over all the assets in North America of IRD, ETC and its parent holding company, Quarterhill USA, Inc. The carrying value of these assets as at September 30, 2023 was \$269,070. As at and during the nine months ended September 30, 2023, we repaid \$2,396 of the term loan and had no borrowings or repayments on the revolving credit facility.

On June 27, 2023 ("Amendment Date"), the Company finalized an amendment to its existing credit agreement. As of the Amendment Date, the balance on the term loan was US\$21,250. The amendment modified certain terms and conditions of the credit agreement to provide the Company with additional flexibility in its covenant and cash management, including a waiver on the Senior Leverage Ratio for all reporting periods up to March 31, 2024 (the "Covenant Relief Period") and a reduction in the revolving credit facility from US\$15,000 to US\$5,000. During the Covenant Relief Period, the Fixed Charge Covenant Ratio can be satisfied through support of the parent company to its subsidiaries.

Repayment of principal on the term credit facility was renegotiated to 2.5% of the balance as at the Amendment Date per quarter up to the maturity date, upon which the remaining balance is due.

Stated Capital Reduction

On May 8, 2023, the Company's shareholders approved a reduction of the stated capital of the Company in the amount of \$120,000. The purpose of the stated capital reduction was to grant the board of directors more flexibility in capital management, specifically in relation to its ability to distribute dividends. The reduction in stated capital was offset by a corresponding increase in contributed surplus.

CONTRACTUAL OBLIGATIONS

Contractual obligations relating to accounts payable and accrued liabilities, long-term debt, convertible debentures and lease liabilities as at September 30, 2023 are as follows:

	Total	To September 30, 2024	To September 30, 2025	To September 30, 2026	Thereafter
Accounts payable and accrued liabilities	\$27,239	\$27,239	-	-	-
Long-term debt	27,413	2,886	2,886	21,641	-
Convertible debentures	57,500	-	-	57,500	-
Lease liabilities	11,001	2,633	2,564	2,293	3,511
	\$123,153	\$32,758	\$5,450	\$81,434	\$3,511

OUTSTANDING COMMON SHARE DATA

We are authorized to issue an unlimited number of Common Shares, 6,351 special preferred, redeemable, retractable, non-voting shares and an unlimited number of preferred shares, issuable in series. As at September 30, 2023, there were 115,021,304 Common Shares and no special or preferred shares issued and outstanding. We also maintain the Quarterhill Inc. 2018 Equity Incentive Plan (the "Equity Plan"). Under the Equity Plan, we can issue a maximum of 9.5% of our issued and outstanding Common Shares from time to time which was, as at September 30, 2023, up to 10,927,023 Common Shares. As at September 30, 2023, we had options granted to purchase up to 6,437,390 Common Shares.

OFF-BALANCE SHEET ARRANGEMENTS

As at September 30, 2023, IRD has an outstanding 100% guarantee to XPCT, for a loan in the amount of 15,000 Chinese yuan or \$2,811 (December 31, 2022 - \$2,945); however, IRD has the right to seek recourse against its joint venture partner for any amount greater than IRD's proportionate share of the liability. The amount owing represents the maximum amount available to be drawn under this facility.

RELATED PARTY TRANSACTIONS

Subsidiaries

The financial statements include the accounts of Quarterhill Inc. and its wholly-owned subsidiaries. Balances and transactions between the Company and its subsidiaries, which are related parties, have been eliminated on consolidation and are not disclosed in this section.

Investment in Joint Venture

Investment in Joint Venture comprises a 50% interest, held by the Company's IRD subsidiary, in XPCT, an ITS products and manufacturing service provider in China. IRD had sales of \$11 (2022- \$60) during the nine months ended September 30, 2023. At September 30, 2023, XPCT had \$nil owing to IRD (December 31, 2022- \$nil).

PROPOSED TRANSACTIONS

There are no proposed transactions.

CRITICAL ESTIMATES

Key areas involving estimation, uncertainty and critical judgments include the following:

Revenue Recognition

Contract revenue, contract costs, contract liabilities and contract assets are based on estimates and judgments used in determining the progress of a contract. Estimates include amounts derived to measure the progress of the contract. Progress towards completion is measured by comparing the actual costs incurred to the total estimated costs for the contract. In determining the estimated costs to complete the contracts, assumptions and estimates are required to evaluate issues related to schedule, material and labour costs, changes in contract scope and subcontractor costs. Due to the nature of project contracts, estimates may change significantly between accounting periods. Changes in estimates are reflected in the period in which the circumstances that gave rise to the change became known and affect the Company's revenue, contract assets, and contract liabilities.

Asset Impairments and Impairment Reversals

Quarterhill's estimate of the recoverable amount for the purpose of impairment testing requires management to make assumptions regarding estimates of the present value of future cash flows including growth opportunities, economic risk, and the discount rate. These same assumptions are also used when assessing recoverability of impairments previously recognized.

Income Taxes and Deferred Taxes

Quarterhill is subject to income taxes in Canada and other foreign jurisdictions. The calculation of income taxes in many cases, however, requires significant judgment in interpreting tax rules and regulations. The Company's tax filings are subject to audits which could materially change the amount of current and deferred income taxes and liabilities. Additionally, estimation of the income tax provision includes evaluating the recoverability of deferred tax assets based on the assessment of the Company's ability to use the underlying future tax deductions before they expire against future taxable income. The assessment is based on existing tax laws, estimates of future profitability and tax planning strategies. If the future taxable results of the Company differ significantly from those expected, the Company would be required to increase or decrease the carrying value of the deferred tax assets with a potentially material impact on the Company's consolidated statements of financial position and consolidated statements of comprehensive income. The carrying amount of deferred tax assets is reassessed at each reporting period and reduced to the extent that it is no longer probable that sufficient taxable income will be available to utilize all or part of the deferred tax assets. Unrecognized deferred tax assets are recognized to the extent that it is more likely than not that taxable income will be available against which deferred tax assets can be utilized.

FUTURE ACCOUNTING PRONOUNCEMENTS

Amendments to IAS 1, “Presentation of Financial Statements” - *Classification of Liabilities as Current or Non-Current*

In January 2020 and October 2022, the IASB issued amendments to paragraphs 69 - 76 of IAS 1 to clarify the requirements for classifying liabilities as current or non-current. The amendments specify that the conditions which exist at the end of a reporting period are those which will be used to determine if a right to defer settlement of a liability exists. The amendments also clarify the situations that are considered a settlement of a liability. The amendments are effective for annual periods on or after January 1, 2024, with early adoption permitted. The amendments are to be applied retrospectively.

Amendments to IFRS 16, “Leases” - *Lease Liability in a Sale and Leaseback*

In September 2022, the IASB issued *Lease Liability in a Sale and Leaseback* (Amendments to IFRS 16). The amendment to IFRS 16 *Leases* specifies the requirements that a seller-lessee uses in measuring the lease liability arising in a sale and leaseback transaction, to ensure the seller-lessee does not recognize any amount of the gain or loss that relates to the right of use it retains. After the commencement date in a sale and leaseback transaction, the seller-lessee applies paragraphs 29 to 35 of IFRS 16 to the right-of-use asset arising from the leaseback and paragraphs 36 to 46 of IFRS 16 to the lease liability arising from the leaseback. In applying paragraphs 36 to 46, the seller-lessee determines ‘lease payments’ or ‘revised lease payments’ in such a way that the seller-lessee would not recognize any amount of the gain or loss that relates to the right of use retained by the seller-lessee. Applying these requirements does not prevent the seller-lessee from recognizing, in profit or loss, any gain or loss relating to the partial or full termination of a lease, as required by paragraph 46(a) of IFRS 16. The amendments are effective for annual periods on or after January 1, 2024, with early adoption permitted. The amendments are to be applied retrospectively.

Management is currently assessing the impact of these amendments.

RISKS AND UNCERTAINTIES

Quarterhill and its operating subsidiaries operate in dynamic business and competitive economic environments that expose it to a number of risks and uncertainties. This MD&A is qualified in its entirety by the risk factors described under the heading “Risk Factors” in each of our AIF. The risks and uncertainties discussed in greater detail under the heading “Risk Factors” in our AIF are not, however, the only risks we face. We may also be subject to additional risks and uncertainties that are currently unknown or not currently deemed material to our respective business operations. If any of the risks or uncertainties we and our operating subsidiaries face were to occur, they could materially affect our future operating results and could cause actual events to differ materially from those which we expect or that we have described in our forward-looking statements.

In addition to items identified in the AIF, we may be exposed to other risks as follows:

Credit Risk

Credit risk is the risk of financial loss to the Company if a licensee or counter-party to a financial instrument fails to meet its contractual obligations. Financial instruments that potentially subject us to concentrations of credit risk consist primarily of cash and cash equivalents, accounts receivable and unbilled revenue.

Our cash and cash equivalents consist primarily of deposit investments that are held primarily with Canadian and American chartered banks. Management does not expect any counter-parties to fail to meet their obligations.

We recognize a loss allowance provision using the simplified approach based on lifetime expected credit losses. Our exposure to credit risk with our accounts receivable from customers is influenced mainly by the individual characteristics of each customer. Our operating subsidiaries' customers are for the most part, large multinational companies or government organizations which do not have a history of non-payment. Credit risk from accounts receivable encompasses the default risk of customers. Prior to entering into transactions with new customers, we assess the risk of default associated with the particular customer. In addition, on an ongoing basis, management monitors the level of accounts receivable attributable to each customer and the length of time taken for amounts to be settled and where necessary, takes appropriate action to follow up on those balances considered overdue. We have had no material bad debts for any periods presented.

None of the amounts outstanding have been challenged by the respective counterparties and we continue to conduct business with them on an ongoing basis.

Quarterhill reviews financial assets on an ongoing basis with the objective of identifying potential matters which could delay the collection of funds at an early stage. Once items are identified as being past due, contact is made with the respective customer to determine the reason for the delay in payment and to establish an agreement to rectify the breach of contractual terms.

Liquidity Risk

Liquidity risk is the risk that we will not be able to meet our financial obligations as they fall due. Our objective in managing liquidity risk is to ensure that we have sufficient liquidity available to meet our liabilities when due. We manage our liquidity needs through various sources including cash generated through operations, cash reserves, various revolving credit facilities, long-term debt, convertible debentures and the issuance of Common Shares.

Market Risk

Market risk is the risk that the fair value of future cash flows from our financial instruments will fluctuate due to changes in interest rates and foreign currency exchange rates.

Interest Rate Risk

The financial instruments that expose the Company to interest rate risk are its cash and cash equivalents, short-term investments, bank indebtedness and long-term debt. The Company's objectives of managing its cash and cash equivalents and short-term investments are to ensure sufficient funds are maintained on hand at all times to meet day-to-day requirements and to place any amounts that are considered in excess of day-to-day requirements on short-term deposit with the Company's banks so that they earn interest. When placing amounts of cash and cash equivalents into short-term investments, the Company only places investments with Canadian chartered banks and ensures that access to the amounts placed can be obtained on short notice. A one percent increase or decrease in interest rates would not have resulted in a material increase or decrease in interest income or expense during the nine months ended September 30, 2023.

Currency Risk

Portions of the Company's revenues and operating expenses are denominated in U.S. dollars, Chilean pesos, Mexican pesos, Euros and Chinese yuan. Because these financial statements are reported in Canadian dollars, the Company's operating results are subject to changes in the exchange rate of the foreign currencies (primarily U.S. dollars) relative to the Canadian dollar. For instance, a decrease in the value of the US dollar relative to the Canadian dollar has an unfavourable impact on US dollar denominated revenues and a favourable impact on U.S. dollar denominated direct cost of revenues and operating expenses. Approximately 93% of the Company's cash and cash equivalents and short-term investments are denominated in US dollars and are subject to changes in the exchange rate of the Canadian dollar relative to the U.S. dollar.

DISCLOSURE CONTROLS AND PROCEDURES AND INTERNAL CONTROL OVER FINANCIAL REPORTING

Our Chief Executive Officer and Chief Financial Officer have designed or caused to be designed under their supervision, disclosure controls and procedures which provide reasonable assurance that material information regarding Quarterhill is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer in a timely manner.

In addition, our Chief Executive Officer and Chief Financial Officer have designed or caused to be designed under their supervision internal controls over financial reporting (“ICFR”) to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements. The control framework used to design our ICFR is the “Internal Control - Integrated Framework (2013)” published by the Committee of Sponsoring Organizations of the Treadway Commission.

As of September 30, 2023, an evaluation was performed on the effectiveness of ICFR to provide reasonable assurance regarding the reliability of financial reporting and financial statement compliance with IFRS. Based on the evaluation performed at that time, the Chief Executive Officer and Chief Financial Officer concluded they were able to certify that the design and operating effectiveness of ICFR were effective.

There were no changes to our ICFR during the three and nine months ended September 30, 2023 that have materially affected, or are reasonably likely to materially affect, our ICFR.

A control system, no matter how well designed, can provide only reasonable, not absolute, assurance that its objectives are met. Due to inherent limitations in all such systems, no evaluations of controls can provide absolute assurance that all control issues, if any, within a company have been detected. Accordingly, our disclosure controls and procedures and our internal controls over financial reporting are effective in providing reasonable, not absolute, assurance that the objectives of our control systems have been met.

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