CHARTERED PROFESSIONAL ACCOUNTANTS CANADA

CPA Common Final Examination

BOARD OF EXAMINERS' REPORT

PART B — The Day 1 Report

May 2021, September 2021 and September 2022 Examinations

CPA EVALUATIONS

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TABLE OF CONTENTS

See Part A for full report on the Sept 2022 Day 2 and Day 3 simulations and marking guides.

THE BOARD OF EXAMINERS' REPORT ON THE SEPTEMBER 2022 COMMON FINAL EXAMINATION

OBJECTIVES OF THE REPORT

The objective of this report is to explain the Common Final Examination (CFE) process and to assist the profession in improving the performance of candidates on the CFE.

The report sets out the responsibilities of the Board of Examiners, the methods used for guide setting and marking the CFE, and the results of the marking process. The report also includes recommendations to candidates from the Board of Examiners.

The September 2022 CFE Report is presented in two parts: Part A is the Day 2 and Day 3 report and Part B is the Day 1 report.

The appendices provide more detailed information on the design, guide setting, and marking of the CFE, as well as the board's expectations of candidates on the simulations. Readers are cautioned that the marking guides were developed for the entry-level candidate and that, therefore, all the complexities of a real-life situation may not be fully reflected in the content. The CFE report is not an authoritative source of GAAP.

RESPONSIBILITIES OF THE BOARD OF EXAMINERS

The Board of Examiners (BOE or the board) comprises a chair, two vice-chairs, and sixteen members appointed by the provincial bodies.

The board's responsibilities, as set out in its terms of reference, include the following:

- Setting the CFE in accordance with the *CPA Competency Map* (the *Map*) and other directions from the Professional Education Management Committee;
- Submitting the CFE and the marking guides to the provincial bodies for review;
- Marking the candidates' responses and recommending to the provincial bodies the pass or fail standing that should be given to each candidate; and
- Reporting annually on the CFE to various CPA committees and the provincial bodies, in such form and detail and at such time as is satisfactory to them.

The chair is responsible for the supervision of the evaluation process. A CFE subcommittee, made up of nine members of the board, is actively involved in the preparation of the CFE simulations, the preliminary marking guides, and the setting of the initial passing profile. The members of that subcommittee participate in the Preliminary Evaluation Centre where the marking guides are tested against candidate responses and finalized, and in the start-up of the marking centre. The BOE chair and vice-chair provide oversight throughout the entire marking process, consulting with subcommittee members as required. The full board is responsible for equating the difficulty of the examination to prior years' examinations and establishing the passing standard.

THE CFE

Preparation and Structure of the CFE

The board staff works in conjunction with authors to ensure that simulations presented to the board achieve the overall intent and design objectives set by the board, while adhering to the competencies and the proficiency levels specified in the *Map*.

The full board provides guidance as to the content and nature of simulations to be included on the examination. The CFE subcommittee reviews and refines these simulations that make up the three-paper evaluation set.

Nature of the Simulations

The CFE comprises a set of simulations that are both essential and effective in evaluating the candidates' readiness to enter the profession:

Day 1 – The first paper is a four-hour examination consisting of a single simulation that is linked to the Capstone 1 group case. There are two versions of the linked cases, unless special circumstances require that a third version be provided. Version 1 is linked to the most current Capstone case and is written by first time writers and by repeat writers who chose to attempt the new case rather than Version 2 of the previous Capstone case. Version 2 (and Version 3, if applicable) is written by repeat writers and candidates who deferred and are writing Version 2 (and Version 3, if applicable) as their first attempt. The versions of the exams are calibrated to ensure the difficulty of all versions is comparable. For the September 2022 CFE, a Version 1 and a Version 3 were offered. The Version 3 case relates to WDI, for which a Version 1 was offered in May 2021 and a Version 2 was offered in September 2021. Version 3 was required and offered on the September 2022 CFE as the May 2021 CFE was not able to be offered nationally.

Day 2 – The second paper is a five-hour case, with four different roles and requirements. Additional information tailored to each role is provided in four separate appendices.

Day 3 – The third paper, is a four-hour paper, consisting of three multi-competency area simulations.

Assessment Opportunities

The board applies competency-based marking procedures that enable it to decide which candidates demonstrate readiness to enter the profession.

Assessment Opportunities are designed to answer the question, "What would a competent CPA do in these circumstances?" To attain a pass standing, candidates must address the issues in the simulations that are considered significant.

Appendix A contains a comprehensive description of the evaluation process.

Marking Guides

Marking centre leaders and assistant leaders provide valuable input during the testing and setting of the marking guides, before live marking begins. The vice-chair, selected member(s) of the CFE subcommittee and senior evaluations staff hold meetings with the leaders and their assistants during both the guide-setting and the marking processes. See **Appendices B to H** for the WDI Day 1 simulations and related capstone case, WDI marking guides, and WDI sample responses. **Appendix I** contains the marking results by assessment opportunity, and **Appendix J** contains the BOE comments. A copy of the Day 1 V1 (CFL), Day 2 and Day 3 simulations can be found in **Part A** of the CFE Report.

Day 1 – The marking guide is designed to assess the candidate on the stages of the CPA Way: 1) situational analysis; 2) analysis of the major issues; 3) conclusions and advice; and 4) communication. Based on these four summative assessments, the candidate's response is then holistically judged to be either a passing or a failing response.

Day 2 and Day 3 – Marking guides are prepared for each simulation. Besides identifying the Assessment Opportunities, each marking guide includes carefully defined levels of performance to assist markers in evaluating a candidate's competence relative to the expectations set out by the board when developing the passing profile for a competent CPA.

Five categories of performance are given for each Assessment Opportunity. The candidate's performance must be ranked in one of the five categories:

- Not Addressed
- Nominal Competence
- Reaching Competence
- Competent
- Competent with Distinction

Setting the Passing Standard

The board chair and vice-chair in charge of the examination monitor the live marking. Near the completion of the marking process, the CFE subcommittee satisfies itself that the markers applied the marking guides as intended by the board.

In determining which candidates pass the CFE, a candidate is judged in relation to the board's pre-established expectations of an entry-level chartered professional accountant. Any changes to the initial profile that were made throughout guide-setting and the marking centre are ratified by the full board. In setting the passing profile, the board considers the following:

- The competency area requirements described in the *Map*
- The level of difficulty of each simulation (set using a scale: Easy, Easy to Average, Average, Average to Hard, or Hard)
- The level of difficulty of each Assessment Opportunity (set using a scale: Easy, Easy to Average, Average, Average to Hard, or Hard)
- The design and application of the marking guides
- Comments from leaders and assistant leaders regarding any marking difficulties encountered or any time constraints noted
- Possible ambiguity of wording or of translation
- Input on critical decision factors from an independent board (i.e., those BOE members not on the CFE subcommittee and therefore not directly involved) who review the fair pass package

The Decision Model

The purpose of the CFE is to assess whether candidates possess the competencies required of an entry-level CPA through a written evaluation that is common to all CPAs. Each day of the CFE is unique and is designed specifically to assess different skills:

➢ Day 1 is linked to the Capstone 1 group case work. It assesses the candidates' ability to demonstrate professional skills. It is independent from Day 2 and Day 3.

➢ Day 2 is the **depth** test. It assesses technical **depth** in one of four unique roles (that reflect the four CPA elective choices) and provides **depth** opportunities in the common core competency areas of Financial Reporting and/or Management Accounting. Candidates pre-select one role and respond from that role's perspective.

➢ Day 3 supplements the **depth** test in the common core areas of Financial Reporting or Management Accounting. It is also the **breadth** test for all common core competency areas.

Candidates must pass all three days in order to qualify for entry to the profession. Those seeking licensure must obtain depth in Financial Reporting and in the Assurance Role.

Day 1

Day 1 is assessed independently from Day 2 and Day 3. A pass or fail decision is made based on a holistic assessment of the candidates' performance in applying the CPA Way to demonstrate essential professional skills.

Day 2 and Day 3

The decision model used by the board is presented in Exhibit I. Four key decision points, or levels, are applied in reaching a pass or fail decision, as follows:

1. The response must be **sufficient**; i.e., the candidate must demonstrate competence in the Assessment Opportunities presented on Day 2 and Day 3 (Level 1).

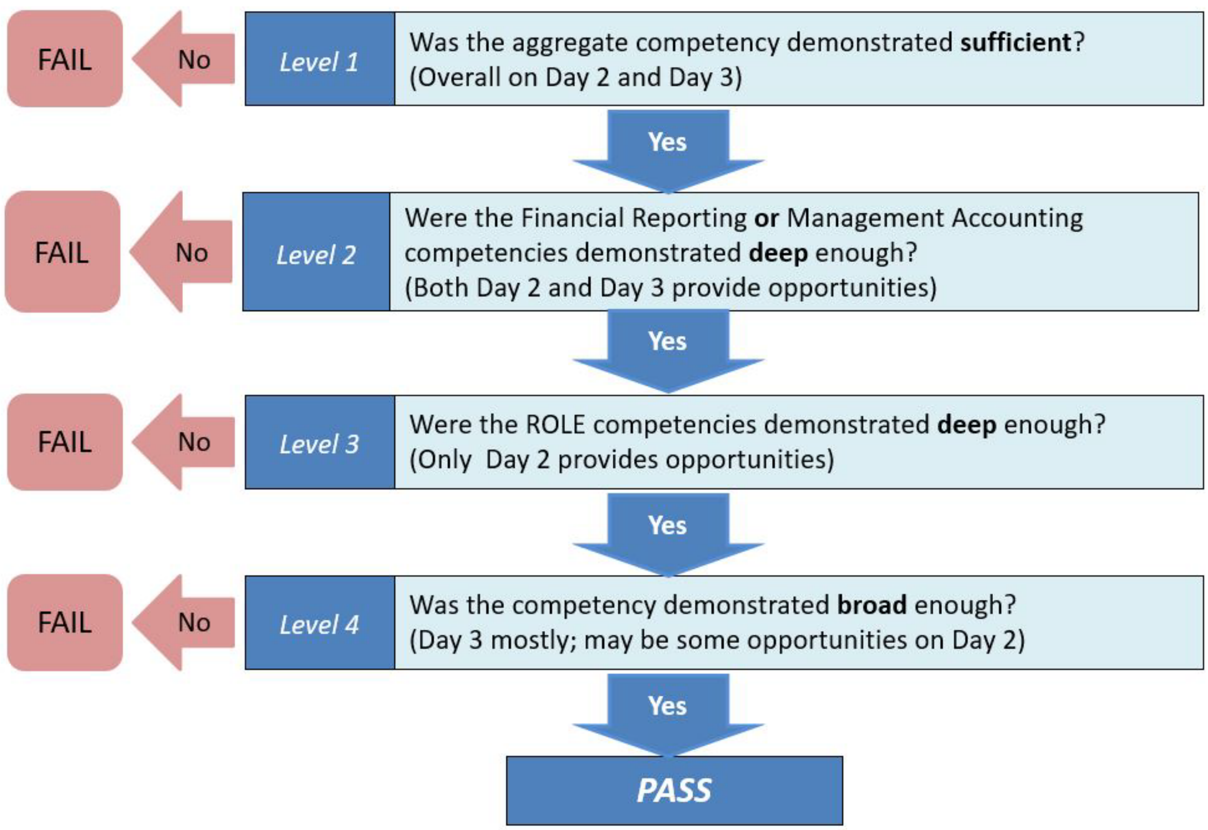
2. The response must demonstrate **depth** in the common core area of Financial Reporting or Management Accounting (Level 2).

3. The response must demonstrate **depth** in the pre-selected elective role (Level 3).

4. The response must demonstrate **breadth** across all competency areas of the *Map*, at a core level, by not having avoided a particular technical competency area (Level 4).

The BOE is responsible for equating the results from one examination to another to ensure that candidates have an equal chance of passing whichever examination they write. The BOE uses the factors listed above under setting the passing standard, in order to equate the examinations.

EXHIBIT I
DAY 2 AND 3 PASS/FAIL ASSESSMENT MODEL



Approving the Results

The CFE subcommittee reviews and approves the marking results for each simulation. Day 1 is assessed separately from Day 2 and Day 3.

Day 1 – The CFE subcommittee discusses the profiles for both the marginally passing and marginally failing candidates to confirm that the board's pre-established passing profile has been appropriately applied by the markers.

Day 2 and Day 3 – As part of the development process, the CFE subcommittee sets preliminary requirements for the three levels (tests of depth and breadth) being assessed on the Day 2 and Day 3 simulations. After the marking is completed, the board reviews and finalizes those requirements. The board establishes the Level 1 (sufficiency) requirement for the combined Day 2 and Day 3 simulations.

During the approval process, the board continues to consider whether the results could be affected by any inconsistency in the evaluation or the board's processes.

Reporting

In reaching its decision, the board determines which candidates pass on a national basis only, without regard to provincial origin or language. Similarly, the detailed comments are based on analyses of the performance of all candidates.

The board reports the following information by candidate number:

- Overall pass/fail standing and pass/fail standing for each of Day 1 and of Day 2 and Day 3 combined.
- A pass/fail standing for Day 1.
- A pass/fail standing for Level 1, Sufficiency. A decile ranking is provided for failing candidates.
- A pass/fail standing for Level 2, Depth in Financial Reporting or Management Accounting.
- A pass/fail standing for Level 3, Depth in Role.
- A pass/fail standing for Level 4, Breadth in all technical competency areas.

Thank You

All board members wish to express their warm and sincere appreciation for the outstanding energy, support, and commitment of the Board of Examiners staff members whose dedication and talent contributed in large measure to the achievement of our objectives and the fulfilment of our responsibilities.

We also wish to acknowledge the contributions made by the provincial reviewers, markers, authors, translators, and editors. The commitment, energy, and skill demonstrated by all the markers were outstanding, resulting in the sound application of marking procedures and producing an appropriate evaluation of the candidates. Everyone's commitment to the quality and fairness of the process is appreciated.

Jordan Oakley, CPA, CA
Chair
Board of Examiners

A MESSAGE TO CANDIDATES

To attain a pass standing, candidates needed to achieve a "Pass" on Day 1, and on Day 2 and Day 3 combined, demonstrate sufficient competence in all areas and meet the two depth standards and the breadth standards.

Introduction

The September 2022 CFE Report, Part A and Part B combined, presents detailed information on all candidates' performance for all the examination cases, except for the Day 1 linked case, CFL Version 1. Detailed commentary on the performance of candidates on the CFL cases (Version 1 and Version 2) will only be available after CFL Version 2 is written in September 2023. The simulations, marking guides, marking results, and Board of Examiners' (BOE) comments on the Day 2/Day 3 portion of the examination are found in Part A of the CFE Report. Similar information on Day 1 WDI simulations (Version 1 to Version 3) can be found in Part B of the CFE Report.

The intent of this message from the BOE is to help candidates improve their performance on future CFEs by drawing their attention to the most common detracting characteristics observed in candidate responses to the September 2022 CFE. The BOE's comments are based on the feedback of the marking teams, who see the entire candidate population, and reflect the broad themes noted by the markers that apply to all candidates who wrote this sitting of the CFE. More detailed AO-by-AO commentary on candidates' performance can be found in the BOE's comments in Appendix F of Part A, or Appendix H of Part B, of the CFE Report.

Nature of the CFE

The design of the CFE is such that each day of the examination allows candidates to demonstrate a different skill set. Day 1 allows candidates to demonstrate their high-level professional skills, such as analysis that is relevant and critical to strategic decision-making, professional judgment, and ability to synthesize information. Day 2 allows candidates to demonstrate their technical competence in the common Financial Reporting and Management Accounting competencies and in their chosen role, which is tied to one of the four elective areas. Day 2 typically, but not always, directs candidates to the work to be done and is not designed to be time constrained, allowing candidates to demonstrate depth. Day 3 allows candidates to demonstrate depth in the common Financial Reporting and Management Accounting competencies, and provides multiple opportunities to demonstrate breadth in all the core technical competency areas. Day 3 is typically time constrained, requiring candidates to prioritize the issues and manage the amount of time spent on each issue. Both Day 2 and Day 3 require candidates to integrate the information found in the simulation in order to demonstrate competence. All three days require candidates to clearly communicate their thought process.

Strengths and Weaknesses

Time management

Overall, candidates demonstrated good time management skills. The Day 1 simulation was not time constrained in any way and, generally, the amount of time that candidates devoted to their situational analysis and their issue analysis was appropriate. Most candidates were able to address all the strategic alternatives presented, spending more time on the alternatives that required more analysis and discussion. The Day 2 simulation was also not time constrained, and most candidates managed their time appropriately on Day 2, attempting all the AOs and appropriately balancing their time between the common section and the role section. On Day 3, which is designed to be time constrained and required time management on the part of the candidates, to ensure that all three simulations were completed within the four hours allotted, candidates seemed to be able to plan their time accordingly. There was some evidence of slight time constraint, given the high percentage of NA (10%) on the last AO on Day 3, Simulation 3; however, this is expected, given the design of Day 3.

Unrelated discussions

The BOE was pleased to see that there were relatively few unrelated discussions on this exam. Candidates addressed the requireds and generally did not provide any analysis that was not necessary.

Technical ability

The BOE has noted a trend of declining technical abilities. The pattern the BOE has seen for the past few CFEs has continued, with candidates generally avoiding the more complex topics. In addition, while candidates performed well on some of the common, straightforward topics, there were also common topics where candidates struggled.

Candidates generally performed well on: Day 2, Common, AO#3 (Financial Reporting – Renovation costs), AO#4 (Management Accounting – Variance analysis) and AO#5 (Management Accounting – Budget); Day 2, Assurance role, AO#11 (Internal controls); Day 2, Finance role, AO#7 (Packaging equipment NPV); Day 2, Performance Management role, AO#8 (Delivery pricing); Day 2, Taxation role, AO#8 (Taxable income and taxes payable); Day 3, Simulation 1, AO#5 (Finance – Bank covenants); Day 3, Simulation 2, AO#4 (Management Accounting – Divisional allocations) and AO#5 (Assurance – Internal controls); and Day 3, Simulation 3, AO#3 (Management Accounting – Minimum selling price).

However, on certain of the remaining AOs, there was more variability in the quality of the responses, with some candidates demonstrating a very poor understanding of the required technical knowledge.

In financial reporting, for example, on Day 2, Common, AO#1 (Financial Reporting – Revenue recognition), candidates performed worse on this AO when compared to similar AOs on past CFEs. Candidates struggled to apply the guidance in IFRS 15 to relevant case facts and to allocate the discount across the performance obligations. On Day 2, Assurance role, AO#7 (Operating segments), many candidates could not identify the relevant guidance for the issue, even though there is a specific Handbook section that is applicable, and the guidance is relatively straightforward to apply. On Day 3, Simulation 2, AO#6 (Financial Reporting – Inventory), the BOE was surprised at the performance on this relatively straightforward AO. Candidates did a poor job of discussing the issues related to the feed inventory in transit at year end and the additional storage costs incurred, or ignored these issues altogether.

Candidates also demonstrated poor technical knowledge in some of the Day 2 role AOs. On Day 2, Finance role, AO#10 (Financing options), candidates were unable to adequately analyze the two different options (a note payable and share exchange), not understanding how to compare two options that have different terms. On AO#12 (Dividend or buy back), candidates did not seem to understand the different options presented, and were unable to articulate the differences between the two options. On Day 2, Performance Management role, AO#9 (Outsourcing secret sauces), candidates generally struggled with how to incorporate the capacity constraint in their calculations. On Day 2, Taxation role, AO#11 (Shareholder loans), candidates struggled with providing the specific period for when loans would be included in income, and the calculation of the imputed tax benefit. Also, on Day 2, Taxation role, AO#13 (Estate planning), many candidates treated the RRSP as a capital gain upon death.

In addition, the BOE purposely included a newer auditing standard on the exam, and candidates struggled with addressing it. On Day 2, Assurance role, AO#13 (Key audit matters), many candidates did not identify the relevant guidance (CAS 701), and others did not address the issue in the right context, for example, focusing on assertion-level risks for specific accounts and the work that the external auditor would complete. While the BOE recognized that this is a harder topic, candidates were expected to be up-to-date on the newer standards.

Candidates should expect to see a variety of issues of varying difficulty. The BOE encourages candidates to be balanced in studying, and to ensure that they have a sufficient level of technical knowledge in all competency areas.

Failure to consider the specific context of the simulations and integrate the information provided

Consistent with previous CFEs, candidates on the September 2022 exam seemed to struggle with applying the specific context of the simulation to their response. For example, on Day 2, Performance Management role, AO#7 (Recipe development), candidates struggled with applying the percentage of customers who would have bought meals anyway, or incorporating development and graphic design costs of the new recipes. Also on Day 2, Performance Management role, AO#10 (Chef Dashim sales data), candidates struggled to give useful advice, based on their findings from the analysis of the charts and graphs provided to them. They were mostly able to make valid interpretations of the graphs, but seemed unable to integrate those findings with the remaining case facts in order to provide useful advice. On Day 2, Taxation role, AO#11 (Shareholder loans) and #12 (Shareholder remuneration), many candidates failed to recognize that BDFH only had passive income so it could not have been Conrad's employer with respect to his shareholder loan, nor could it justify salaries to the children. On Day 3, Simulation 1, AO#1 (Financial Reporting – Investment property), candidates did not apply the case facts presented to support their choice of the accounting policy option for subsequent measurement (fair value model or cost model), instead simply suggesting one model without support. Also on Day 3, Simulation 1, AO#3 (Management Accounting – Operational weaknesses), candidates struggled to identify the root cause of the problem, failing to understand the specific context provided. As a result, candidates' discussions lacked depth and did not address the most significant issues. On Day 3, Simulation 2, AO#1 (Taxation – LCGD and QSBC), most candidates were able to explain what the LCGD is, but struggled to apply the QSBC criteria, given the specific case facts provided.

The BOE emphasizes that the ability to adapt to unique scenarios and integrate information from various parts of the case are important skills for an entry-level CPA. In addition, the role of the CPA is often to advise clients, either on the application of standards and tax rules or on why, and how, to proceed with certain business and financial decisions. Without a clear explanation, a client would have incomplete information. In the case of responses to CFE simulations, the BOE is interested in understanding the logic used and is looking for evidence of the analysis and professional judgment that was applied in reaching a conclusion. Therefore, it is important for candidates to answer the questions "Why?" or "So what?", using case facts, when making any point, and to include the answer in the response. Jumping to the conclusion without first presenting the analysis supporting that conclusion is insufficient. The BOE is looking for a clearly articulated response.

For more detailed commentary, see Appendix F of Part A of the CFE Report.

Additional Comments Specific to Day 1 – CFL (Version 1)

Most candidates dedicated the first section of their response to a relevant situational analysis. Most used this information later in their response, making relevant links back to the company's global situation when analyzing the specific strategic issues that were presented, and within their conclusions. However, the links that weak candidates made were typically to the more obvious case facts that related to CFL's key success factors, mission, and vision, rather than being tied to the more important factors, which generally varied for each strategic issue.

Beyond the specific objective to improve EBITDA in the coming years, CFL's board wanted advice on which age demographic to target in order to improve the performance of the company's fitness gyms. Internally, CFL had only $2 million of cash available for strategic investment, a limitation that was made worse by the fact that CFL did not have access to any further debt. Candidates were expected to integrate the crucial elements of the company's broader situation, including CFL's cash constraint, within their qualitative and quantitative analyses of each strategic alternative. They were also expected to explain how each available alternative aligned with the company's overall choice of which age demographic to target.

For each of the strategic options available to CFL, candidates were expected to conclude and recommend a course of action that was consistent with their analyses. Within their conclusions, candidates were expected to address how the company's constrained cash position would impact which strategic options could be chosen, recognizing that there was an opportunity to sell two of its business units, the Zenfit distribution/video production agreement and/or the company's climbing wall facilities, which would provide additional cash. They were also expected to provide an overall conclusion that was consistent with whichever age demographic they recommended that CFL target.

There were four strategic options to be analyzed in this case: which age demographic CFL should target for its fitness gyms; whether CFL should become Zenfit's national distributor; whether CFL should open new climbing facilities; and whether CFL should acquire RJ's Health Clubs Limited. In addition, candidates were expected to discuss, given the departure of Rosa, whether Louisa Rice or Albert Fong would be a suitable replacement as a CFL board member.

Within the analysis of the major issues, three main factors differentiated strong responses from weak responses. First, a strong response identified and provided an in-depth discussion on the most important decision factors for each issue. Weak candidates tended to list case facts, often failing to explain why those elements were important and how they affected the decision-making process. Second, strong candidates provided valuable quantitative analyses to help support their recommendations (such as by linking their calculations to the stated objectives of CFL). On the other hand, weak candidates' quantitative analyses were often unstructured and unclear and, therefore, challenging to follow. Many failed to perform the correct calculation to assess the decision. These candidates often struggled to explain how the results of their quantitative analyses affected the decision at hand. Third, strong candidates routinely linked their analysis of each option to the two prevalent entity-level issues presented in the case: the targeted age demographic and the cash constraint. Strong candidates incorporated these aspects into their discussion of each strategic option, whereas weak candidates either missed making these links altogether or provided a superficial discussion by listing pros or cons, sometimes in contradictory ways from option to option, and failing to adequately highlight the importance of these aspects to the decision. Strong candidates typically incorporated both entity-level issues to some extent and usually prioritized their strategic recommendations, explaining why one option should be pursued over another, drawing on the entity-level decision factors.

Weak candidates tended to only perform an issue-by-issue analysis without stepping back to consider the broader perspective and without integrating the key entity-level issues into their conclusions. As a result, they failed to make important links between the various aspects of each alternative. For example, weak candidates typically did not incorporate the preferences of each age demographic within their analysis of any of the other strategic options, beyond the analysis of the age demographic decision itself.

Most candidates approached their response in a coherent and organized fashion. Only a few candidates struggled to effectively communicate their ideas. These candidates tended to use poor sentence structure, confusing syntax, and an unorganized approach to their response.

Additional Comments Specific to Day 1 – WDI (Version 3)

Similar to CFL Version 1, most candidates dedicated the first section of their response to a relevant situational analysis. Most used this information later in their response, making relevant links back to the company's global situation when analyzing the specific strategic issues that were presented, and within their conclusions.

In addition to considering the company's objective of a first-year return of at least 10% for any investments that were made, candidates should have highlighted the major issue relative to WDI's external environment in their situational analysis: there was an opportunity for Jack to sell WDI to SDL in the near term, or to take a chance and hope to receive a higher offer in the future. Candidates should have also highlighted the increased importance of sustainability that had occurred within the industry, and to incorporate the implications of that shift within their analysis of each strategic option that was available to the company. Candidates were expected to integrate the crucial elements of the company's broader situation into their analysis.

There were five strategic options that candidates were expected to analyze both qualitatively and quantitatively: whether Jack should accept SDL's offer and sell WDI now; whether it was still possible for WDI to achieve the company's GHG emission reduction target, and whether WDI should commit to future incentive programs; whether WDI should pursue the open bid for a ten-year waste management contract with the municipality of Truro; whether WDI should acquire the Halifax-based PET plastic recycling plant; and whether WDI should collaborate with FFC for the ecodiesel project.

Similar to CFL Version 1, strong candidates recognized and discussed the most important decision factors for each issue, provided valuable quantitative analysis, and linked their analysis to the significant entity-level issues presented in the case. Strong candidates tended to incorporate Jack's intention to sell within a two-year time frame, as well as the increased focus on sustainability in the industry, throughout each of their issue-by-issue discussions and within their conclusions and overall recommendations. Strong candidates recognized that each strategic option would have an impact on WDI's GHG emissions, and whether WDI could have still met its reduction target by 2025.

One of the main differentiating factors between strong and weak candidates was the ability to identify and discuss in depth the most relevant aspects of each strategic option presented as part of their analysis. Rather than discuss the more pertinent implications, weak candidates' analyses tended to focus on the minor considerations. For example, for the ecodiesel project, weak candidates tended to focus their analysis on the operational aspects of the proposal (such as the complexity involved in unloading the waste oil into FFC's storage tanks), rather than on how the collaboration would impact the broader strategic elements of WDI's business. Weak candidates also often did not step back and consider the entity-level issues within their analysis of the options. For example, weak candidates analyzed the purchase of the PET plastic recycling plant to WDI's assets in isolation, without making broader links to the two key entity-level issues.

As was the case with CFL Version 1, only a few candidates struggled to effectively communicate their ideas. These candidates tended to use poor sentence structure, confusing syntax, and an unorganized approach to their response.

APPENDIX A

EXAMINATION DESIGN, MARKING GUIDE DEVELOPMENT, AND MARKING OF THE COMMON FINAL EXAMINATION

CFE Design

Day 1 is one four-hour case that is linked to the Capstone 1 case, which is worked on in groups for eight weeks prior to the CFE. When writing the Day 1 case, candidates are allowed access to their Capstone 1 case but not their group's answer or any sample response. The Day 1 case is designed to assess the enabling (professional) skills. Candidates are directed to target a "board room and senior management" level of discussion, with high-level analytics and a strategic focus. There are typically two versions of the Day 1 case. Candidates pre-select the version they will write.

Day 2 is one four-hour case that candidates are given five hours in which to respond. The extra hour gives candidates time to filter and find the information that they need to answer *their* role requirements from within the common information presented. Day 2 is designed to assess the technical competencies in **depth** (Level 2 and Level 3). Candidates pre-select a role (Assurance, Finance, Taxation, or Performance Management). All candidates work with the same case — it has a common section and four sets of appendices containing additional information applicable to each of the four unique roles. The required tasks, regardless of the role, are clearly directed unless there is an undirected/enabling issue in the case that the board expects candidates to identify on their own. Day 2 evaluates the competencies listed in the *CPA Competency Map* mostly in the elective area and in common Financial Reporting and/or Management Accounting areas in **depth**. The role **depth** test (Level 2) may also include coverage of other competency areas from the common core.

Day 3 is a four-hour examination containing a mix of small cases (75 to 90 minutes each[1]) that evaluate the common core competencies only. The Day 3 cases provide additional opportunities for **depth** in Financial Reporting and Management Accounting and all the **breadth** opportunities for all the technical competency areas. Cases are time constrained, and they are designed to cover different competency areas within each case. A higher level of integration and judgment is required on Day 3 of the CFE than in the core modules, although the technical competencies are tested at the common core level of expectation.

The assessment opportunities on the Day 2 case are given mark values such that each of Day 2 and Day 3 are weighted equally.

The Development of Marking Guides and the Provincial Review Centre

Prior to the Common Final Examination booklets being published, provincial reviewers, appointed by each region, meet to examine the simulations and the preliminary marking guides. The provincial reviewers' comments are then considered by the board when it finalizes the examination set and again when the leaders and assistant leaders review the marking guides in the context of actual responses at the Preliminary Evaluation Centre.

[1] The CFE Blueprint allows anywhere between 45 to 90 minutes. The Sept 2022 CFE ranged from 75 to 90 minutes.

The September 2022 CFE Marking Centre

The September 2022 CFE Evaluation Centre was run with both in-person and remote components. From the marker applications received, approximately 230 individuals were chosen to participate in the September 2022 CFE marking centre. The criteria for selection included marking experience, motivation, academic achievement, work experience, personal references, and regional representation. The marking was supervised by the CPA Canada CFE full-time board staff.

The Day 1 Version 1 linked case (CFL V1) was marked by a team of 27 people from October 1 to 15, 2022. The Day 1 Version 3 linked case (WDI V3) was marked by a team of six people from September 16 to 22, 2022.

The Day 2 Common assessment opportunities were marked separately from the role assessment opportunities by a team of 40 people from September 30 to October15, 2022. Day 2 Assurance was marked by a team of 44 people from September 30 to October 15, 2022. Day 2 Performance Management was marked by a team of 16 people from September 28 to October 11, 2022. Day 2 Finance was marked by a team of five people from October 2 to 10, 2022. Day 2 Taxation was marked by a team of six people from September 26 to October 5, 2022. All three Day 3 cases were marked from October 4 to 20, 2022. The Day 3 simulations were marked by a total of 89 people.

In advance of the marking centre, the members of the CFE subcommittee, staff, leaders, and assistant leaders participated in a four- to six-day preliminary evaluation centre (PEC). Participants reviewed the marking guides, applied them to randomly selected candidate responses, and made necessary revisions to the marking guidelines, taking into account the comments on the marking guides received from provincial reviewers.

All teams, with the exception of Day 1 Version 3, followed a set marking centre schedule, which included a start-up phase to train the markers. During the start-up phase, the leaders and assistant leaders presented the marking guides to their teams, while staff and the BOE vice-chair monitored the discussions. The teams undertook a two-phase test-marking procedure prior to actual marking. Phase one consisted of marking guide familiarization, during which markers applied the marking guide to copies of candidates' responses and collectively reviewed their results. Phase one thus ensured that all markers understood the issues in the marking guide and the basis on which to apply each expectation level. Phase two consisted of an expanded test marking of several responses to establish marker congruence.

After the training and test-marking phases, and only when marker congruence was achieved, live marking commenced. All teams, for all days, had a leader, and anywhere from one to five assistant leaders, and had both French-speaking and English-speaking markers. Each team had one or more markers who marked in both languages.

For the Day 1 Version 3 team, all markers attended PEC due to their small size, and moved directly from PEC into live marking; therefore no separate marker training was required.

The board strives for the highest possible marking consistency and quality control. Leaders and assistant leaders, therefore, devoted much of their time to cross-marking and other monitoring activities. Control papers were fed into the system daily to check marker consistency. Markers' statistics were reviewed to ensure that marking remained consistent throughout the centre. Based on analysis of the statistics, leaders reviewed and, if necessary, re-marked papers to ensure that the assessment opportunities were marked fairly for all candidates. Bilingual markers marked papers in both languages, and their results were compared to ensure that the marking was consistent in both languages. Additional audits were performed at the end of marking on any of the larger differences between markers.

Borderline Marking (Day 1)

Each candidate's paper was marked once. All candidates' responses that were assessed as clear fail, marginal fail, and marginal pass were marked a second time by the team leader, an assistant team leader or a senior marker. Clear pass results were also audited to ensure accuracy of marking.

Double Marking (Day 2)

Each candidate's Day 2 paper was marked independently by two different markers. If the two initial markings differed on any assessment opportunity, an arbitrator (the leader, the assistant leader, or a senior marker) compared the two initial markings and determined the final assessment.

As an added measure to ensure that markers were consistently applying the marking guide, a two-day rule exists, which results in the second round of marking not beginning until two days have elapsed since the first marking. Adherence to this rule ensures that any movement in the application of the marking guides due to marker interpretations during the first two days of live marking are stabilized before the second marking and arbitration process begin.

Borderline Marking (Day 3)

Day 3 was marked using a borderline model. All Day 3 responses were marked once and then the Day 2 and Day 3 results were combined. All failing candidates who passed the Day 2 role test, had their Day 3 response marked a second time by an independent marker, and any differences between the first and second markings were arbitrated by a leader or senior marker.

Subsequent Request for Remark of Results and Request for Performance Analysis

Failing candidates may request a remark of their examination results and/or a detailed personalized performance analysis for either Day 1, or Day 2 and Day 3, or for all three days for a fee.

In an effort to provide failing candidates with more timely feedback, the Board of Examiners is providing an automated feedback report for Day 1 of the CFE. The report is automatically generated using the marking data collected for each response rather than being based on a personalized review of the response. It is therefore being provided at no cost to all failing candidates. This new report is intended to allow for the identification of the key deficiencies in the candidate's Day 1 response, which then allows the candidate to decide whether to request the more detailed, and personalized performance analysis report noted above, for a fee.

Review and Remarking Approach

Great care is exercised in the original marking and tabulating of the papers and results. The following review and marking procedures are applied to all three papers constituting the Common Final Examination.

Under the supervision of the chair of the Board of Examiners, as well as CPA Canada CFE staff, the responses are reviewed by the leaders and assistant leaders who did the original marking. The leaders and assistant leaders read the responses and compare them to the marking guides used at the marking centre. In reviewing candidates' results, two aspects are considered. First, it must be determined that the basis of marking the papers has been consistent with that accorded other candidates who wrote the examination. Second, all responses reviewed are subjected to a careful check to ensure the markers have indicated that consideration has been given to all material submitted by the candidate.

The results are tabulated, and a decision made regarding whether any candidates have been treated unfairly and should be granted a pass on the examination.

The results are then forwarded to the provincial bodies for notification of the candidates.

APPENDIX B

CAPSTONE 1
WDI BACKGROUND CASE

Capstone 1

Waste Disposal Inc. — Case

It is February 9, 2021, and you have been working as a CPA with Stineman Consulting Group (SCG) for the past 11 months. You have been assigned to develop a report for the board of directors (board) of Waste Disposal Inc. (WDI).

WDI has asked SCG to help it conduct a strategic analysis and set a new direction for the company. Based on past years' results, the directors have conflicting viewpoints as to how to achieve sustainable and increased profits, and there are many operational issues that they would like you to address.

You have been provided with the following information to review and analyze. (All dollar values are in Canadian dollars unless specifically stated otherwise.)

Waste Disposal Inc.

Waste Disposal Inc. (WDI) is a Canadian privately held waste disposal company that provides collection, disposal, and recycling services, and reports under ASPE. The company is owned 40% by Laura Simmons and 60% by Kingsley Investment Inc. (Kingsley), an investment management company that invests in a variety of private businesses. Laura's father established WDI in 1986, and Laura inherited 100% of the shares of WDI from her father after his death in 2019. She realized shortly thereafter that WDI needed to find another source of capital. This was accomplished when Kingsley purchased a 60% ownership interest for $10,000,000 in early 2020. Part of these funds were used to repay debt of $8,000,000 that matured in February 2020.

With a short-term focus on capital appreciation, Kingsley's investment objective is to hold an investment for five to seven years and then sell to a strategic buyer for a capital gain. Kingsley invests in family-owned businesses, where the original owner has recently passed away and the company is struggling financially or operationally, and provides advice and resources to help it become profitable and successful. The company has investments in trucking and retail companies, and this is its first investment in waste disposal. In reviewing WDI's financial statements prior to purchase, Kingsley believed that there were many areas that could be improved, within the traditional segments of waste management, which would quickly increase the profits and therefore market value of the company.

Industry information

Description and size

The Canadian waste management industry includes the collection and disposal of hazardous and non-hazardous materials and recyclable materials.[1,2] This industry does not account for government-provided services of a similar nature.[3] The industry generated $4.8 billion in revenues in 2017, and the annual revenue growth rate is expected to be 1.9%.[4]

The main segments in the waste management industry are described below:[5]

Collection and hauling	
Unsorted waste collection	Municipal solid waste and recyclables, and construction, renovation, and demolition debris are collected from residents and commercial operations. They are hauled to transfer stations or directly to treatment and recycling facilities, landfill sites, salvage yards, or incineration plants.
Waste transfer station operation	The waste is compacted to be carried on larger trucks to the final treatment and recycling facilities, landfill sites, salvage yards, or incineration plants.
Waste treatment and disposal	
Material recycling facilities	Plastic, paper, cardboard, aluminum, and glass waste is processed and recycled.
Organic waste treatment facilities	Organic matter, including food waste and biowaste (sewage sludge), is processed into compost, agricultural feed, and biogas.
Landfill sites	Waste is placed in disposal sites that are environmentally isolated, and the waste naturally degrades over time.
Incineration plants	Waste is thermally treated to result in ash.
Hazardous waste collection and treatment	Hazardous waste, such as electronics and chemicals, is processed using mechanical, physical, and chemical treatments depending on the nature of the waste.

[1] Nathaniel Leach, IBISWorld Industry Report 56211CA, Collection Day: Rebounding Demand from the Industrial Sector Will Drive Revenue Growth, Waste Collection Services in Canada (June 2017).
[2] MNP Corporate Finance, Waste Management, Recycling & Remediation (2018), https://www.mnp.ca/SiteAssets/media/PDFs/Articles/9194-19-CORP%20Q4%20industry%20reports%20Waste%20Management.pdf
[3] Leach, June 2017.
[4] Ibid.
[5] Ibid.

Waste treatment and disposal industry segments

Recycling

This industry segment earns revenue by recovering and treating recyclable materials (such as old corrugated cardboard [OCC], mixed paper, plastics, and glass), processing the materials into a raw material commodity, and packaging these materials to be resold to end-user customers or companies that will further refine the materials.[6] It can also earn revenues by selling recyclable material prior to processing; excess waste that cannot be processed due to limited capacity or other constraints can be sold to other recycling facilities.

The demand for recycling and material recovery services is impacted by:[7]

- increased regulatory requirements to divert waste from the landfill sites, pressuring municipalities and businesses to sort and recycle their waste
- requirements for manufacturers to be responsible for disposal of their products and packaging at the end of the product's useful life
- increased public concern about the environment and increasing waste volumes that governments must deal with

While the recycling segment has historically been very volatile in terms of growth, it is expected to experience steady growth over the next few years, which will attract new entrants to this market segment, with the forecast number of recycling facilities increasing 5.2% annually to 2022.[8] Actual growth within companies will depend on the type of recyclable waste being processed.

Operating profit margins in this segment increased 4.3% from prior years, mostly as a result of improved efficiencies due to automation advancements.[9] Higher profit margins can also be earned by recycling specialized materials that are normally not recyclable, such as black plastics and other complex flexible plastics.

As population growth and consumer spending increase, more waste is created. Survey research indicates that more than 90% of Canadian households recycle paper, plastic, glass, and cans.[10] Growing environmental consciousness increases the volumes and types of recyclable waste. Taken together, this creates demand for recycling services, and an increase in the supply of recyclable materials. Many factors impact the demand for processed recyclable material (the output from the recycling plants), including government regulations and company policies related to use of recyclable materials,

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[6] Dmitry Diment, IBISWorld Industry Report 56292CA, Reduce, Reuse: Increased Environmental Regulation Will Boost Industry Growth, Recycling Facilities in Canada (March 2017).
[7] Ibid.
[8] Ibid.
[9] Ibid.
[10] Ibid.

differences in cost to produce new inputs in comparison to the cost to produce recycled inputs, and consumer preferences for goods manufactured using recycled materials. The selling price of recycled materials is driven by supply and demand. As supply of recyclable materials increases and demand falls, the price of the recycled materials decreases. Selling prices of recycled materials are very volatile.[11] In extreme cases, they can even become negative, forcing recycling facility operators to pay to get rid of the materials.

When selling prices of recycled materials are high, operators pay a rebate to customers when they receive recyclable waste, usually based on a fixed percentage of the selling price. However, when prices are low, customers may be charged a fee for recycling the materials to cover operating costs.[12,13] Selling prices for OCC, mixed paper, and glass have been falling in recent years and are expected to continue to fall over the next few years.

The recycling segment has seen an increase in the amount of non-recyclable material and contaminated waste received. Recyclable waste that is not as clean as it should be (for example, food-stained newsprint, dirty bottles and jars) can contaminate other recyclable material. This increases the sorting and processing costs required to eliminate impurities from the recyclable materials, as well as disposal costs for those materials that are actually not recyclable. Operators are increasingly forced to look for alternatives, such as charging contamination fees, to recoup these added costs of sorting and disposal.

Organic waste treatment[14]

Organic waste includes food and yard waste and is generated by food processors and consumers. Organic waste volumes are projected to grow at annual rates of 5.1% for food processors and 4.4% for consumers, until 2027.[15] There is a growing demand to divert organic waste from landfill sites to reduce greenhouse gas (GHG) emissions, and tightening regulatory requirements are also forcing municipalities to divert organics from landfill sites and treat them separately as organic waste. Methods to treat organic

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[11] Reclay Steward Edge, Price Sheet – August 2018, Continuous Improvement Fund, https://reclaystewardedge.com/wp-content/uploads/2018/09/August-2018-Price-Sheet.pdf

[12] Christopher Helman, "It Isn't Easy Being (Profitably) Green: How Waste Management Is Rethinking Recycling," *Forbes*, October 4, 2016, https://www.forbes.com/sites/christopherhelman/2016/09/14/rethinking-recycling-with-waste-management-ceo-david-steiner

[13] Leach, June 2017.

[14] Grand View Research, Food Waste Management Market Size, Share & Trends Analysis Report by Waste Type (Fruits & Vegetables, Dairy Products), By Process (Anaerobic, Aerobic), By Application, By Source, And Segment Forecasts, 2019-2025 (2019), www.grandviewresearch.com/industry-analysis/food-waste-management-market

[15] Future Market Insight, Food Waste Management Market: Global Industry Analysis 2012 - 2016 and Opportunity Assessment 2017 - 2027 (2017), https://www.reportlinker.com/p05094946/Food-Waste-Management-Market-Global-Industry-Analysis-and-Opportunity-Assessment.html

waste, outside of landfill and incinerator sites, include aerobic digestion (composting)[16] and anaerobic digestion.[17] The anaerobic digestion process generates biogas, a valuable byproduct that can be used internally or sold as a biofuel.

The end product of the treatment of organic waste is compost. Animal feed can also be produced from food waste, and there are currently a variety of different techniques being tested and used to facilitate this process. The demand for animal feed and compost for agricultural and garden soil treatment made from organic waste is increasing.

Landfill sites

Landfill sites are used to deposit solid waste that is not recyclable. Revenue is earned from the tipping fees collected from customers based on the volume, weight, and type of waste disposed of at the site. Landfill sites are heavily regulated and require constant monitoring of gas emissions and leachate (water pollution), both throughout the life of the landfill and many years after the sites are capped and no longer used, to ensure the sites comply with landfill cap regulations, and leachate and GHG emissions limits. Landfill tipping fees per tonne of waste have been decreasing in recent years and are expected to continue to decline as demand for landfill services falls.

To build a landfill site, permits are required, and the site must be built to be contained in liners. Operators continuously spread and compact the waste and cover it with soil to start degradation. There is a trend for operators to install expensive equipment to capture the biogases that are produced as the waste degrades. These biogases can be used as fuel to create energy that is either used internally or sold as electricity.

Hazardous waste treatment

Hazardous waste is waste that is harmful to humans or the environment because it is corrosive, ignitable, toxic, or reactive. Hazardous waste is primarily generated by industrial and manufacturing processes and includes materials such as waste acids, contaminated sludges, and other chemicals produced by manufacturers; biomedical wastes from hospitals; photo-finishing chemicals; waste pesticides; PCBs (polychlorinated biphenyls); motor oil; cleaning products; and batteries.[18] Hazardous waste also comes from cleaning oil spills and debris after hurricanes and floods. Manufacturers are the main producers of hazardous waste.

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[16] Environment Canada, Technical Document on Municipal Solid Waste Organics Processing (2013), https://www.ec.gc.ca/gdd-mw/3E8CF6C7-F214-4BA2-A1A3-163978EE9D6E/13-047-ID-458-PDF_accessible_ANG_R2-reduced%20size.pdf
[17] Ibid.
[18] Province of Ontario, Hazardous Waste Management: Business and Industry (2014), https://www.ontario.ca/page/hazardous-waste-management-business-and-industry

Hazardous waste can be treated by chemical, thermal, biological, and physical methods.[19] The provinces regulate how hazardous materials are collected, stored, transported, treated, recovered, and disposed, and these regulations can vary from province to province. Increased regulations on disposal of hazardous waste and electronics will increase the demand for these specialized disposal services. The hazardous waste treatment segment is expected to grow at 6.7% annually for the next few years,[20] as there is an increasing amount of hazardous waste that requires special collection, handling, transport, and treatment as the useful life of electronics (such as cell phones and computers) decreases.

Customers and demand

Customer segments break down as follows:[21]

- Commercial (39.5%) includes waste collection from shopping centres, restaurants, and offices.
- Industrial and construction (27.4%) includes waste collection from manufacturing companies and construction companies.
- Residential households (28.3%) includes waste collection from residential households, who pay for the collection through property taxes to municipalities, who then choose to outsource waste collection to private companies.
- Other (4.8%) includes waste collection from schools, hospitals, government facilities, seniors' homes, and public universities.

The residential market segment is expected to increase in size as municipalities privatize and outsource their waste management activities in an effort to reduce costs. This will increase the size of the market overall and provide private operators access to these large residential markets.

Conversely, there is an increased focus on protecting and preserving the environment, leading to governments and corporations implementing reduced and zero waste policies and mandates, which lower the amount of waste created and result in a decreased demand for waste management services. Zero waste refers to designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury waste.[22]

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[19] Britannica, "Hazardous Waste Management" (n.d.), https://www.britannica.com/technology/hazardous-waste-management/Treatment-storage-and-disposal

[20] Nathaniel Leach, IBISWorld Industry Report 56291CA, Remediation & Environmental Cleanup Services in Canada, Toxic Waste: Rising Industrial Activity and Demand from Mining and Energy Will Support Revenue (August 2018).

[21] Leach, June 2017.

[22] What is Zero Waste?; Available at: https://www.rcbc.ca/resources/zero-waste?gclid=CjwKCAjw7_rlBRBaEiwAc23rhvQBaUU6xrmbcTG2cQYzpS13UfuzAwMuP3OVU2ZMo4vYc-UKfTMPIBoCQEcQAvD_BwE

Competitors

Overall, the industry is in a mature stage, except for the recycling, organic waste, and hazardous waste collection and treatment segments, which are in a growth phase. The location and concentration of competitors depends on the number of local residents serviced for municipal customers and the number and type of commercial and industrial customers and their commitment to recycling. There are about 1,500 businesses in the industry, and the two largest companies have over 30% of the market share. It is expected that the number of operators will increase by 4.1% annually to 2022.[23]

Although some municipalities have privatized their waste collection by contracting with private operators, most continue to have their own agencies to manage waste. Municipally owned operators have access to tax-exempt financing and tax revenues. However, private operators tend to be more efficient because they use updated vehicles and facilities. As municipalities continue to look for ways to reduce costs, privatization or public-private arrangements will increase, giving private operators access to these large residential markets.[24]

The industry has moderate barriers to entry, since it is highly regulated and capital intensive.[25] A large upfront capital investment is required,[26] with the investments being technology-driven in some segments, such as recycling and landfill sites. Regulations can differ between municipalities and provinces, changing the type of waste collected and how it is processed. Companies must also comply with environmental regulations ensuring that air emissions, dust, and odour are within acceptable levels. To build new facilities, such as waste transfer stations, recycling plants, and landfill sites, the government must approve the facility location, design, and specifications on how the waste will be received, processed, stored, and disposed of. It is also difficult for new participants to enter into the local market when the existing operators are already entrenched with long-term customer contracts, which are critical for success in the industry.

Operating profit margins for the industry are expected to decline over the next several years, due to higher fuel and wage costs.[27] Fuel costs are expected to continue to increase. Operators compete on price and quality of services. Prices are set locally and vary depending on a number of factors, such as collection frequency, type and volume of waste, distance and cost of disposal, local wage rates, waste treatment requirements, and amount and type of equipment (that is, waste containers) provided to the customer.

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[23]"Leach, June 2017.
[24] Ibid.
[25] Ibid.
[26] Ibid.
[27] Ibid.

Effectively managing fuel, disposal, and regulatory compliance costs is critical for success in the industry, as are increasing efficiencies, offering competitive pricing, and building strong customer relationships. Other critical factors are:[28]

- having transfer stations and facilities closer to large populated regions or commercial customers (such as mines and oil and gas producers) to reduce fuel costs
- designing effective and efficient collection routes
- specializing in one type of waste disposal or providing a variety of other services
- vertically integrating to include collection, transfer, recycling, and landfill sites to reduce overall costs and have an advantage when quoting on new contracts; by using their own facilities, these integrated operators avoid paying higher fees to third parties, which results in higher overall margins
- consolidating to achieve lower costs, vertical integration, and lower capital expenditures
- increasing use of automation to reduce reliance on labour, such as automated single or driverless collection trucks, robotics for sorting and dismantling, and drones to survey landfill sites[29]
- investing in up-to-date technology to continually improve efficiencies and reduce labour input costs
- using data analytics, particularly for fleet management and customer information
- achieving strong local and government support for the various waste management programs, such as recycling
- focusing on reduction of GHG emissions and other environmental initiatives

Technology

Technology has been used throughout the industry to lower operating costs and expand into new product and service areas. Technology advancements in automated collection trucks has reduced the number of drivers required to operate each truck from two to one. At landfill sites, technology has been used to capture the biogas created from decomposition, and drones are being used to survey sites.

Technological improvements have also played an important role in the success of the processing facilities. Automation (including robotics) can now be used on unsorted waste to break bags, separate the recyclables from nonrecyclables, and separate the recyclables by size and weight. These advancements have made the recycling industry more capital intensive for the larger facilities, increasing their efficiencies.[30] Technological improvements can also enable recycling operators to become specialized

[28] Ibid.
[29] Planet Paper Box Group Inc., "6 Waste and Recycling Trends to Watch in 2017," April 24, 2017, https://www.planetpaper.com/6-waste-and-recycling-trends-to-watch-in-2017/
[30] Diment, March 2017.

in different types of recyclable materials, which require special processes to be recycled or further broken down.

Companies are also increasingly using data analytics for fleet collection route optimization, to increase driver and route efficiencies. Data analytics can also be used at the residential or commercial customer level, to review the type and nature of waste collected by each customer, and to provide detail on when bins are full, waste volumes collected by time of year, and the amount and volumes of different types of waste. This data can then be used to predict when containers need to be picked up, how capacity at the recycling facilities will be used, and whether new products and services should be offered.

Industry strategies to improve operating margins

- Looking for alternative recycling processes, such as gasification or deconstruction, to decompose more complex flexible plastics and coffee cups and black plastic packaging. These highly specialized services generate higher margins.
- Diverting organic waste from landfill sites in order to benefit from the higher selling prices of compost.[31]
- Expanding and innovating into services such as environmental consulting services. Consulting services are not generally awarded on price but more on reputation and type of services to be provided. There is a growing market for environment consulting work as more companies and municipalities try to deal with increasing environmental protection laws.
- Dealing with the oversupply of recycled materials due to low demand by:
    - advising customers that they will no longer accept contaminated waste
    - renegotiating customer contracts to charge an extra fee for recycling the waste
    - upgrading sorting and processing methods to ensure cleaner output at lower costs[32]
- Shutting down recycling plants temporarily until prices increase sufficiently to cover operating costs and generate profit.[33]

Company background

WDI was established by Kevin Simmons in 1986. Kevin, an engineer, worked for a variety of companies that specialized in waste disposal before deciding to start his own waste management business, along with his father, Leonard Simmons. WDI purchased

[31] Bob Weber, "Canadians Creating More Waste and Lack Co-ordinated Way to Deal with It: Report," *The Canadian Press*, March 9, 2018, https://www.ctvnews.ca/sci-tech/canadians-creating-more-waste-and-lack-co-ordinated-way-to-deal-with-it-report-1.3836304
[32] Frances Bula, "China's Tough New Recycling Standards Leaving Canadian Municipalities in a Bind," *The Globe and Mail*, January 9, 2018, https://www.theglobeandmail.com/news/national/chinese-ban-on-foreign-recyclables-leaving-some-canadian-cities-in-the-lurch/article37536117/
[33] Helman, 2016.

four trucks and hired some drivers, initially providing subcontract work for larger collection operators. The company provided trucks and drivers as required during peak times of the year and holidays, and on special contracts, operating out of its first collection centre, which acted as a hub for the collection activities (containing the bays for the collection trucks, employee lockers and other staff areas, storage area for the waste and recycling bins not in use, and so on). Over the years, the company continued to add to its fleet, and in 1990, WDI obtained its first corporate contract for waste collection. In 1991, Leonard retired, selling his shares to Kevin, who then became the sole shareholder of the company. Kevin believed in the importance of providing excellent customer service in helping customers manage their waste, with a focus on protecting the environment and staying at the forefront of relevant technology developments, and he managed the company with these goals in mind.

By 1993, the company had its collection trucks on the roads five days a week, opening another collection centre, and when a local landfill site and transfer station became available for sale, Kevin decided that it might be best to integrate these services to avoid the high tipping fees WDI had to pay to third parties. This expansion provided WDI with the cost-effective means to offer its services to municipalities, and in 1995, the company received its first municipal contract for a small rural municipality.

During the next 10 years, Kevin grew the company and opened another collection centre and transfer station and built a new landfill site in western Nova Scotia. In 2005, WDI built its first recycling plant, allowing the company to offer a full range of disposal services to its customers. A second recycling plant was opened in 2008.

During 2011 and 2012, WDI opened a division in New Brunswick, which included two collection centres, a transfer station, a landfill site, and two recycling plants. Laura joined the company in 2013 and was given responsibility for managing some of the Nova Scotian operations, including collection, a transfer station, a landfill site, and a recycling plant.

In November 2018, Kevin became ill and had to cut back on his working hours. As his health deteriorated, Laura took on more responsibilities for managing and overseeing the operations of the company, and she hired Brian Leung to help her manage the financial and accounting aspects of the company. Brian previously worked for a large global waste management company in British Columbia but had moved back to Nova Scotia to be close to his family.

In September 2019, Kevin died and Laura inherited all of his outstanding shares in WDI, becoming the sole shareholder. Since Kevin had been responsible for negotiating customer contracts and being the face of the company, WDI initially struggled without his expertise. Given the deteriorating financial results, REC Bank refused to renew a loan that was maturing in February 2020, as it considered the risk of default too high without Kevin. Laura began looking at various ways to refinance this debt. In speaking with Brian about these concerns, Brian suggested that Kingsley might be a good fit.

Brian had a close friend who had worked with Jack Kingsley and had spoken very highly of him.

Laura contacted Jack Kingsley in November 2019, and Jack stated that he was interested in pursuing a possible investment. After many meetings and much due diligence, including reviewing WDI's operations and financial statements, Jack offered $10,000,000 in return for 75% of the company. Laura felt this was too high an ownership percentage, and she negotiated an agreement to issue 600,000 common shares representing 60% ownership to Kingsley for $10,000,000. The sale was completed in February 2020. Three key conditions related to the shareholder agreement were:

1. Kingsley can purchase up to 600,000 non-voting preferred shares for $15.00 per share. The preferred shares would have a cumulative dividend rate of 10% and be convertible on a one-for-one basis for common shares, at the option of Kingsley. Any dividends in arrears would have to be paid prior to conversion.
2. The board of directors would be made up of four directors, with Kingsley having two representatives. Laura and one other person of her choice would be the remaining directors.
3. Kingsley would be a hands-on investor. There would be regular meetings and reviews, and total involvement in all management and board decisions related to strategy, operations, and finance.

Company overview

WDI currently has four recycling facilities, three landfill disposal sites, three transfer stations, and five collection centres, located in Nova Scotia and New Brunswick, with its head office in Halifax, Nova Scotia. WDI's operations and facilities are all located close to its existing customers. WDI's recycling facilities can process OCC, mixed paper, and glass, but do not have the capabilities to recycle polyethylene terephthalate (PET plastic) beverage bottles and jars or aluminum. WDI does not offer organic or hazardous waste disposal services.

WDI has corporate (both commercial and industrial) and municipal customers, each representing about 50% of the company's revenues. WDI has a good reputation with its customers, providing reliable and responsive service, and most continue to renew their contracts with WDI as they come due.

When companies' or municipalities' waste management contracts expire, they generally request proposals from three or four selected waste management companies, which they review before making a decision. Although WDI is almost always on this selected list and wins the contract for its existing customers, it has not been successful winning the contracts of new customers. These new customers are often looking for recycling services that include recycling of PET plastics and aluminum, and disposal of organic waste, which WDI cannot provide in house. Since WDI must subcontract out these services, it increases WDI's operating costs, resulting in WDI's quoted bid prices being higher than its competitors'. WDI's existing customers are not yet requesting these additional services because they have not made the move to collect these more specialized types of recyclable waste; however, it is likely they will expand to collect these recyclables in the future. With no new customers, total revenues have been stagnant and recycling revenues have declined over the past few years.

Corporate vision and mission

WDI's vision and mission statements were written by Kevin and Laura in 2014 and are as follows:

Vision statement: *To be a premier waste management company while meeting the needs of our customers, employees, local communities, and the environment.*

Mission statement: *We are waste disposal experts providing collection, disposal, and recycling services to our customers, using environmentally responsible and sustainable methods and leading-edge technologies.*

Corporate values

WDI's core values are to:

1. Operate safely and in compliance with all safety regulations.
2. Act with integrity and honesty in an ethical manner.
3. Treat employees with respect and ensure they are adequately trained and fairly compensated.
4. Provide customers with effective and efficient service.
5. Stay up to date with waste disposal technologies and educate customers on waste disposal alternatives.
6. Promote sustainable practices within the company.

These core values are posted at each of the locations where WDI operates. New employees are informed of the core values when they are hired, and they receive a manual of the company procedures and values. In December 2019, before Kingsley became an investor, the company added the sustainability practices to its core values.

Future plans and objectives

In February 2021, due to declining profits and changes in the industry, the board decided it must complete an in-depth review of its current strategy and assess possible alternatives for the future. The board has set the following objectives for 2021 and 2022:

- Improve the total operating profit margin to 9%, to be more in line with competitors.

- Improve the recycling division's operating profit margin to at least 5%, to be more in line with competitors in this segment.
- Increase annual free cash flows by at least $1,700,000, as compared to the free cash flows generated in 2020, to increase shareholder value; free cash flows are operating after-tax cash flows less annual sustaining capital investments; the annual sustaining capital investment is $7,000,000.
- Lower GHG emissions by 10% or increase the avoidance of GHG emissions by 10% (WDI needs to reduce GHG emissions by at least 30% and increase recycling volumes by 40% to be in line with leading competitors in the industry).

Jack and Laura disagree on the best way to achieve these objectives. Jack believes that WDI, due to its size, cannot match the prices that competitors are bidding on new contracts. His objective is to reduce costs as much as possible to achieve improved margins. Jack wants to remain in the traditional segments of the market to appeal to a strategic buyer that would be interested in purchasing the company for its long-term contracts in Nova Scotia and New Brunswick. Jack wants to increase WDI's profits as quickly as possible and sell the company by 2025. Kingsley's investment strategy has been to sell off poor-performing divisions of the companies it has invested in and to cut personnel, in order to improve profits. From preliminary research, it appears that many of the companies that would be ideal candidates for a future acquisition of WDI value social responsibility and strong corporate governance, along with robust profits.

Laura agrees that WDI cannot compete on price but believes that it should instead enter new segments of the industry that require specialty skills, where higher margins can be achieved and competition is not based on price. She is not interested in selling her shares and would ideally like to buy Kingsley out in the future, if she can, by attracting another strategic investor whose objectives are more aligned with hers. Therefore, she would like to position the company to appeal to a private investor who is more interested in the emerging segments of the industry. Laura has been in industry for many years and can see trends emerging that she believes WDI should capitalize on. Unfortunately, some of these new service areas require significant initial capital investments for which the company will have to find funding.

Company structure

The board of directors consists of four directors, as required by the Kingsley agreement. The board meets at least monthly and is responsible for management and board decisions. Kingsley's representatives bring a very meticulous approach to managing the company by strictly analyzing weekly and monthly reports, along with attending the board meetings. Laura's role is to manage the day-to-day operations of the company in accordance with board decisions.

The current directors are:

Laura Simmons — chief executive officer (CEO): Laura has a chemical engineering degree with a specialization in environmental studies. She worked for a variety of waste management consultants for eight years before joining WDI. Her strengths are in understanding the technical side of waste management and assessing potential future opportunities for technological innovation. Laura has a long-term focus. The business has been in her family since 1986, and she is committed to seeing her father's vision fulfilled. She wants WDI to have a reputation for being at the forefront of protecting the environment while helping customers manage their waste. To achieve this, Laura believes WDI should invest in leading-edge technologies.

Brian Leung — chief financial officer (CFO): Brian has an MBA, and before joining WDI he worked in the finance and business development departments of a global waste management company. Brian is responsible for finance, accounting, and human resources. Having worked with Laura since 2018, Brian sees a lot of merit in her viewpoints. He shares her goals and vision for the future of WDI but is in favour of cautious growth where investments are made when cash flows are available. He thinks there is a lot of potential for the company to grow in some of the non-traditional segments. Brian would be interested in investing in the company if, and when, Laura manages to buy out Kingsley.

Marlene Rubes — chair of the board and representative for Kingsley: Marlene has a business management degree and, prior to working at Kingsley, managed a multi-million dollar public company. Marlene has worked at Kingsley for 15 years and has a lot of experience improving the profits of companies to make them attractive for sale. She has turned around five trucking companies and believes many of the same principles can be applied to WDI. Marlene is looking for improvements that will immediately increase short-term profits. Her goal is to increase the value of WDI in a short period of time and ready it to be sold to a strategic buyer.

Robert Manning — representative for Kingsley: Robert has a PhD in chemical engineering. He worked in research and development (R&D) in the plastics industry before joining Kingsley three years ago. This is his first time being a representative for the company on a board and actively participating in making decisions. He has a strong personal belief in practising sustainability and protecting the environment. He specifically requested to work as part of the team on this investment because he wanted to see how these particular values could exist in a corporation where profits are often a more important consideration.

Management team

In addition to Laura and Brian, WDI's corporate management team includes the following individuals:

Josefina Angles — chief legal officer: Josefina is responsible for drafting and finalizing all contracts and for ensuring compliance with all levels of government regulations, including safety, environmental, and waste disposal. Josefina has been with WDI for 10 years. She worked at a large legal firm specializing in environmental law before joining WDI. Josefina is very interested in sustainability and has been pushing the directors to be more proactive in adopting sustainable practices. As a result, in June 2020, she was given the added responsibility of preparing the company's sustainable policies and overseeing their implementation and monitoring.

Peter Zhang — vice-president operations: Peter has been with WDI since 2005. He started as a truck driver and made his way up the ranks of the company. Peter is responsible for overseeing all the collection, transfer, recycling, and landfill operations. He has four direct-report managers representing each division. Peter is well respected by all levels of employees and constantly interacts with them. He is a hands-on manager who regularly visits and periodically works at different levels of the company to keep in touch with what is going on. He treats all employees with respect and as equals, and has an open-door policy where any employee can come in to discuss concerns.

Nigel Blackmore — chief digital officer: Nigel is responsible for all information technology systems currently used, as well as remaining at the forefront of technology used by waste management companies. He has been trying to convince the directors to gather more data to be used for analytical purposes. Last year, WDI installed route optimization software to determine the most efficient routes to use for waste collection. This route optimization, along with starting to convert the trucks to natural gas, has resulted in reduced operating costs for the division. Nigel believes that there are many other areas where data analytics could be useful to the company, especially in analyzing and tracking where different types of waste come from, which will help to assess how best to dispose of it. Laura and Brian have encouraged Nigel to bring any possible ideas forward for review and discussion.

An organization chart is provided in Appendix I.

Human resources

WDI's workforce is allocated by department as follows:

	Senior management	**Management and supervisors**	**Other full-time employees**	**Total**
Collection	-	7	153	160
Transfer stations	-	5	16	21
Landfill	-	6	23	29
Recycling	-	5	29	34
Sales and administration	5	2	5	12
Total	5	25	226	256

The company hires locally and promotes from within. The average wages per year are as follows: waste collection drivers: $42,000; transfer station operators: $42,000; landfill operators: $55,000; recycling employees: $35,000; and sales and administration: $45,000. Wages for managers and supervisors range from $55,000 to $150,000, with the average being $70,000 annually.

WDI has tried to keep the number of employees low at both the transfer stations and the landfill sites. Consequently, when additional staff is required in these divisions, drivers from the collection division are temporally reallocated to assist with the shortage. This enables employees to become highly trained on various types of equipment and gives them the opportunity to learn and be exposed to other jobs within the company. This prevents boredom on the job and gives the company flexibility in covering employee vacations and sickness.

Throughout the industry, employers find it difficult to attract employees because of the negative stigma attached to working with waste and its unpleasant smell. In addition, the work is gruelling, at times requiring 50- to 60-hour work weeks, and is very physical. As a result, companies want to retain good employees and do so by paying good wages and providing excellent benefits. Wage rates typically increase annually. WDI provides benefits for life insurance, and medical and dental coverage for all levels of employees, which employees become eligible for after three months of employment. The costs of benefits have risen over the past three years and now represent about 25% of the wages and salaries paid. On average, employees stay with WDI for 12 years. Turnover rates within WDI are very low.

Company operations

Currently, WDI has $81 million in revenues and net earnings of $2 million.

Revenues

The company enters into long-term contracts with its customers to collect, transfer, and dispose of their waste, to either the recycling plants or the landfill sites. WDI provides pickup and transportation of waste and recyclable materials for commercial and industrial customers and for municipalities. For commercial and industrial customers, WDI has five-year service arrangements. WDI’s containers are provided to these customers for waste accumulation, and these containers can be lifted and emptied mechanically using single-driver trucks. For municipalities, WDI has contracts for 10 to 15 years, which provide WDI exclusive right to pick up waste at all the residential homes in the jurisdiction.

<u>Collection</u>

WDI has five collection centres, from which it operates to collect waste and recyclables from its commercial, industrial, and municipal customers, and transport them to WDI’s transfer stations. The collection fees included in WDI’s bid proposal and ultimately charged to customers depend on the required frequency of pickup, type and volume of waste collected, type of equipment used to pick up and transport, and distances travelled. There is also a fuel surcharge built into the contracts that varies based on fuel prices and allows WDI to pass on some of the fuel price increases to the customer. This is a common practice in the industry.

Transfer stations

The transfer station tipping fees charged at the transfer stations are based on type, volume, and weight of the waste deposited and the distance to be transported to the final disposal site, which is either a recycling plant or landfill site for WDI's operations. WDI also receives fees from non-contract customers that periodically use WDI's services.

Landfill sites

The landfill site tipping fees depend on the type and weight or volume of waste deposited. The landfill sites also receive fees from non-contract customers. Unlike many competitors, WDI does not capture any biogas that could be used as fuel internally or sold.

Recycling

WDI's recycling plants receive the recyclable material from the transfer stations, where it is then processed to recover mixed paper, OCC, and glass for resale. WDI does not recover plastics or aluminum, as its customers have not yet started to separately recycle this material. Any recyclable materials that WDI collects that cannot be recycled in its own facilities must be sold to subcontracted facilities, who then recycle it themselves. WDI may also periodically directly purchase materials from third parties, outside of its existing collection contracts, to be processed in its recycling facilities to use excess capacity.

The revenue earned from recycling represents the proceeds received on sale of these recycled materials.

Overall

WDI's contractual fees are allocated to collection, transfer, and landfill sites revenues and costs for financial reporting purposes. WDI is locked into its existing contracts, and there is no room for renegotiation of collection fees, volumes, or rebates at this time.

Over the period 2018 to 2020, revenues from collection, transfer stations, and landfill sites increased because of contract renegotiations with existing customers and fuel surcharges. Landfill site revenues also increased in 2020 after WDI accepted waste from two competitors that had reached their limits on the available capacity of their landfills. These two operators have since entered into long-term contracts with a national competitor to use its landfill sites for disposal. Although WDI submitted a bid for these contracts, its price was too high in comparison to its competitors' prices to win the contract. Landfill tipping fees are expected to decrease in the future.

Recycling revenues decreased, because the revenue for mixed paper, OCC, and glass depend on the selling prices of these recycled materials, which declined. There is no expected increase in the selling prices of these goods in the foreseeable future.

Cost of goods sold

Cost of goods sold (COGS) relates to the recycling division, as it is the only division that sells goods. It includes materials used in the processing of recyclable material; labour; plant operating costs such as utilities, repairs, and maintenance; allocated overhead; and amounts paid to customers (rebates) and other third parties for the recycled materials.

Rebates may be paid back to customers for all materials processed, as either a fixed price per tonne or a fixed percentage of the selling price of the recycled materials. The rebate should ideally vary with the prevailing selling price of the recycled materials and the costs to recycle the materials. WDI has always tried to tie rebates to net operating profit, with the rebate equalling the sales price less costs plus a reasonable profit, but it has had to commit to fixed prices per tonne on its current contracts to ensure a competitive bid.

The 2020 selling prices for recycled materials, volumes, and rebates are summarized below:

	Average 2020 price per tonne processed	Contractual rebate per tonne	Waste received (tonnes)	Total sales	Total rebates (included in COGS)	Variable costs per tonne	Total variable costs
OCC	$119.00	$50.00	59,550	$7,086,450	$2,977,500	$15.00	$ 893,250
Mixed residential paper	$ 1.90	$ 1.00	101,000	$ 191,900	$ 101,000	$ 2.10	$ 212,100
Glass	$ 0.50	$ 1.00	39,700	$ 19,850	$ 39,700	$ 1.92	$ 76,224
				$7,298,200	$3,118,200		$1,181,574
					Total variable costs:		
					COGS, per F/S		$4,300,000
					Less rebates		–$3,118,200
					Total	Note	$1,181,800

Note: Slight differences in total variable costs due to rounding.

Other operating costs

The main types of costs included in other operating costs are utilities, repairs and maintenance, subcontractor costs, building costs, and other small miscellaneous items.

Property, plant, and equipment

The company owns its own land, buildings, vehicles, containers, machinery, equipment, and furniture and fixtures. This contrasts with its competitors, who tend to have a proportion of their buildings or vehicles under operating leases.

During the year, the company upgraded 5% of its vehicles to natural gas. The remaining 95% still operate on diesel fuel.

The company has not invested in any new technology at its recycling plants. The facilities still sort the collected waste by hand. All capital investment has been spent to upgrade vehicles to natural gas and single-driver units and to replace worn-out earth-moving equipment at the landfill sites. Overall, investment in new technological improvements has lagged behind competitors.

Landfill sites

The capacity of each landfill site is set by the permit obtained when the site was originally constructed. WDI is required to return the land back to its original state once it is no longer being used as a landfill. In addition, the company must continue to monitor the site for water and air pollution, as well as maintain it, until there is no longer a risk of contamination.

Sales and marketing

The company has limited sales and marketing costs because most of its revenue is derived from long-term customer contracts. The sales department generally deals with any customer-related issue and helps prepare proposals for new contract submissions. Prior to 2020, the company sent out regular newsletters to customers providing educational material on recycling methods, technologies, and leading trends on waste management. This practice was discontinued once Kingsley became a shareholder, and the related staff were laid off. The company has a website that has not been kept up to date and is not interactive or informative for potential customers.

Sustainability

In late 2019, the company added sustainability to its core values, after Laura attended a waste management convention and realized how behind the company was in these practices in relation to its competitors. During 2020, the company set up a sustainability committee, which currently includes Laura, Brian, Josefina, and employee representation from the collection, landfill, transfer, and recycling divisions. This team sets the goals for the company's sustainability program and is responsible for educating the employees on sustainability; measuring, monitoring, and reporting on progress; and creating a culture of sustainability throughout the company.

WDI's sustainability program has the following objectives: lowering GHG emissions, increasing avoidance of GHG emissions, increasing the volume of recycled materials, increasing use of non-fossil renewable fuels such as natural gas and biogas, reducing water usage, and increasing wildlife habitat surrounding landfill sites.

The company's sustainable policies are summarized below:

1. Any strategic initiative should ensure that it contributes to and improves on sustainability performance metrics.
2. Sustainability performance metrics should be included in management's annual performance targets, which will help to hold management accountable for achieving these targets.
3. All employees should be encouraged to review existing processes. Bonuses and rewards should be tied to relevant suggestions for improvement.
4. As changes are adopted, these should be communicated and celebrated throughout the company. Monthly reports should be sent to all employees, including information on what other companies are doing and successes within the company.
5. WDI should actively partner with local suppliers to get help with initiatives that the company could take.

As a result of these policies, the company started to invest in upgrading its vehicles to natural gas in 2020 and plans to continue these upgrades in the future.

Banking and financing

The company's cash balance of $120,000 is the minimum amount that must be maintained to meet normal operating expenditures. There is no excess cash on hand.

WDI repaid its loan to REC Bank in 2020 and has one line of credit and one secured term loan remaining, both with GBI Bank Inc. (GBI), as described below:

1. Line of credit: The line of credit is secured by the accounts receivable and has a maximum limit of $5,000,000. The loan bears interest at prime plus 2% (prime is currently 2.5%). The line of credit cannot exceed 50% of the balance in the accounts receivable. Earnings before interest and taxes (EBIT) to interest cannot be less than

1.8. The line of credit is renewed every two years. The next renewal date is September 2022.

2. Term loan: The term loan is secured by the property, plant, and equipment. The loan is repayable in annual principal payments of $4,000,000, due in January of each year, and bears interest at 6.5%. The loan matures in 2033. In early January 2020, GBI added a debt covenant to this agreement that requires the total debt-to-equity ratio not to exceed 3.5. There are no excess funds available under this loan.

Financial reporting

WDI prepares its financial statements using ASPE, and both GBI and Kingsley require audited annual financial statements. Casten & Co. LLP (CC) have been the company's auditors since 2004. CC is a regional CPA firm with offices in Halifax, Nova Scotia, and Saint John, New Brunswick. Currently, the auditors are working on the 2020 year-end audit for completion by March 23, 2021. WDI's financial statements are provided in Appendix II, with segmented information in Appendix III. Industry benchmarks are provided in Appendix IV.

Property, plant, and equipment

Property, plant, and equipment is amortized on a straight-line basis over the estimated useful life. The net book values related to the classes of property and equipment, as at December 31, 2020, are as follows:

	Net book value (in C$'000s)	**Estimated useful life**
Land	$ 2,080	
Landfill sites	25,121	15-55 years
Buildings	12,960	40 years
Vehicles	21,735	8 years
Containers	8,400	10 years
Machinery and equipment	11,840	15 years
Furniture and fixtures	2,170	7 years
Total	$84,306	

Landfill sites

The costs to develop the landfill sites are capitalized and amortized as the sites are used. The estimated remaining useful life for each landfill site is based on the remaining permitted capacity, probable expansion capacity, and projected annual disposal volumes. The useful lives range from approximately 15 to 55 years, with the average being approximately 32 years.

Once capacity has been reached, the site must be capped, monitored, and maintained to comply with government regulatory requirements. WDI is required to return the land of the landfill site back to its original state once it is no longer being used. As waste is deposited in the landfill site, the obligation to remediate the land back to its original state is created. These asset retirement costs are initially estimated and are reviewed annually for any changes in estimates or regulatory requirements. The remediation costs are actually incurred once the landfill has reached its capacity.

WDI hires outside environmental consultants to frequently test the sites for contaminants and estimate future retirement costs. Because there are many assumptions required to estimate these costs, the outside engineers' report usually provides a range of reasonable estimates. The most recent report was as follows:

- Low end of the range: $5,000,000 on initial closure in year 20, and then $500,000 annually for 15 years.
- High end of the range: $11,000,000 on initial closure in year 20, and then $350,000 for 25 years.
- All costs should be discounted using a rate of 7%.

Historically, WDI has used the high end of the range to estimate the asset retirement obligation. Marlene would like WDI to now use the low end of the range to calculate the liability to be reported at December 31, 2020. The unaudited balance has been adjusted for accretion only.

Board meeting dialogue

The board met on February 5, 2021. Prior to the meeting, a briefing was distributed to the board members on the four new projects that had been discussed at earlier meetings: building an organic waste treatment facility (Appendix V); providing environmental consulting services (Appendix VI); closing or updating the recycling plants (Appendix VII); and investing in Pristine Research Inc., a hazardous waste cleanup and research company (Appendix VIII and IX).

The meeting's agenda was announced as follows:

1. Consider the four proposed investments.
2. Discuss any other business.

Excerpts from the discussions that took place are detailed below.

Marlene: Based on our industry research, it appears that national waste management companies are now looking to expand into Nova Scotia and New Brunswick and enter these smaller markets that, until recently, have been largely ignored. In order to be eligible to bid on local municipal contracts, we have to maintain our collection, transfer, and landfill site operations, as having these integrated operations is a requirement of the municipalities that we operate in. With these constraints in mind, let's look at which alternatives would position WDI for possible acquisition by a competitor.

Laura: Before we begin, I want to voice my concerns and repeat that I am not in favour of selling the company in the short term. We should be looking at becoming more innovative and providing new emerging services to try to differentiate ourselves and maintain a competitive advantage.

Marlene: Let's not argue about this now. Instead, I want to discuss each of the alternatives that have been suggested. Brian, I think you have some information on the organic waste treatment facility?

Brian: Yes, as you know, our municipal customers are now being encouraged by their respective provincial governments to separately collect organic waste and divert it from landfill sites, beginning in the next few years. We have been approached by a consortium of six municipalities to enter into a public-private partnership (PPP) agreement to build and operate an organic waste treatment facility.[34,35] I have prepared a summary of the agreement (Appendix V), which the municipalities have indicated is non-negotiable, and some early estimates of the numbers.

Laura: Of the six partners, only four are currently our customers. This partnership may provide us with an opportunity to attract some new customers for our other collection and disposal services. Our competitors already offer organic waste treatment, and so we risk losing the existing four municipal contracts entirely when they come up for renewal if we are not able to provide this service.

Marlene: We would need to make a very large capital commitment, and I am not sure that now is the time to take on a risky project like this. It seems to me that most of the contract conditions in the PPP arrangement favour the municipalities and give us little room to manoeuvre. A potential buyer may view this long-term contract unfavourably and discount our share value accordingly.

Brian: We will be losing some current tipping fees to our landfill sites if we proceed with this proposal, without any related reduction in our annual costs to operate the landfills. The lost tipping fees will represent approximately 10% of the annual user fees to be received from municipalities for the new organic waste collection and processing. If we don't pursue this opportunity, then our tipping fees are expected to stay the same for the foreseeable future.

Robert: But this is a trend that we must accept; it is likely that eventually all organic wastes will have to be diverted from landfill sites and treated separately. We might as well start now when the municipalities are willing to finance the significant costs for the land and building.

[34] Market Business News, "What Is a Public-Private Partnership? Definition and Meaning" (n.d.), https://marketbusinessnews.com/financial-glossary/public-private-partnership-definition-meaning/
[35] World Bank Group, "Concessions, Build-Operate-Transfer (BOT) and Design-Build-Operate (DBO Projects," (2018), https://ppp.worldbank.org/public-private-partnership/agreements/concessions-bots-dbos

Laura: I agree with Robert. We have already adopted sustainable practices, and this treatment facility allows us to reduce GHG emissions by treating the organic waste separately and using the biogas as an alternative fuel, which aligns with some of our sustainability goals and objectives. As well, we know that many potential buyers value sustainability, so pursuing this option may increase WDI's attractiveness to them.

Brian: However, I am very concerned about the agreement having stringent quality specifications and the municipalities' ability to impose penalties if the specifications are not met. It is not clear what the requirements are or how often monitoring will occur.

Marlene: Yes, and what about losses? The agreement states that profits will be shared, but there is no mention of losses. Does WDI bear the cost of 100% of any losses? If so, it will be our responsibility to ensure that costs are maintained so that profits can be earned at the fee levels set by the municipalities.

Robert: I am certain we can work with the municipalities to ensure that no losses are incurred. As our partner, I think they would agree to increase the fees, if needed.

Marlene: There are two other areas that concern me. First, what happens when new municipal councils are elected? Do the terms and conditions of this agreement continue to apply, or can the new officials change the terms? This has already happened in the past with some of the contracts we have had with municipalities. Second, the contract is non-transferable. If we are looking to sell in the near future, there is the risk that municipalities might decide not to continue the arrangement with the new owners, which further reduces our value to a potential buyer.

Laura: I strongly support entering this agreement and adopting these new advancements in waste disposal as long as we can earn a return of 10%. If we don't accept this proposal, the municipalities will offer the arrangement to other competitors and we could lose our four existing customers.

Marlene: Okay, well, let's move on to the next proposal, which is to create an environmental consulting services division. Laura, do you have some further information on this?

Laura: Yes. Thom Lancaster from Eastern Environmental Consulting Inc. (EECI), our engineering consultants, approached me about the possibility of WDI adding an environmental consulting division to its operations. He said EECI is being bought by a large global company, and he felt that there would be an opportunity for a small, niche company to service local clients at competitive prices.

Brian: I think this is a great idea. Thom has a great reputation, as do the other employees he hopes to bring with him to our firm. The margins are very good in the consulting business — better than our existing businesses. There is the opportunity to sell environmental consulting as well as even more innovative services to our existing customers. For example, we could work with our commercial and municipal customers to help them reduce waste.

Marlene: It takes time to build a consulting practice and, in the meantime, our profits and free cash flows won't be improving, which will reduce our share value.

Laura: One other thing to consider is that right now we earn new annual revenue from customers that have been referred to us from many different consulting firms. We might lose those referrals if WDI is seen as competing with these other consulting engineering firms.

Robert: It would be very valuable to have this up-to-date knowledge in house. The engineers will have to stay abreast of all new developments in environmental remediation and waste reduction, which could benefit WDI's other operations. We would probably lose about $600,000 of annual net margin before tax from the other divisions due to lost customer referrals, but I am sure the savings we could achieve from not using any external consulting services would more than compensate for this. We would also refer our consulting customers to our other divisions and earn additional revenue.

Marlene: The consulting business has higher legal liability risk. Possible negligence or errors could result in large dollar losses. And the revenue and profit levels are volatile, since contracts are not long term and stable, unlike those in our current operations.

Laura: The consulting industry is also getting more competitive, as evidenced by the recent acquisition and consolidation of EECI. If we were to create our own consulting division, EECI might retaliate and go aggressively after its current customers to keep them. We just don't know.

Marlene: And won't the new owners of EECI require key people, like Thom, to sign non-compete agreements for a period of time to ensure that they don't start up a new firm and take the clients? I know I would make this part of the deal.

Robert: With increasing regulations, the demand for these services will only continue to grow, and we should be part of it.

Laura: I am not sure that a small, niche firm like ours will be able to compete against the larger firms that are full-service providers and have a broader geographic scope.

Brian: But Thom has it right — a small, flexible, local firm will be able to provide more competitive pricing and better meet the needs of the local customers. And contracts are not awarded only on price. The engineers' reputation really matters.

Robert: One last point before we leave this topic. As you know, many companies are now responsible for disposing of their products and packaging at the end of their life. If we had a consulting division, we could partner with these companies to find new ways to manage this issue, such as changing the materials that go into the original products or developing innovative recycling processes.

Marlene: Okay. Let's move on. Robert, you have some information on the recycling plants and ideas about how to improve their poor performance.

Robert: Peter and I have been reviewing the predicted selling prices and volumes of recycled materials, and as a result we have developed three options to consider for the recycling division. The first option is to temporarily shut down the recycling plants, likely for a year, until selling prices for recycled OCC, paper, and glass rebound and make the plants more profitable to operate. In the interim, we would sell the unprocessed recyclable materials to other recycling facilities. The second option is to continue to recycle those materials that have a positive contribution margin and sell any other unprocessed recyclable materials. The final option is to continue recycling materials with a positive contribution margin, sell any other unprocessed recyclable materials, and invest in new technology that would enable WDI to also process aluminum or PET plastics. The excess capacity created from selling the unprocessed recyclable material would be used to recycle these new materials.

Brian: The timing still is not right for this investment. We have no excess cash and a lot of debt. The plants still generate a small operating margin, and so it is not logical to sell all of the recyclable materials prior to processing. We should sell whatever makes sense, and not make any upgrades right now. There are plenty of other areas in our current operations where our funds should be used.

Laura: I want to keep the recycling plants open and upgrade the equipment. We have put this investment off for too long, and it is now costing us. If we had made the investment a few years ago, we would probably be in better shape right now, as we would be in a position to process the more profitable materials. I also don't want to lay off any of our staff that we have spent years training.

Robert: I have to agree with Laura. The investment should be made now to add a revenue stream to recycled materials — either aluminum or plastics. We don't have the financing, space, or management resources to pursue expanding into both aluminum and plastics at the present time. Our customers are starting to demand this service, and we will lose out when our contracts are up for renegotiation if we cannot provide these recycling services.

Laura: We will have to consider a number of factors before deciding on whether to process aluminum or plastics, especially with respect to our sustainability program. Did the two of you look into this at all, Robert?

Robert: We have. PET plastics contain 3% recycled material. The energy consumed by using recycled plastic materials in manufacturing ranges from 76% to 90%. Aluminum is twice as dense as PET plastics. Compressed aluminum therefore takes up less space in the collection trucks. Aluminum cans can contain up to 70% recycled material. It takes 95% less energy to recycle aluminum than to extract it for bauxite ore as original material.

Marlene: At this point, we need to make the operational improvements necessary to increase profits while spending as little as possible on new investments. If this means shutting down the recycling plants, we should. To be an attractive target, we need a strong balance sheet with declining debt balances.

Robert: Our analysis of the market shows that over the coming years, aluminum volumes could increase 10% and plastic volumes could increase 15%. Shouldn't we be ready to capitalize on this growth? Conversely, OCC and paper volumes are expected to decline.

Brian: Then maybe we can reconsider this investment next year. For now, we should fix our current recycling segment with as little investment as possible.

Laura: Robert, the upgrades also include improving the sorting and cleaning, correct?

Robert: Yes, we hope that with the upgrades, the recycled OCC is less contaminated and can be sold for a higher price. But we did not incorporate this into our assumptions, since it is still very uncertain.

Brian: Based on my research, if we upgrade to enable PET plastics recycling, then it will be very costly to convert to recycling the flexible and black plastic, which we might soon be interested in doing. It is still too early for the conversion, but it would probably happen in the next three years or so.

Robert: Marlene, any potential purchaser would like to see that WDI has kept up with technology and has other revenue streams that are unique and different from most of the competitors in the area.

Marlene: Perhaps, but a strategic buyer that is larger than us will have the resources to make these upgrades, and at a lower cost.

Laura: That reminds me — the other recyclers of aluminum and plastic are quite a distance from us and not local. This would make us a better option for local customers and provides an opportunity to attract new customers.

Marlene: Interesting point. We should now spend some time looking at our last strategic opportunity, investing in a hazardous waste company. Laura, can you provide us with your information on the possible investment in Pristine Research Inc. (Pristine)?

Laura: Yes. I have spoken many times about my friend Connie, who has a local business here in Halifax that specializes in oil spill cleanup and R&D. Her company, Pristine, has been in business for about 10 years. Connie has won awards for being one of the top 20 entrepreneurs in Canada, and she is well known and respected in the community. She is looking for additional funding, as well as some management support, to help in the final stages of development of a new oil spill cleanup technology. Connie approached WDI first, since I have often spoken to her about my father's vision for WDI to be involved in leading-edge technology.

Robert: While Pristine is well known, with a great reputation, I am still concerned about how risky R&D can be. Based on my experience, it always takes a lot more funds to develop and commercialize a product than initially budgeted. It is very likely that WDI will have to invest additional funds before the new technology is ready for commercialization.

Marlene: Connie expects the new technology to be commercialized in four years, but it could easily take double that amount of time, or even never get to market. I really think we need to stick to what we know best and focus our efforts and resources at improving the current operations of the company.

Brian: I support this investment. I live in Halifax, on the water, and I know this is a very important concern for the local communities we service. We could enhance our reputation for being truly conscientious about protecting the environment by supporting this type of research. We might even be able to attract new customers as our name becomes better known. I also know there is an increasing demand for technology to be able to clean up oil spills as quickly as possible to avoid environmental destruction.

Marlene: I don't really think that a strategic buyer will be interested in paying for this new venture, and it may well detract any buyers. A strategic buyer will be more interested in what the company has to offer to achieve economies of scale, and R&D is just not an attractive business segment.

Laura: Many potential purchasers support social responsibility, and so this investment may increase WDI's attractiveness to them. As well, I strongly believe that this is in keeping with what our vision should be for the company. Since we cannot compete on price, we need to move into areas where customers are not as price sensitive. Contracts for hazardous cleanup are awarded based on reputation and skills more than on price.

Marlene: We have addressed all our concerns about this investment and the other strategic alternatives. Let's now discuss some operational changes that could be made. As you know, the labour and operating costs for the collection division are very high. We could contract collection to Kingsley's trucking company to reduce these costs. Kingsley would charge WDI on a per-kilometre basis. I have gathered some information about this possibility (Appendix X), and I would like SCG to review the information and come up with a recommendation.

Robert: What if we treated our in-house drivers as contractors instead of employees? I heard there could be tax savings for WDI that could also reduce the labour and operating costs. The trucks would continue to be owned and operated by WDI, and the drivers would not be permitted to work for anyone else, as they work with us full-time.

Laura: Yes, but there would also be significant income tax implications for the drivers if they became independent contractors, and I heard there are certain requirements that must be met for us to be able to treat the drivers as contractors. SCG should look at this issue as part of the final report.

Robert: There is another alternative we can use to improve profits in the collection division, without losing our trucks and employees. Our industry trade association just published information on waste generation and management for Atlantic Canada (see Appendix XIII and the accompanying data, contained in the separate Excel workbook labelled "Solid Waste Management - 2006 to 2020 Data"), which may be of help in understanding our local markets. Unfortunately, the format is not particularly user-friendly. With the right data analysis, we may be able to predict the types of recyclable waste that will be picked up from our customers, and how this may change over time. We could use information on the amount and type of waste by customer to manage capacity in all our divisions. I would like SCG to look at the trends in Atlantic Canada and see if they are consistent with the options we are discussing. I would also be interested in hearing any other insights gathered by visualizing the relevant data.

Marlene: Good ideas. Now let's talk about our financing alternatives. I know that Kingsley might be willing to exercise its option to purchase preferred shares, which would result in some additional funds. Laura, are there any other sources?

Laura: Yes, Starlight Capital has also agreed to lend us some funds. I summarized the details of their offer for SCG (Appendix XI), so they can review these alternatives and make a recommendation.

Brian: Moving to another topic, should we prepare a GHG emissions statement that we could give our customers to demonstrate our sustainable practices? We could use the statement to increase our reputation, attract new customers, and maybe even attract new investors and lenders. However, I am not sure what gets included in the statement. I have been provided with a few possible sources to research this further, but have not found the time to do so:

- http://aasc.org.ph/downloads/ED/publications/PDFs/GHG-Statement-Sample.pdf
- https://climatechange.novascotia.ca/cap-trade-regulations

If we are going to release this to the public, we will probably need to attach some sort of assurance report. Perhaps SCG could outline what goes into a GHG statement and the type of report they could issue to provide a reasonable level of assurance.

Robert: Yes. Let's agree to hire SCG to assess these four strategic alternatives and provide a recommendation. They can also address the other issues we discussed, including an estimate of the landfill site obligation and an explanation of the GHG emission statement, as well as any other issues they identify, and incorporate these into their report.

Laura: I agree. We have worked with SCG in the past for financial and tax advice, and they have been very helpful. They are also experienced in our industry. I move that we hire SCG to review the proposals, financing alternatives, and other issues identified, and provide us with a comprehensive report.

Robert: I second the motion.

Marlene: All in favour?

Robert, Marlene, Laura, and Brian: Yes.

Laura: Great. I will put together some additional information on the industry regulations and performance metrics, which may be helpful for SGC in gaining a further understanding of our business (Appendix XII).

Brian: Sorry, there is one very sensitive topic Peter wants us to discuss. Due to the surplus in the market caused by China changing its import rules on recycled material, we had to stockpile a lot of our recycled OCC and paper in 2020. I remind you that this was not included as inventory on our financial statements because we were not sure it would have a positive net realizable value. The surplus is no longer growing and we can sell what we currently recycle, but we must get rid of the excess amount on hand.

We have tried to sell it through our regular markets but have not been able to. We have only two alternatives: (1) to temporarily stop recycling and sell from our surplus, or (2) to divert it to a landfill site. Selling from our surplus would force us to sell the collected waste to other recyclers until the surplus is gone. According to Peter's estimate, the surplus represents six months of recycled materials. We would therefore need to shut down operations for OCC and paper for six months; other recycling operations would continue. Based on the age and deteriorated quality of the surplus recycled materials, I predict we might be able to sell it for $1,340,000. We would not lay off any employees during this time and instead have them work in other areas or do plant maintenance. The landfill site that has the most available capacity right now is the newer one in New Brunswick.

Laura: There is no issue with WDI diverting to the landfills recyclable materials that our customers do not separately sort and that WDI cannot process, such as aluminum and PET plastics, but our customers expect that OCC and mixed paper will be recycled. Will dumping this material appear dishonest?

Marlene: I did not realize the situation was so bad. I would like to get rid of this surplus so it is not there when we have potential buyers coming to visit our operations. It is certainly not illegal to dump OCC and paper in the landfill sites. The provincial laws only require municipalities to attain targets to divert materials from the landfill sites, and that is why they recycle. We still dump some amounts of OCC and paper but not to the volumes that we used to. Before we decide, let's get SCG to outline the issues we should consider. We can decide once we receive their report. I think we better wrap up this meeting then, since I must get back to the office. Brian, I will leave you to contact SCG?

Brian: Yes, I can do that.

Robert: Brian, before we adjourn, I have one other item that I would like SCG to include in its report.

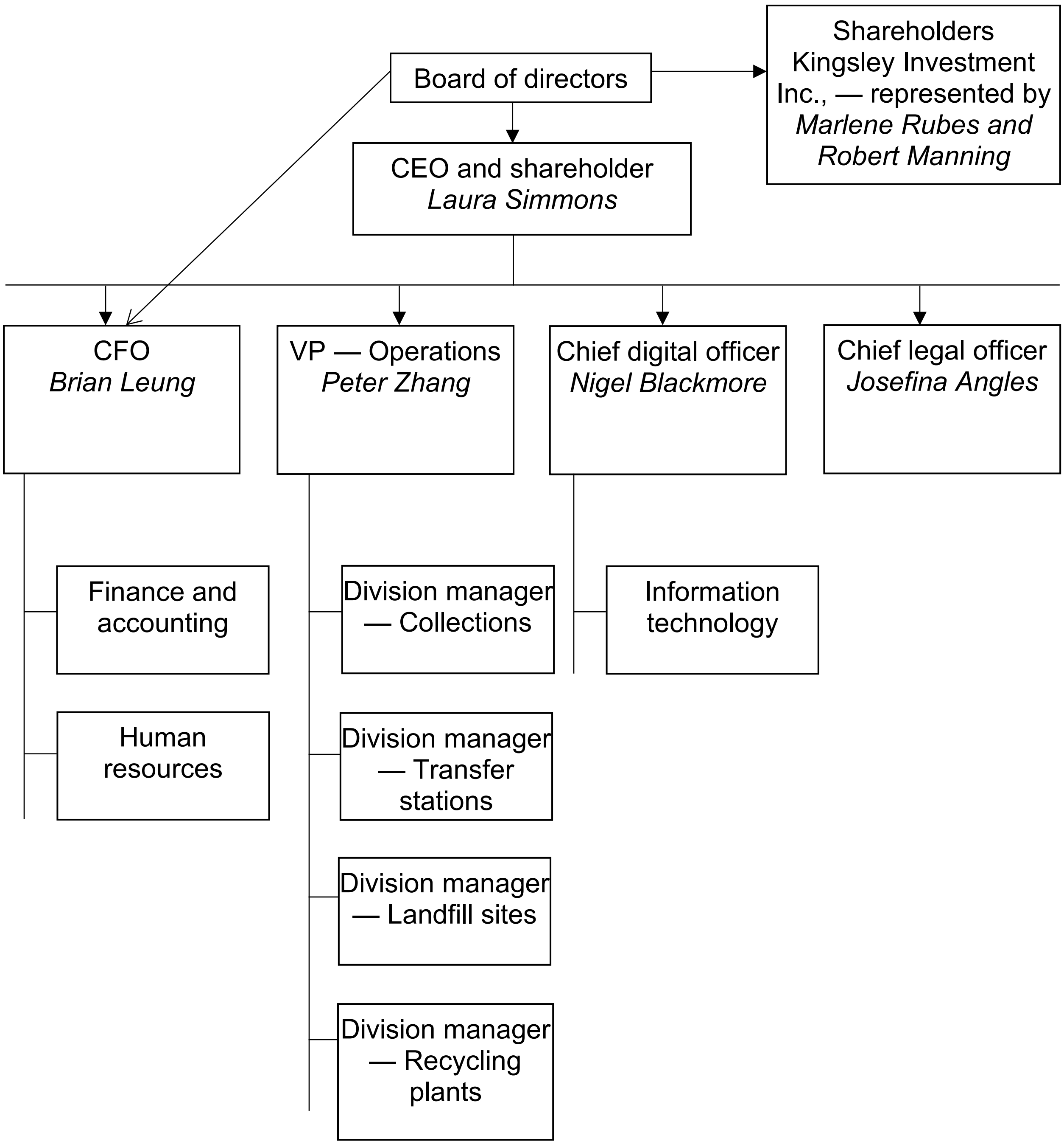
Brian: Okay — what is it?

Robert: I think the board could use guidance on the governance structure of the company, given that any potential acquirer would be interested in strong corporate governance. In particular, WDI could use advice on size, composition, and dispute resolution best practices, as well the role of board committees.

Brian: I will ask SCG to also include a discussion of this matter.

Table of appendixes

Appendix I
Organizational chart



Appendix II
Financial statements
Prepared by Brian Leung

Waste Disposal Inc.
Income statement
For the years ended December 31
(in C$'000s)

	DRAFT 2020 $	AUDITED 2019 $	AUDITED 2018 $
Collection	48,400	47,500	46,700
Transfer	8,200	8,050	7,910
Landfill	17,300	16,700	16,400
Recycling	7,300	8,500	9,200
	81,200	80,750	80,210
Expenses			
Labour and benefits	13,740	12,200	11,640
COGS — recycling	4,300	4,100	4,000
Fuel and other purchases — excluding recycling	19,720	19,700	19,700
Amortization	8,710	7,650	7,300
Accretion on landfill sites remediation obligation	140	135	120
Other operating costs	19,762	18,485	17,740
Selling and administrative	8,300	8,050	7,920
Total expenses	74,672	70,320	68,420
Operating income	6,528	10,430	11,790
Interest expense — line of credit	(22)	-	-
Interest expense — REC loan	(78)	(560)	(560)
Interest expense — GBI loan	(3,484)	(3,744)	(4,004)
Income before taxes	2,944	6,126	7,226
Income taxes	(780)	(1,623)	(1,915)
Net income	2,164	4,503	5,311

Appendix II (continued)
Financial statements
Prepared by Brian Leung

Waste Disposal Inc.
Statement of retained earnings
For the years ended December 31
(in C$'000s)

	DRAFT 2020 $	AUDITED 2019 $	AUDITED 2018 $
Balance — beginning of year	11,952	7,449	8,092
Net income	2,164	4,503	5,311
Dividends	-	-	(5,954)
Balance — end of year	14,116	11,952	7,449

Appendix II (continued)
Financial statements
Prepared by Brian Leung

Waste Disposal Inc.
Balance sheet
As at December 31
(in C$'000s)

	DRAFT 2020 $	AUDITED 2019 $	AUDITED 2018 $
Assets			
Current assets			
Cash and cash equivalents	120	350	680
Accounts receivables	10,100	9,200	8,790
Prepaid expenses	1,280	1,250	1,190
Total current assets	11,500	10,800	10,660
Property, plant, and equipment — net (Note 1)	84,306	83,129	82,200
Total assets	95,806	93,929	92,860
Liabilities			
Current liabilities			
Line of credit	1,300	-	-
Accounts payables and accrued liabilities	5,828	5,255	4,944
Income taxes payable	250	650	700
Deferred revenue	2,680	2,580	2,410
Current portion — REC	-	8,000	-
Current portion — GBI	4,000	4,000	4,000
Total current liabilities	14,058	20,485	12,054
Long-term debt — GBI	49,600	53,600	57,600
Long-term debt — REC	-	-	8,000
Asset retirement obligations — landfill sites	7,032	6,892	6,757
Total liabilities	70,690	80,977	84,411
Shareholders' equity			
Share capital (1,000,000 shares outstanding)	11,000	1,000	1,000
Retained earnings	14,116	11,952	7,449
Total shareholders' equity	25,116	12,952	8,449
Total liabilities and shareholders' equity	95,806	93,929	92,860
Note 1: Property, plant, and equipment			
Opening balance	83,129	82,200	81,500
Capital additions	9,887	8,579	8,000
Amortization	(8,710)	(7,650)	(7,300)
Closing balance	84,306	83,129	82,200

Appendix II (continued)
Financial statements
Prepared by Brian Leung

Waste Disposal Inc.
Cash flow statement
For the years ended December 31
(in C$'000s)

	DRAFT 2020 $	AUDITED 2019 $
Operating activities		
Net income	2,164	4,503
Items not affecting cash:		
Amortization	8,710	7,650
Accretion expense	140	135
	8,850	7,785
Change in working capital balances		
Accounts receivable	(900)	(410)
Prepaid expenses	(30)	(60)
Accounts payables and accrued liabilities	573	311
Income taxes payable	(400)	(50)
Deferred revenue	100	170
	(657)	(39)
Cash flows from operating activities	10,357	12,249
Investing activities		
Investment in PP&E	(9,887)	(8,579)
Cash flows from investing activities	(9,887)	(8,579)
Financing activities		
Repayment on term loan — GBI	(4,000)	(4,000)
Repayment on term loan — REC	(8,000)	-
Increase in line of credit	1,300	-
Issuance of common shares	10,000	-
Cash flows from financing activities	(700)	(4,000)
Change in cash and cash equivalents	(230)	(330)
Opening cash and cash equivalents	350	680
Closing cash and cash equivalents	120	350

Appendix III
Segmented information
Prepared by Brian Leung

	Collections	Transfer	Landfill (in C$'000s)	Recycling	Total	
Revenue	48,400	8,200	17,300	7,300	81,200	
Expenses						
Labour and benefits	8,670	1,270	2,100	1,700	13,740	
COGS*	-	-	-	4,300	4,300	
Purchases — fuel and other	16,000	1,440	2,280	-	19,720	
Amortization	3,800	680	3,865	365	8,710	
Other operating costs	12,100	3,007	3,840	815	19,762	
Selling and administrative	-	-	-	-	8,300	
	40,570	6,397	12,085	7,180	74,532	
Operating income	7,830	1,803	5,215	120	6,668	
Operating margin	*16.2%*	*22.0%*	*30.1%*	*1.6%*	*8.2%*	
Interest expense					(3,584)	
Accretion expense					(140)	
Net income before taxes					2,944	
Income taxes					(780)	
Net income					2,164	3%

*Includes $100 related to fuel costs.

Appendix IV
Industry benchmarks
Prepared by Brian Leung

Waste management industry

Expenses as a percentage of total revenue	
Labour and benefits	16.6%
Fuel and other purchases	22.0%
Amortization	7.2%
Other operating costs	26.2%
Selling and administrative	10.0%
Operating profit margin	10.0%
Return on assets	9.0%
Return on equity	8.0%
Current ratio	1.5
Days in receivables	45.0
Total debt-to-equity	2.6
Long-term debt/EBITDA	3.1

Recycling segment

Expenses as a percentage of total revenue	
Labour and benefits	21.2%
COGS	54.1%
Amortization	5.9%
Other operating costs	12.5%
Operating profit margin	4.3%

2020 sales growth rates in the industry were 2% for collection, transfer, and landfill, and –2% for recycling.

Appendix V
Organic waste treatment facility
Prepared by Brian Leung

A consortium of six local municipalities has approached WDI about entering into a PPP agreement to build and operate an organic waste treatment facility. The municipalities will donate the land and finance the construction of the building and processing chambers. WDI will oversee the design and construction of the building, for compensation at prevailing market rates, and provide all the equipment and vehicles. The municipalities will own the land and building, and WDI will own the equipment and vehicles. WDI will incur initial costs of $12,000,000 for the equipment and could likely use its existing vehicles for collection; therefore, no new vehicles would be needed. The equipment qualifies for CCA Class 53. The final legal form of the partnership has not yet been decided, though it will likely to be a joint venture or general partnership.

The organic waste will be collected by WDI and treated at the new facility. The municipalities will collect a separate fee from each household to provide annual revenue for the facility, which will cover the collection and processing of the organic waste. WDI will operate the facility. The facility will have the annual capacity to process 75,000 tonnes of organic waste.

The state-of-the-art facility will use the most advanced technologies for anaerobic digestion. Organic waste will be collected from residents' green bins and public buildings. The facility will also accept commercial food waste from restaurants and food processors, and clean demolition wood waste for treatment. Non-digestible items (such as plastic bags, plastic utensils, and stones) will be removed before blending the organics into a liquid pulp and removing contaminants. The remaining waste will go into specially designed chambers where microorganisms break down the organic material without oxygen. The entire process takes about eight weeks and creates compost and biogas as joint products. Compost will then be sold to landscapers, farmers, and gardeners. Biogas will be converted into electricity or natural gas and used to fuel the facility and vehicles.

The agreement will be for 30 years and includes the following terms:

- Municipalities will charge taxpayers $6.50 per single-family household per month, and the revenue will flow directly to the facility. Monthly fees will increase annually for inflation.
- WDI will hire a minimum of 36 employees to work at the facility, with six employees coming from each participating municipality.
- Processing of the municipal waste will have priority. Only excess capacity can be used to provide waste processing services to other customers, at prevailing market rates.

Prepared by Brian Leung

- WDI will be entitled to 50% of the net income before taxes, with the remaining 50% shared among the six municipalities. The municipalities will have the right to audit WDI's expenses related to the organic waste treatment facility or the calculation of net income before taxes. Equipment will be amortized over 30 years for the purposes of the calculation.
- Performance requirements: The quality and quantity of services to be provided, municipalities' monitoring mechanisms, and the penalties to be imposed will be specified.
- Adjustment mechanisms: Municipalities will have the right to set the annual residential household fees and to change the amount and type of services provided by WDI. For example, one municipality could decide to use a separate agency to collect and deliver the waste to the facility.
- Transferability: The arrangement will be non-transferable. Should ownership of WDI change, the contract would be terminated and renegotiated with the new owner at the municipalities' discretion.
- Dispute resolution procedures: An arbitrator will be appointed by the municipalities to resolve internal disputes, in the event a disagreement between the parties cannot be resolved.
- Termination: The municipalities will have the right to terminate the agreement without penalty at any time due to ongoing poor quality, if WDI becomes financially distressed, or if any of the conditions in the agreement are not met. WDI would be given a 60-day notice of termination and required to transfer ownership of the equipment to the municipalities for no additional compensation.

Customer and revenue projections are as follows:

	2022	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**
Number of single-family households	150,000	157,000	158,000	160,000	163,000	165,000	167,000
Other commercial customers (in C$'000s)	$3,500	$3,600	$3,700	$3,800	$3,900	$4,000	$4,100

After 2028, the average number of single-family households is expected to grow by 0.5% each year. From 2028 to 2051, the average revenue from other commercial customers is expected to increase by 1%. Compost sales are expected to be $1,250,000 in 2022 and increase by inflation throughout the term of the contract. The organic waste disposal fees charged to the commercial customers and the selling prices for the compost can be very volatile, so these estimates represent the low end of the possible range.

Prepared by Brian Leung

Annual operating costs, net of savings from using biogas as fuel, will include collection costs of $6,000,000 and plant operating costs, before depreciation and including equipment maintenance, of $6,500,000. Employee salary and benefits are already included in these amounts. These costs will increase annually at the inflation rate.

WDI’s income rate tax is 26.5%.

The expected inflation rate throughout the forecast period is 2%.

Appendix VI
Environmental consulting services proposal
Prepared by Laura Simmons

EECI provides consulting services related to:

- Site remediation: This consulting work involves testing soil, air, and ground and surface water for contaminants. Once contaminants are found, the consultants then oversee the cleanup of the contaminated site to restore it back to its original condition. EECI also provides estimates of future environmental restoration costs that will be incurred once an asset is at the end of its useful life.
- Sustainable practices for power and water usage: EECI provides advice on using less carbon-intensive fuels and power sources.

For the past five years, WDI has used EECI as its consultant engineers to provide professional advice on monitoring and maintaining the landfill sites and to provide estimates for future remediation costs for financial reporting purposes. The annual consulting fees paid to EECI have been approximately $250,000, incurred evenly over the year, and are expected to remain at this level going forward. EECI has also referred some of its clients to WDI for waste management services.

Thom is a senior consultant with EECI whom I have known and worked with for 10 years. EECI is being sold effective March 5, 2021, and Thom has informed me that he is not interested in working for a large global company and believes that once this takeover is complete, EECI will increase its charge-out rates by at least 70%. Thom believes that the company will lose many of its long-standing customers with these high rates. After some analysis and discussions with existing customers, Thom has determined that there is a market for a smaller, local, niche firm to continue to charge lower local rates for the consulting engineering services.

Because WDI is already familiar with local site remediation regulations and has worked extensively with Thom, he supports WDI opening an environmental consulting division, which he would manage. Thom also believes the consulting division could help companies with their product end-of-life disposal responsibilities. WDI would provide consulting services on materials to use in the production process to make disposal easier, and provide alternatives and recommendations for final waste disposition.
At my request, Thom has developed a business plan for the consulting division, based on his best estimates and assumptions, as follows.

Appendix VI (continued)
Environmental consulting services proposal
Prepared by Laura Simmons

Operations would commence April 1, 2021. The division would initially have 11 employees, some from EECI and some from other local consulting firms, many of which have already provided tentative agreements to work in this division. The projected number of staff and annual salaries are as follows:

	Starting annual salary	Number of employees			
		2021	2022	2023	2024
Thom Lancaster	$180,000	1	1	1	1
Technicians	$ 60,000	3	4	4	5
Supervisor technicians	$ 85,000	3	4	4	5
Senior engineers	$110,000	3	4	4	5
Administrative assistant	$ 42,000	1	1	1	1

Benefits will be consistent with current WDI employees. Since the salaries are already above market rates, it is expected they will increase at the annual inflation rate only.

Revenues

	Billable rate/hour	Billable hours per person			
		2021	2022	2023	2024
Thom Lancaster	$400	700	800	800	800
Technicians	$105	1,000	1,300	1,300	1,300
Supervisor technicians	$150	800	1,050	1,100	1,200
Senior engineers	$300	800	1,050	1,100	1,150

- The billable hours per person does not include time spent providing consulting services to WDI.

Expenses

- Operating expenses, including telephone, communications, training, supplies, and dues and registrations, will be 23% of salaries, excluding benefits.
- Marketing and related expenses, including preparing marketing brochures, attending conferences and trade events, travel, and meal and entertainment for clients and potential clients, will be $350,000 in 2021, $400,000 in 2022, and $250,000 in 2023 and 2024.
- Empty existing office space and unused office furniture could be used for this new division.
- The estimated average accounts receivable collection period will be 35 days.

Appendix VII
Options for recycling plants

Prepared by Robert Manning and Peter Zhang

After much research and discussion, it has been determined that the poor performance of the recycling plants can be attributed to three main issues:

- Outdated sorting equipment: WDI manually sorts the recycled waste that has been collected. This is a slow and costly process. Most competitors have automated the sorting with a single sorter.
- Increased contaminated waste resulting in lower-quality recycled OCC and mixed paper: The single sorter used by competitors can handle contaminated waste streams. Most competitors also use a better cleaning process to ensure that the recycled material has fewer impurities and is of a higher quality.
- Low selling prices for recycled OCC, mixed paper, and glass: The current oversupply of recycled OCC, paper, and glass has resulted in low selling prices. Selling prices are also negatively affected by changes in regulations, as new requirements can shift customer demand to recyclers of PET plastics and aluminum.

The current annual capacity for processing in the four plants combined is 200,000 tonnes of recyclable waste. The sales department conducted local research to estimate the number of tonnes of each recyclable material that will be received in 2021. Estimates and assumptions for 2021 are as follows, with similar assumptions expected for 2022 and beyond. Although selling prices of recyclable materials are extremely volatile, the sales department determined that the selling prices, rebates, and costs below represent a reasonable average over the next decade:

		$ per tonne			
			Recyclable materials	**Processed recycled materials**	
	Tonnes received	**Rebate**	**Selling price**	**Selling price**	**Variable costs**
OCC	60,000	$50.00	$70.00	$ 126.00	$ 15.00
Mixed paper	100,000	$ 1.00	$ 1.10	$ 2.30	$ 2.10
Glass	40,000	$ 1.00	$ 1.40	$ 0.50	$ 1.92
PET plastics	30,000	30% of selling price	Not applicable	$ 520.00	$ 250.00
Aluminum	20,000	30% of selling price	Not applicable	$2,030.00	$1,080.00

Prepared by Robert Manning and Peter Zhang

WDI is responsible for paying the rebate whether it processes the recyclable materials or sells the unprocessed materials. Labour costs, other operating costs, and amortization are fixed, since it is assumed that the potential shutdown would be temporary, likely no more than 12 months, and employees would be dispersed to perform other functions. Labour costs for 2021 will increase at the annual inflation rate and will be constant for 2022. Operating costs for 2021 are expected to increase 1% relative to the 2020 costs and remain constant for 2022. Amortization will remain constant. There will be minimum additional operating costs of $270,000, annually, to maintain the buildings and equipment and prevent deterioration during a shutdown. Volumes, selling prices, and variable costs will remain constant thereafter.

New equipment to process PET plastics will cost $10,000,000. Additional annual operating costs for the equipment and labour costs for sorting would be $540,000 in 2022, increasing by 2% each year. Plastic bottles require labour-intensive sorting, since they need to be separated by their resin identification code.

New equipment to process aluminum cans will cost $20,000,000. Additional annual operating costs would be $850,000 in 2022, increasing by 2% each year. Aluminum cans require little sorting and therefore no additional labour. They are more popular than glass and plastic for municipal recycling programs.

The equipment upgrades will provide improvements in the sorting and cleaning of the recyclable materials. Given that this equipment is quite different from WDI's existing equipment, both pieces of equipment would have a useful life of 10 years, and would qualify for CCA Class 53. The recycling upgrades could be completed and operational early 2022.

We should aim to earn a return of at least 15% on either investment.

Appendix VIII
Investment in Pristine Research Inc.

Prepared by Laura Simmons

Pristine Research Inc. (Pristine) is a small hazardous waste disposal and research company that specializes in marine oil spill cleanups. Its current customers include the federal and provincial governments and commercial companies. Pristine uses an advanced technology to clean up the spilled oil and dispose of it at its special treatment centre. The company also has a world-renowned research facility that works with universities to improve techniques to capture spilled oil. To date, the company has 50 patents.

Pristine is currently experimenting with a variety of materials that can be placed over the water to act as sheets or sponges that quickly absorb spilled oil. The company hopes this technology will also be usable for land spills of oil and other hazardous chemicals. People in the industry are very excited about its possibilities. It is expected that the new technology can be commercialized within four years, but Pristine needs immediate funding to complete the final phases of product development.

Connie Li is the sole shareholder of Pristine. Connie and I met at the local Women in Business Association many years ago. Connie approached me about the possibility of WDI investing in Pristine. Connie has provided the financial statements of Pristine, prepared following ASPE (Appendix IX). She is asking for $4,000,000 in exchange for 45% ownership of Pristine and would like the transaction to close in early March 2021. WDI would also provide management support and services, and would be compensated at current market rates. Once the technology is released to the market, WDI would have the option to purchase an additional 10% of Pristine, based on the value of Pristine at that time, thereby acquiring control. This option would remain available to WDI for a period of one year.

Brian has requested that SCG use two valuation methods to analyze Connie's proposal: the adjusted asset-based approach and the capitalized cash flow approach. Brian has estimated that Pristine's weighted average cost of capital is 15% to 16%. Pristine is associated with other companies and does not have any of the small business limit allotted to it for 2018, 2019, or 2020. As such, the average tax rate for all three years is approximately 26.5%. Sustaining capital investments are expected to be $700,000 annually.

I have gathered the following additional information to consider in the analysis:

Pristine currently has 60 employees: 40 who work in the R&D area and 20 who work on the hazardous cleanups, as required. Included in labour and benefits is $500,000 paid to Connie for each of the three years presented. Brian has noted a similar position at comparable companies in 2018 and 2019 would have earned $400,000, including benefits. The rent for vehicles and some office space was $125,000 lower than prevailing market rates for each of the three years.

Prepared by Laura Simmons

2020 was a very successful year for Pristine. The company continued to receive large amounts of government support for its R&D. It had some very profitable cleanup contracts, which cost well below the fixed contract price.

Pristine's land, buildings, equipment, and marketable securities were appraised in February 2021. Details are as follows:

Asset	Adjusted cost base	Undepreciated capital cost	Fair market value
Marketable securities	$ 956,000	Not applicable	$1,200,000
Land	$ 310,000	Not applicable	$ 580,000
Building (CCA Class 1)	$1,230,000	$1,195,000	$1,710,000
Equipment (CCA Class 8)	$6,240,000	$4,060,000	$4,560,000

Pristine estimates the net fair value of its in-process R&D is $800,000. All other assets and liabilities have a fair market value equal to their book value. Costs to sell the assets are estimated to be 5% of fair market value.

Appendix IX
Financial statements for Pristine Research Inc.

Pristine Research Inc.
Income statement
For the years ended April 30
(in C$'000s)

	2020 $	2019 $	2018 $
Revenue	11,000	8,000	7,500
Government grants	2,000	2,500	2,000
	13,000	10,500	9,500
Expenses			
Labour and benefits	6,250	5,190	4,860
Purchases	3,100	2,560	2,430
Amortization	520	500	480
Other operating costs	820	790	735
Total expenses	10,690	9,040	8,505
Operating income	2,310	1,460	995
Interest income	40	30	25
Income before tax expense	2,350	1,490	1,020
Income taxes	(623)	(395)	(270)
Net income	1,727	1,095	750

Statement of retained earnings

Balance — beginning of year	3,620	2,525	1,775
Net income	1,727	1,095	750
Balance — end of year	5,347	3,620	2,525

Pristine Research Inc.
Balance sheet
As at April 30
(in C$'000s)

	2020	**2019**	**2018**
	$	**$**	**$**
Assets			
Current assets			
Cash and cash equivalents	5	20	40
Marketable securities	1,050	1,200	1,500
Accounts receivables	1,095	870	810
Prepaid expenses	60	60	50
Total current assets	2,210	2,150	2,400
Property, plant, and equipment — net	6,448	4,798	3,440
Total assets	8,658	6,948	5,840
Liabilities			
Current liabilities			
Accounts payables and accrued liabilities	241	278	275
Income taxes payable	70	50	40
Total current liabilities	311	328	315
Shareholders' equity			
Share capital	3,000	3,000	3,000
Retained earnings	5,347	3,620	2,525
Total shareholders' equity	8,347	6,620	5,525
Total liabilities and shareholders' equity	8,658	6,948	5,840

Appendix X
Trucking proposal
Prepared by Marlene Rubes

Current labour and operating costs for the collection division are as follows:

- The annual wage for one driver, including benefits, is $52,500.
- Each truck travels about 33,500 kilometres per year.
- Diesel fuel currently costs $1.30 per litre; trucks can travel 0.50 kilometres per litre of diesel fuel.
- Maintenance cost is $0.40 per kilometre per truck.
- Annual insurance and licence costs is $9,000 per truck.
- WDI is responsible for overtime and other related costs if the drivers take longer than expected.
- WDI does not permit its drivers to subcontract out the work.

Kingsley's proposal: Kingsley would primarily use its own drivers but may also employ some of WDI's current drivers, but at a lower salary. WDI would pay Kingsley $4.50 per kilometre for the use of its collection trucks. The number of drivers and trucks needed would be determined at a later date. The proposal would only be applicable for the vehicles that are still powered by diesel fuel.

Appendix XI
Starlight financial proposal
Prepared by Laura Simmons

Starlight Capital (Starlight), a mezzanine financing company, has offered to lend WDI up to $10,000,000 of unsecured debt. Conditions of the arrangement include:

- Principal to be repaid in 2031.
- Fixed and variable interest payable annually:
  - The fixed rate is 9%.
  - WDI will also pay 10% of annual EBITDA that is in excess of $15,000,000, if the amount borrowed is greater or equal to $5,000,000.
- Covenants:
  - WDI may not pay out any dividends while the debt is outstanding.
  - WDI may not sell any assets or transfer control of shares unless prior approval is obtained by Starlight.
- Annual audited financial statements prepared in accordance with ASPE or IFRS.

Appendix XII
Industry regulations and performance metrics
Prepared by Laura Simmons

Regulations

The waste management industry is heavily regulated. The responsibility for managing waste is shared among federal, provincial, and municipal governments. The municipal governments manage the collection, recycling, and disposal of household waste, while the provincial governments establish waste management policies and programs and monitor waste management facilities and operations,[36] although the regulations are similar across Canada.

Provincial and local governments set the regulations for how waste is to be handled locally and how much of the waste must be recycled. Increasingly, they require waste to be diverted from landfill sites and instead recycled, composted (organic waste), or treated as hazardous (electronics). These requirements may increase demand for waste management services in the short term, but in the longer term demand is expected to gradually decrease as the goal of reducing overall waste is attained.

Provincial waste management programs include blue box and green bin curbside recycling for paper, plastic, glass, aluminum, and organic wastes; hazardous waste disposal depots; and so on. Within each province, non-profit agencies may also help implement programs to increase the amount that corporations and individuals recycle.

Federal programs can influence the actions taken by the provinces. For instance, a federally imposed carbon tax acts as a mechanism to tax companies whose GHG emissions are too high. Companies pay a carbon tax on any emissions in excess of the stated benchmark,[37] with the tax expected to increase over the next few years. The higher the tax, the higher the cost of emissions, and the more incentive companies have to reduce their emissions. Since processing recycled materials produces lower GHG emissions than producing virgin (original) materials, the demand for recycled materials increases with higher carbon tax rates. Higher carbon tax rates also motivate companies to use biofuels produced by landfill sites, since they have lower GHG emissions than fossil fuels.

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[36] Government of Canada, “Municipal Solid Waste: A Shared Responsibility” (2018), https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste/municipal-solid/shared-responsibility.html

[37] CBC News, “Liberals Plan to Soften Carbon Tax Over Competitiveness Concerns,” *CBC News Online*, August 1, 2018, https://www.cbc.ca/news/politics/liberals-carbon-price-lower-1.4769530

Prepared by Laura Simmons

There are also increased federal requirements for provinces to regulate manufacturers so that they become responsible for disposal of their products and packaging at the end of the product's useful life. These requirements target manufacturers of hazardous household waste, electronics, construction materials, and furniture, expecting them to reduce overall waste. These regulations will initially increase revenues for the recycling facilities as manufacturers contract for collection and recycling of their products. However, the industrial and commercial sectors are expected to make their products less wasteful in the longer term, thereby reducing the volume of waste and the demand for waste collection and disposal services in the industry.[38]

There is little international trading in most of the segments in the industry, as it is important for operators to be geographically close to their markets. However, recycling operators can sell recycled materials abroad. Asia, and particularly China, have historically been a large market for recycled paper and plastics that are used in the manufacturing of its products. However, in 2019, the Chinese government announced an import ban on 24 kinds of solid recycled materials and, at the same time, decreased the amount of contamination that can be present in the accepted material,[39] with additional restrictions to follow shortly.[40] Because of the changes in Chinese regulation, the demand for recycled material plummeted. The Canadian market has not yet recovered from this drastic decline in demand. Operators are increasingly concerned about the amount of stockpiled recycled materials, which cannot be sold or disposed of.

Performance metrics

Historically, weight-based metrics have been used to measure success of waste management. Weight-based metrics measure the volume of waste that has been processed or recycled. For example, waste management companies will report the number of tonnes of recycled materials by type, with an increasing number indicating success.

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[38] Leach, June 2017.

[39] Matthew Taylor, "Rubbish Already Building Up at UK Recycling Plants due to China Import Ban," *The Guardian,* January 2, 2018, www.theguardian.com/environment/2018/jan/02/rubbish-already-building-up-at-uk-recycling-plants-due-to-china-import-ban

[40] Adam Redling and DeAnne Toto (Eds.), "China Announces Import Ban on an Additional 32 Scrap Materials," *Recycling Today*, April 19, 2018, https://www.recyclingtoday.com/article/china-bans-solid-waste-imports/

Prepared by Laura Simmons

A recent trend is for companies to instead measure success by the amount of GHG emissions that have been saved or avoided. Each type of waste management activity may increase or contribute to GHG emissions.[41] When fuel or electricity is used in the waste management service or process, carbon dioxide is released to the atmosphere as fuel is burned or electricity is produced. This is measured as direct or indirect GHG emissions.[42]

Waste management processes can also avoid or reduce GHG emissions by:

- Recovering materials through reusing, recycling, and composting: The GHG amount avoided is equal to what would have been emitted if the virgin (unrecycled) material had been manufactured less the emissions released on processing recycled materials. For example, GHG emissions avoided from recycling paper is equal to the GHG emitted when paper is produced for the first time from pulp minus the GHG emitted when waste paper is recycled.
- Using or selling the energy (back to the grid): Energy is often a byproduct of many waste treatments, such as electricity from incineration and biogas from treated organic waste. When this energy is either used by the operator or sold back to the grid, GHG emissions are avoided by not using electricity or other fossil fuels.

The goal for waste management operators is to provide services and use processes that have low carbon output and GHG emissions, which increases the amount of GHG emissions avoided.

[41] Entreprises pour l'Environnement Working Group (Seche Environnement, Suez Environnement, and Veolia Environnement), "Protocol for the Quantification of Greenhouse Gas Emissions from Waste Management Activities" (2013), https://ghgprotocol.org/sites/default/files/Waste%20Sector%20GHG%20Protocol_Version%205_October%202013_1_0.pdf

[42] "Direct" is defined as when the company's own process or requirement emits GHG — for example when diesel fuel is burned in the collection trucks. "Indirect" is defined as when a third-party provider produces the emissions — for example, an electricity provider generates the electricity and emits CO_2 and then the company uses the electricity.

Appendix XIII
Background on industry association data
Provided by Robert Manning

WDI's industry association has collected and reported data on the generation and disposal management of solid waste in Canada for more than 30 years. In 2006 it began tracking this information by region. The information provided in the accompanying Excel document "Solid Waste (SW) Management - 2006 to 2020 Data" is from Atlantic Canada (Newfoundland, Nova Scotia, Prince Edward Island, and New Brunswick), and the information presented is in tonnes. The association has been tracking this information to measure the success of materials management programs across the country and to characterize the national waste stream. The information presented is based on the calendar year.

Information about waste generation and disposal is an important foundation for managing materials. Sustainably managing materials requires thinking beyond waste and instead focusing on the life cycle of a product, from the time it is produced to when it is used, reused, and ultimately recycled or discarded. This is known as Sustainable Materials Management (SMM). SMM refers to the use and reuse of materials in the most productive and sustainable way across their entire life cycle. SMM conserves resources, reduces waste, and minimizes adverse environmental impacts from materials. The association tracks solid waste data in generation and management, materials and products, and economic indicators. The association does not track data related to hazardous materials, and therefore these materials have been excluded from the data provided.

Solid waste is made up of various items consumers throw away. These items include packaging, food, yard trimmings, furniture, electronics, tires, and appliances. Sources of solid waste include residential waste and waste from commercial and institutional locations, such as businesses, schools, and hospitals

The association tracks data in two ways: by material or by product. Both data sets have been provided.

Materials are made into products, which are ultimately reprocessed through recycling or composting, or managed by sending them to combustion with energy-recovery facilities or landfills. Examples of materials that the association tracks include paper and paperboard, plastics, metals, glass, rubber, leather, textiles, wood, food, and yard trimmings.

Provided by Robert Manning

Products are what people buy and handle, and they are manufactured out of the types of materials listed above. Product categories include containers and packaging, nondurable goods, durable goods, food, and yard trimmings. Containers and packaging, such as milk cartons and plastic wrap, are assumed to be in use for a year or less; nondurable goods like clothing and disposable dishware are assumed to be in use for less than three years; and durable goods, such as furniture, are assumed to be in use for three or more years. Some products, such as appliances, may be made of more than one material.

Information about products shows how consumers are using and discarding materials and offers strategies on how to maximize source reduction, recycling, and composting of materials.

APPENDIX C

THE COMMON FINAL EXAMINATION
DAY 1 WDI VERSION 1 BOOKLET – MAY 26, 2021

COMMON FINAL EXAMINATION
MAY 26, 2021 – DAY 1

<u>Case (WDI-Version 1)</u> **(Suggested time: 240 minutes)**

It is March 2023, and Shawn Bryson, your boss at Stineman Consulting Group, assigns you, CPA, to another consulting engagement with Waste Disposal Inc. (WDI).

At a recent meeting, you received the following update from Laura Simmons.

There have been no changes to WDI's vision, mission or core values and, other than an upgrade that allows WDI to recycle PET plastics, the company's operations have not substantively changed. WDI has been successfully meeting its sustainability goals by switching its fleet vehicles to natural gas and investing in landfill biogas recapture equipment, both of which have helped reduce its greenhouse gas emissions by 30%.

Four of the six municipalities proceeded to construct the planned organic waste treatment facility; however, because WDI declined the project, a national competitor was used. These municipalities did not renew their contracts with WDI. However, WDI was able to replace these contracts with new contracts with similar-sized customers. As few competitors provide PET-plastic recycling, WDI has acquired new customers by offering that service. WDI has retained its other customers by keeping the same contract terms and holding the increase in annual fees to only 1%.

WDI invested heavily in leading-edge technology at all its recycling plants. In addition to enabling PET-plastic recycling, the upgrades improved the OCC and mixed-paper recycling functions. To help pay for these investments, WDI issued preferred shares to Kingsley Investment Inc. (Kingsley). The upgrades have significantly increased WDI's operating margin in the recycling division, and overall.

Although Jack Kingsley (Jack) wants to sell Kingsley's shares of WDI to a strategic buyer in the next year or two, he has decided to get a more immediate return on his investment through dividend payments. To make up for the fact that there have been no common share dividends paid since 2017, Jack will demand that a common share dividend of $7.5 million be declared, in addition to a preferred share dividend payment of $3.2 million.

Laura asks you to prepare a report for WDI's board that strategically evaluates the available proposals. For each proposal, you are to advise the board of any significant factors that may not have been considered, identify information that should be obtained before making decisions, and where possible, recommend a course of action that is best suited to WDI. Laura also asks you to bring to attention any other significant issues you identify.

INDEX OF APPENDICES

APPENDIX I
BOARD MEETING DIALOGUE WITH CPA IN ATTENDANCE
March 15, 2023

Laura: Thank you, CPA, for attending our board meeting. Dianne McTavish from Kingsley, who has experience in the waste management industry and expertise in recycling, replaced Marlene as the chair on November 15, 2020. There have been no other changes in board members or key management positions, but the following significant events have occurred:

April 15, 2020	WDI sold its surplus recycled materials and decided to continue to process all recyclable materials in its plants.
June 1, 2020	Issued 600,000 non-voting cumulative 12% convertible preferred shares to Kingsley for $15 per share, with dividends payable annually on May 31 and all other conditions as originally proposed.
June 15, 2020	Signed a five-year contract, expiring May 31, 2025, with Kingsley, whereby it provides drivers and collection trucks at an initial cost of $5 per kilometre, with annual increases tied to inflation. Kingsley agreed to purchase some of WDI's vehicles and has acquired 60% of the fleet to date.
February 20, 2021	Completed upgrades at two recycling plants, at a total cost of $4 million.
May 3, 2021	Updated website to improve customer interaction and provide marketing materials for potential new customers.
September 4, 2021	Renewed line of credit, with the same conditions and terms. The next renewal will occur in September 2023.
October 10, 2021	Completed upgrades at the remaining two recycling plants, at a total cost of $6 million.
May 3, 2022	Completed conversion of the remaining fleet to natural gas.

Laura: The Board of Director's 2023 objective is to improve the return on assets (ROA), which was 7.2% in 2022, compared to an industry average of 10%. The board has agreed that any assets with an ROA less than 5% should potentially be sold. The board also expressed that, for any investments, preference should be given to projects that support WDI's stated mission, vision and core values.

Dianne: I represent Kingsley on this board and, even though I might disagree with Jack's approach, he wants to receive the highest return on this investment through dividends and capital gains. Therefore, if any new investments are made, there should still be enough cash available to pay out both the preferred share and common share dividends. Also, Jack will likely only support investments that provide a more immediate return.

APPENDIX I (continued)
BOARD MEETING DIALOGUE WITH CPA IN ATTENDANCE

Laura: Personally, I think keeping our cash in the company and investing it where it can generate a strong return will appeal most to a potential buyer. But let us discuss it further after we have reviewed the proposals. Brian, please start.

Brian: TN Composting Limited (TNC), a privately-owned company that operates an anaerobic composting facility, is for sale. Giselle Laflamme, the sole shareholder, wishes to retire. She is asking $14 million for the assets. I have gathered information on TNC.

Laura: I support this investment for the same reasons that I supported the organic-waste treatment facility proposed in 2020. It is a great opportunity for WDI to get into this sector with an existing plant and customer base. If we meet with Giselle now, I am confident we can develop a viable transition plan.

Brian: It will bring in new customers and is one of only a few privately-owned companies in the area in this industry. We can offer these customers our other waste management services, thereby increasing revenues and their connection to us. Our new contracts can be designed to entice these customers to give us their waste collection and disposal business. It is important to note, however, that this facility is due for a $2 million equipment upgrade.

Robert: My recommendations continue to be based on what I think is best for WDI, which I think will also be best for Jack in the long run. Therefore, I am not in favour of stripping cash out of WDI and have told Jack he is being short-sighted. I agree with investing in an organic-waste processing facility, but am just not sure this is the right one. The upgrades may cost more like $6 million and will take at least five months to complete, during which time the facility will be closed.

Brian: Perhaps, but there are likely other synergies with this acquisition that we have not considered. The purchase would allow us to enter this sector at a reasonable price. As there is a lot of interest in TNC, I am sure one of our competitors will buy it if we do not.

Dianne: This investment will require significant upfront cash, and I wonder whether the return will be high enough for Jack. Based on my knowledge of the industry, I think this investment is a favourable long-term project, but Jack may reject it.

APPENDIX I (continued)
BOARD MEETING DIALOGUE WITH CPA IN ATTENDANCE

Dianne: Instead, consider this about the New Brunswick (NB) assets. With a combined ROA of less than 3%, it makes sense to sell the collection centres and transfer station as stand-alone items. But no one seems interested in buying just these assets, and I doubt that will change. However, we have an offer for $93 million from Canada Waste Management Incorporated (CWM), a national competitor, to purchase the entire NB division. WDI should accept this offer as the price is excellent! Recent market transactions for a similar bundle of assets (collection, transfer, landfill and recycling) indicate that the price offered is more than fair.

Laura: Sell it all? But WDI is one of the few local companies remaining, and the NB assets represent a significant portion of our business.

Robert: I do not think we should sell any of our plants that recycle PET plastics, as demand for these services is increasing. In fact, we should expand to include aluminum recycling next year.

Dianne: That is exactly why CWM's offer should be accepted, to secure other opportunities, such as aluminum recycling.

Brian: Laura, I understand your reluctance, but WDI is short on cash and the funds from this sale could be invested in new growth areas within the industry.

Robert: That is true. In fact, Manchester Design Limited (MDL) proposed an agreement whereby WDI would become its sole supplier of a newly engineered type of recycled flexible plastic.

Laura: MDL's owners are professional engineers with backgrounds in recycled materials. They have a growing business and appear to be industry innovators.

Robert: Yes, Laura, and they are experimenting with using a new type of recycled flexible plastic (Flexi-P) in their products. Compared to what is available in the marketplace, Flexi-P appears superior. It is strong, durable and environmentally friendly upon disposal. MDL hopes that WDI will supply the new material. To do so, WDI would need to build a new recycling plant capable of producing Flexi-P.

Brian: I like this proposal. MDL's engineering expertise would help WDI enter a new, emerging market segment.

Dianne: Okay, but how much would it cost for us to build a facility capable of producing Flexi-P? How long before there is a decent return on this investment? Further, Jack will not like WDI expanding into areas not tied to traditional waste management, which is our core competency.

APPENDIX I (continued)
BOARD MEETING DIALOGUE WITH CPA IN ATTENDANCE

Brian: Of course, it will take time to build the new facility, but just look at how successful our addition of PET-plastic recycling has been. With this investment, we will be able to produce Flexi-P and recycled PET plastics. We can further diversify our revenue streams and become more competitive.

Dianne: This seems awfully risky. What if Flexi-P does not turn out to be the wonder product that MDL's engineers seem to think it will be?

Laura: There may be another way to diversify. Rayland Energy Inc. (REI) manufactures alkaline batteries and wants to make a $34 million joint investment in a battery-recycling plant. REI is owned by a family I have known all my life. They started their business around the same time my father started WDI.

Brian: If, as anticipated, alkaline batteries are regulated as a hazardous waste product, REI will be required to collect and recycle these products at the end of their life, and they want to be ready.

Dianne: Because of their low metal content, there is very little financial return for recycling alkaline batteries. I do not think the investment will meet Jack's requirements.

Robert: That is because current volumes are too low. If legislation is passed, the increased volume of batteries required to be recycled would make it profitable. However, it will be vital for WDI to secure a sufficient volume of batteries through long-term contracts. I support this venture because the batteries will be diverted from landfills.

Brian: I do not like joint investments as they often lead to inaction when an agreement cannot be reached. I also do not want to put WDI at risk of having to invest more than the initial $17 million if things do not work out.

Laura: I believe REI's goals and objectives are similar to WDI's, and we can ensure our needs are clearly stated in the agreement. From what I know, REI does not make risky investments and tends to make careful, informed decisions.

The last item is the contract for trucks and drivers. We transferred the New Brunswick collection operations to Kingsley but have yet to transfer the Nova Scotia operations. Customers in New Brunswick are complaining that the drivers are rude and that waste has been left behind. I discussed the complaints with Jack but there has been no improvement. Also, the contract with Kingsley states annual increases will be limited to inflation, but each year, the increase has been more than double that rate. Another rate increase, above inflation, is coming on May 1—this is a violation of our agreement and I want to cancel the contract.

APPENDIX I (continued)
BOARD MEETING DIALOGUE WITH CPA IN ATTENDANCE

Dianne: WDI's costs are still lower under this contract compared to using its own drivers and trucks, and Kingsley can justify the annual increases.

Brian: Actually, that is not true. Since converting to natural gas, our costs in Nova Scotia are slightly less compared to Kingsley's contract rate.

Dianne: If you are serious about cancelling the contract, I will need to advise Jack and Kingsley's lawyers.

Laura: I am serious. Tell them we are considering more serious steps than terminating the contract. I have had enough of being pushed around.

APPENDIX II
EXCERPTS FROM WDI'S INTERNAL REPORTS

Earnings Comparison
For the year ended December 31, 2022, compared to December 31, 2020
(in thousands of Canadian dollars)

	Collection Centres	Transfer Stations	Landfill Sites	Recycling Plants	Total
Revenue	$49,500	$8,400	$14,600	$46,206	$118,706
2020 comparatives	*$48,400*	*$8,200*	*$17,300*	*$7,300*	*$81,200*
% change	*2%*	*2%*	*-16%*	*533%*	*46%*
Labour and benefits	3,510	1,350	2,290	1,230	8,380
Cost of goods sold	0	0	0	28,204	28,204
Purchases – fuel	5,800	1,560	1,840	100	9,300
Trucking costs paid to Kingsley	17,175	0	0	0	17,175
Amortization	3,900	700	3,950	1,365	9,915
Remediation of landfill accretion	0	0	220	0	220
Other operating costs	12,700	3,190	4,210	1,263	21,363
Selling and administrative	Not allocated	Not allocated	Not allocated	Not allocated	10,890
	43,085	6,800	12,510	32,162	105,447
Operating income	$ 6,415	$ 1,600	$ 2,090	$ 14,044	$ 13,259
Operating margin	*13%*	*19%*	*14%*	*30%*	*11%*
2020 comparatives	*16%*	*22%*	*30%*	*2%*	*8%*
% change	*-3%*	*-3%*	*-16%*	*28%*	*3%*

APPENDIX III
SUMMARY OF CASH AVAILABLE
(in thousands of Canadian dollars)

Cash on hand	$ 2,650
Cash from operating activities (projected)	14,000
Long-term debt payment (GBI term loan)	(4,000)
Cash available	$ 12,650

WDI can access an additional $20 million in debt financing without breaching any of its existing debt covenants.

APPENDIX IV
INDUSTRY UPDATE

As predicted, the amount of all types of waste has increased. The volume of PET plastics recycled is expected to increase by 8% annually for the next three years, causing more competitors to enter this market. Organic waste is expected to increase by 5% annually for several years.

In the last few years, regulations that divert organic and recyclable-material waste from landfills to other processing centres have tightened. Legislation is being proposed that will require many types of plastic products to be made from at least 55% recycled material. Alkaline batteries, which now account for 90% of all batteries sold and which are currently disposed of in landfill sites, are more toxic to the environment than was originally thought. Legislation is being considered that will require these batteries to be recycled; however, municipalities do not anticipate this change to take effect for at least another three years.

The economy has grown by about 3%, with consumer spending keeping pace. With fears of inflation climbing from its current rate of 3.2%, interest rates have been increasing, with the prime rate currently at 4%. Total industry revenues are expected to increase by 2% annually. It is expected that landfill tipping fees will remain low whereas the processing fees for organic-waste composting and the selling price of recycled materials will continue to increase.

APPENDIX V
TN COMPOSTING LIMITED PROPOSAL
(Prepared by Brian Leung)

TNC is an organic-waste processing facility that uses anaerobic digestion to produce compost and biogas. The compost is sold to landscapers, farmers, and gardeners, whereas the biogas is captured and converted into electricity to fuel the facility.

TNC collects and processes organic waste from 400 restaurants, 250 food processors, three hospitals, and one university, all in Nova Scotia. None are currently WDI customers.

TNC's contracts are all for three years, and collection and processing rates are based on weight. About 55% of the contracts, which generate most of TNC's collection and processing revenues, will expire in 2023, and the remaining 45% expire in 2024. Five of TNC's customers account for 70% of total revenue.

Giselle is very involved in TNC's daily operations and has an excellent reputation in the community. She is the sole contact for all TNC customers and deals with all their problems. As a result, many customers have been with TNC since its inception in 2007 and customer turnover is very low in comparison to the industry average.

The plant currently processes 40,000 tonnes of organic waste annually and has the capacity to process 50,000 tonnes. The equipment has not been upgraded in the past five years and relies on outdated technology.

At the current usage rate of 40,000 tonnes and after the equipment has been upgraded, TNC can expect an operating income of $1.6 million per year.

APPENDIX VI
SALE OF NEW BRUNSWICK ASSETS

The following excerpt from internal reports provides details for the NB assets *(in thousands of Canadian dollars)*:

	Collection Centres	**Transfer Station**	**Landfill Site**	**Recycling Plants**	**Total**
Revenue	$30,244	$5,040	$8,800	$21,580	$65,664
Labour and benefits	1,500	790	1,480	625	4,395
Cost of goods sold	0	0	0	14,100	14,100
Purchases – fuel	0	980	870	60	1,910
Trucking costs paid to Kingsley	17,175	0	0	0	17,175
Amortization	1,300	350	2,760	680	5,090
Remediation of landfill accretion	0	0	160	0	160
Other operating costs	7,100	1,970	2,340	620	12,530
Total costs	27,075	4,090	7,610	16,085	54,860
Operating income	$ 3,169	$ 950	$1,190	$ 5,495	$10,804
Operating margin	*10%*	*19%*	*14%*	*25%*	*16%*
Return on assets	*3%*	*2%*	*17%*	*28%*	*11%*

Selling and administrative costs of $4.8 million are allocated to NB; these costs are not included above.

APPENDIX VII
PROPOSED AGREEMENT WITH MANCHESTER DESIGN LIMITED
(Prepared by Robert Manning)

MDL currently manufactures products using recycled PET plastic and wants to expand its product offering to include products made from a new type of advanced flexible plastic (Flexi-P). MDL has been operating in Nova Scotia for 11 years and sells across Canada. Since 2019, MDL's sales have grown by 30% annually.

As part of a 10-year agreement, MDL would provide WDI with exclusive access to the technology involved in Flexi-P's production process. In return, WDI would be required to fulfill MDL's Flexi-P supply needs before selling to other customers.

The new plant will convert recyclable PET plastic into Flexi-P. It must be ready to produce within two years of signing an agreement. MDL estimates a cost of between $18 million and $22 million to build the plant. Given that the technology is changing so quickly, it is assumed that this plant will be obsolete in 10 years.

According to MDL's engineers, the new plant will have a total annual capacity of 30,000 tonnes, of which MDL will initially utilize 17,000 tonnes. MDL predicts its demand for Flexi-P will increase by 9% annually. MDL will pay WDI $750 per tonne of Flexi-P. The plant's fixed costs are estimated by MDL to be $1.25 million per year and variable costs to be $415 per tonne. However, because this is a completely new technology, MDL's engineers cautioned that the costs are difficult to estimate with accuracy.

WDI uses a discount rate of 15% when assessing this type of investment.

APPENDIX VIII
JOINT INVESTMENT WITH RAYLAND ENERGY INC.

(Prepared by Laura Simmons)

Proposal

- REI and WDI will each own 50% of a separate corporation that will hold the assets and liabilities of the battery-recycling facility.
- Each party will initially contribute $17 million toward the expected cost of building the battery-recycling plant, which should be operational by June 2024. Any additional financing requirements will be shared equally.
- To manage the daily operations of the facility, WDI will be paid a fixed percentage of revenue as a management fee (percentage to be determined).
- There will be four directors on the board (each party will provide two). The chairman will rotate between the parties every two years.
- The board will make all decisions related to operation, strategy, and finances. All decisions must be unanimous.
- Shares will not be transferable or sold to outside parties unless agreed to by the other party. Each party will have the right of first refusal to purchase the shares of the other party.
- The corporation will be dissolved when either party no longer agrees to the terms, or if required, due to legal, financial, or market concerns.

Based on REI's projection, WDI's return on assets would approximate 8%, and the facility would have capacity for additional outside contracts.

APPENDIX D

DAY 1 (WDI VERSION 1) – MAY 26, 2021
MARKING GUIDE AND SAMPLE CANDIDATE RESPONSE

MARKING GUIDE
WASTE DISPOSAL INCORPORATED (WDI)
VERSION 1

Summative Assessment #1 – Situational Analysis

For Summative Assessment #1, the candidate must be assessed for reasonableness of attempt:

Yes – The candidate used a reasonable situational analysis when analyzing the major issues facing WDI.

Unsure – The candidate attempted to use a reasonable situational analysis when analyzing the major issues facing WDI.

No – The candidate clearly did not use a reasonable situational analysis when analyzing the major issues facing WDI.

Based on the 2019 CPA Competency Map:

Technical Competency
2.3.2 Evaluates the entity's internal and external environment and its impact on strategy development.

Enabling Competencies
1.2.2 Performs work competently and with due care.
2.1.1 Defines the scope of the problem.
2.1.2 Collects and verifies relevant information.
2.1.3 Performs appropriate analyses.
2.1.4 Integrates information to investigate each potentially viable solution or conclusion.

A competent candidate will complete a sufficient situational analysis and will draw upon their situational analysis when analyzing the strategic issues facing WDI's board (purchase of TNC assets, sale of New Brunswick assets, investment in Flexi-P plant with MDL agreement, and investment in battery recycling plant with REI).

A competent candidate will also identify the two major issues that WDI currently faces: the cash constraint and the governance issue that exists due to the conflict between WDI's board and Kingsley.

Current Situation

One significant change in the situation is that Jack Kingsley is no longer willing to wait to sell Kingsley's WDI shares in order to get a return on the investment. Jack has demanded that both preferred share dividends and common share dividends be paid in the current year. This is a substantial amount: $10.7 million in total ($3.2 million for the preferred share dividends and $7.5 million for the common share dividends). Since Kingsley has control, it can vote for these dividends to be paid in the current year, which leaves significantly less cash available for any investments. By all indications, these dividends will be paid. Therefore, this amount must be excluded from the cash available for investment.

Laura wants to reinvest any available cash into new projects that can generate a strong return. She is interested in the long-term sustainability of WDI. In addition, the conflict between Laura and Jack has worsened due to the disputed subcontract WDI has with Kingsley to provide drivers and trucks for WDI's New Brunswick operations.

Although WDI's board has set specific objectives, the amount of cash available to invest will be significantly lowered given the large dividend payout that Jack will push through. WDI currently has $12.65 million of cash available (Appendix III) and can realistically expect to access an additional $20 million in debt financing. Therefore, WDI has access to a total cash amount of approximately $32.65 million. However, given that Kingsley requires WDI to distribute $10.7 million of dividends, WDI is left with approximately $22 million of cash for reinvestment and potential expansion. Each of the strategic alternatives presented requires at least $16 million of upfront investment, so the amount of cash available is a key constraint.

<u>Mission/vision:</u>

There has been no change in the vision, mission, or core values as the only change in operations has been the recycling plant upgrades that now allow WDI to recycle PET plastics. The industry is still driven by price, on which WDI cannot compete due to its size. WDI has had to hold its annual contractual increases to 1% and is now in line with its competitors' rates.

From Cap 1 — WDI's mission, vision, and core values, as approved by the board in 2014:

Vision statement: *To be a premier waste management company while meeting the needs of our customers, employees, local communities, and the environment.*

Mission statement: *We are waste disposal experts providing collection, disposal, and recycling services to our customers, using environmentally responsible and sustainable methods and leading-edge technologies.*

Core values:

- Operate safely and in compliance with all safety regulations.
- Act with integrity and honesty in an ethical manner.
- Treat employees with respect and ensure they are adequately trained and fairly compensated.
- Provide customers with effective and efficient service.
- Stay up to date with waste disposal technologies and educate customers on waste disposal alternatives.
- Promote sustainable practices within the company.

It appears WDI has maintained its good reputation, since customers have continued to renew their contracts as they expire. However, there are some issues with the collection service that was outsourced to Kingsley.

Objectives

WDI continues to offer collection, transfers, landfill sites, and recycling services to its customers. In the past three years, it has added the recycling of PET plastics as a service. WDI has also invested in biogas recapture, which has helped lower its emissions and landfill costs, as the biogas captured can be used to fuel its newly converted fleet of vehicles.

Revenues from collections and transfers continue to stagnate; levels are similar to those of 2020. Landfill site revenues have declined due to low annual increases in addition to low tipping fees. However, recycling revenues have significantly increased due to the company's new ability to recycle PET plastics, increases in the selling prices of PET plastics, and the increased quantity of PET plastics that is being sent to recycling plants.

The board's current objectives for 2023 are to

- improve its return on assets (ROA);
- consider a potential sale of poor-performing assets (i.e., assets that have a ROA of less than 5%); and
- only invest in projects that support the company's stated mission, vision, and core values.

Overall Observation on Financial Position

WDI's financial results (Appendix II) have improved due to its investment in its recycling plant and increases in the selling price of recycled commodities. The recycling plants with PET upgrades are contributing much of WDI's profits, whereas the contribution from its landfill sites has declined significantly. The stagnant revenues for collection and transfer contracts have caused operating profit margins to shrink. WDI's ROA is only 7.2%, which is below the industry average of 10%. These low returns are a result of the low margins discussed above.

Candidates are NOT expected to recap WDI's KSFs or provide a detailed SWOT analysis. However, candidates must draw upon these various factors in their analysis of the strategic alternatives presented within the simulation.

Key Success Factors (KSF)

Key success factors in the overall industry include: managing fuel, disposal, and regulatory compliance costs; having long-term customer contracts to maximize capacity usage; complying with all levels of government regulations; designing collection routes to be faster and cheaper; having good customer relationships; and ensuring contracts are renewed and new contracts are obtained.

Key success factors in the recycling segment include: having a large local customer base; having strong local support for recycling; being vertically integrated with collection; complying with all levels of government regulations; and investing in up-to-date technology to continually improve efficiencies and reduce labour input costs.

In the waste collection and disposal industry, operational success is based on being a low-cost provider (since waste management companies compete on price) and using up-to-date technology, fuels, and processes that reduce GHG emissions.

<u>Strengths:</u>

- WDI took significant steps towards using environmentally responsible and sustainable practices and leading-edge technologies. This led the company to increase its overall operating margins to 11% for 2022 and its operating margin in the recycling division to 30%.
- The company was able to cut its GHG emissions by 30% by converting its remaining fleet to natural gas, investing in biogas recapture equipment, and upgrading its recycling plants with leading-edge technology to sort and recycle PET plastics, OCC, and paper.
- WDI installed new systems that optimize collection routes, which will further reduce costs.
- WDI has a good reputation with its existing customers (except in New Brunswick, where client relations have recently suffered due to Kingsley drivers). Customers are renewing their contractual arrangements. However, only 1% annual increases in price are allowable under the contracts.
- WDI has an experienced management and board. Laura and Brian have both worked in the waste management industry for many years. Robert is a chemical engineer with experience in the plastics industry, which could also be useful if the company decides to invest in battery recycling. In addition, Laura has a chemical engineering degree with a specialization in environmental studies. Dianne McTavish has specific experience in waste management and recycling.
- WDI has operated in Nova Scotia since 1985 and New Brunswick since 2010. The company's experience within these markets will benefit it when making strategic decisions.
- WDI owns transfer stations and facilities that are close to customers, minimizing transportation costs. It also has vertical integration between collection, transfer, landfill sites, and recycling plants, which reduces subcontracting costs and lowers operating costs .

- Kingsley, the majority shareholder, has experience in turning companies around and improving profit margins.

Weaknesses:

- Since it sold 60% of its fleet to Kingsley, WDI relies on Kingsley to supply trucks and qualified drivers for its New Brunswick operations. This means that WDI no longer has control over customer service. As a result, customer complaints have increased. In addition, Kingsley has increased annual contract costs above inflation each year, making the cost higher than expected.
- Annual increases in WDI's customer fees have been limited to only 1%. This is likely unsustainable since inflation is 3.2% and margins are declining as costs increase at a higher rate than 1% per annum.
- WDI is currently unable to recycle aluminum or organic waste, which customers want as part of their service agreements.
- WDI is small in comparison to its competitors and cannot achieve the efficiencies of scale larger competitors can. Its higher unit production costs mean it cannot compete on price alone.
- WDI's ROA was only 7.2% in 2022, which is low in comparison to competitors (the industry average is 10%).
- Aside from adding PET plastic recycling in 2021, which has increased margins, WDI has not changed its products and services and continues to have the same revenue streams.

Opportunities:

- The economy is growing at 3%, and consumer spending has increased, which may increase the volume of waste that will require disposal.
- The volume of PET plastics that needs to be recycled is expected to increase 8% annually for the next three years, while the volume of organic waste to be recycled is expected to increase by 5% annually for the next several years.
- A new type of recycled flexible plastic (Flexi-P) has recently been developed by Manchester Design Limited (MDL), a company with highly respected professional engineers. The new plastic appears to be superior to the type of recycled plastic material that is currently available. WDI could build a facility to produce Flexi-P.
- Government legislation may be passed requiring plastic products to be made of at least 55% recycled materials, increasing the demand for recycled materials and, therefore, the selling prices.
- The number of regulations to divert organic and recyclable materials waste from landfills to other processing centres is growing. This will increase the demand for organic-waste processing and other recycling processes.
- Governments are considering new legislation that will require alkaline batteries (which represent 90% of batteries sold) to be recycled. Currently, these batteries are disposed of in landfill sites. However, municipalities do not expect this to change for at least three years.
- The processing fees for organic-waste composting and the selling price of recycled materials are on the rise.

Threats:

- The prime rate has increased to 4%, which makes debt more expensive.
- The annual inflation rate is 3.2%, increasing operating costs. Additional legislation could impact segments of WDI's business.
- Selling prices for recycled materials are volatile and can change significantly from year to year. Total industry revenues are expected to grow at only 2%, while inflation rates are expected to be around 3%.
- The waste management industry is extremely competitive, and WDI's ability to thrive in this environment is being hampered by internal disputes.

Summative Assessment #2 – Analyzes the Major Issues

For Summative Assessment #2, the candidate must be assessed for reasonableness of attempt:

Yes – The candidate sufficiently completed a reasonable assessment of the major issues facing WDI.

Unsure – The candidate attempted to complete a reasonable assessment of the major issues facing WDI.

No – The candidate clearly did not complete a reasonable assessment of the major issues facing WDI.

Technical Competencies
2.1.1 Evaluates the entity's governance structure (policies, processes, codes).
2.3.3 Evaluates strategic alternatives.

Enabling Competencies
2.1.1 Defines the scope of the problem.
2.1.2 Collects and verifies relevant information.
2.1.3 Performs appropriate analyses.
2.1.4 Integrates information to investigate each potentially viable solution or conclusion.
2.1.6 Uses creativity and innovation to enhance problem-solving and decision-making.

This summative assessment is based on Assessment Opportunities #2 to #6.

Assessment Opportunity #2 (Strategic Issue #1: Purchase organic waste processing facility from TNC Limited)

A competent candidate will complete both a quantitative and qualitative assessment of the proposal to purchase the assets of TNC, specifically an organic waste processing facility.

Quantitative: Candidates should estimate the return on assets (ROA) of the project and the impact on the company's objective to improve its ROA.

Qualitative: Candidates should assess whether this investment meets WDI's objectives and discuss the advantages, disadvantages, and risks associated with the investment in TNC. Candidates should also discuss this proposal's fit with WDI's vision, mission, and core values.

The assets of an organic waste processing facility owned by TN Composting Limited (TNC) are for sale. The facility has a variety of customers: restaurants, food processors, hospitals, and a university. WDI is interested in these customer contracts as it would like to sell some of its other waste management services to them.

Quantitative Analysis

The asking price for the assets of TNC is $14 million. In addition, the facility will require an equipment upgrade, which Brian estimates will cost $2 million, bringing the total investment to $16 million. However, Robert suggested the upgrades may cost $6 million, which would bring the total investment to $20 million.

The facility currently processes 40,000 tonnes of waste (its total capacity is 50,000 tonnes). After the equipment has been upgraded, the TNC facility can expect to earn $1.6 million of operating income per year. Based on these projections, and at a continued usage rate of 40,000 tonnes, the ROA would be as follows:

@ 40,000 tonnes usage (80% of capacity)

Purchase Price	Upgrade Cost	Asset Value	Operating Income	ROA
$14,000,000	$2,000,000	$16,000,000	$1,600,000	10%
$14,000,000	$6,000,000	$20,000,000	$1,600,000	8%

If the equipment upgrade costs $2 million, the project's ROA would be equal to the industry's average and would improve WDI's overall ROA (from 7.2%). However, if the upgrade instead costs $6 million, the project's ROA would fall to 8%, which is below the industry target, yet it would still help to improve WDI's overall ROA for 2022.

Given the TNC facility has an additional 10,000 tonnes of available capacity, the operating income and the ROA of the project would increase if that additional capacity were filled:

@ 50,000 tonnes usage (100% of capacity)

Purchase Price	**Upgrade Cost**	**Asset Value**	**Operating Income**	**ROA**
$14,000,000	$2,000,000	$16,000,000	$2,000,000	12.5%
$14,000,000	$6,000,000	$20,000,000	$2,000,000	10%

However, 55% of TNC's contracts will expire in the current year, and the remaining 45% expire in 2024. The volume of organic waste processed by the TNC facility depends on how many contracts WDI can renew and what terms the company is able to secure. Financial success depends largely on the number of customers that renew.

The results of this investment, and the ROA, could be higher, given the potential synergies WDI could realize, including

- reducing the collection costs by using its own current fleet;
- reducing administration and head office costs, etc.;
- selling its other services to these new customers; and
- using the 20% of capacity currently not used to sell organic waste processing to its existing customers.

Robert raised a valid concern. It may take up to five months to complete the equipment upgrades, during which time the facility will likely have to close. WDI may need to outsource the collection and processing of the facility's existing customers' contracts. This is an added cost and logistical element that will need to be addressed. Moreover, the time lag may make this investment alternative less attractive to Jack, who wishes to make an immediate return on any investment.

Qualitative Analysis

Mission/vision:

- The organic treatment facility fits well with WDI's vision to be a premier waste management company. Organic waste treatment is environmentally responsible and sustainable — more so than using a landfill site.
- The investment supports sustainability and is in a sector that requires leading-edge technology. This facility will use the most advanced technologies once the upgrades have been completed, so this venture complies with the mission to use leading-edge technologies.
- It also meets the needs of
  - WDI's customers, by providing the ability to recycle various types of materials; and
  - the local community, since WDI will be able to provide organic waste processing to its customers.

- It also ties into WDI's core values to stay up to date with waste disposal technologies and educate customers on waste disposal alternatives, and to promote sustainable practices within the company. The facility will be reducing and avoiding GHG emissions, since organic waste will no longer be in the landfill creating GHG emissions. In addition, the biogas released by the organic treatment is captured and used as fuel, further reducing GHG emissions.

Objectives:

This strategic alternative will provide an ROA of between 8% and 12.5%, depending on the cost of upgrades and the usage rate, which may help to increase the current ROA of 7.2%. However, this outcome depends on TNC's customers renewing their existing contracts.

Risks:

- TNC's reputation is tied to the owner, Giselle Laflamme. Existing customer turnover is very low for TNC. However, if Giselle leaves, there is the risk that this may change.
- Five customers make up 70% of the total revenues. This means there is significant concentration of risk in the customer base. The loss of any one of these customers could significantly impact profits.
- Current contracts are for three years, of which 55% (representing most of TNC's collection and processing revenues) will expire during 2023, and the remaining 45% expire in 2024. There is a risk that these contracts will not be renewed and revenues will decline before WDI can find new customers.
- WDI has no experience in organic waste processing or managing an organic waste processing facility. Therefore, WDI will have to rely on retaining the facility's current management. If the owner, Giselle, leaves, critical experience and knowledge will leave with her. Is she replaceable? Is there someone else at the plant who has similar knowledge and experience? Is she willing to stay on in an advisory role?
- TNC is run directly by the owner, who is very hands-on. TNC's culture could be significantly different compared to how WDI currently operates.
- Since there is a lot of interest in this sale, another competitor may take advantage of the opportunity if WDI does not buy the facility.

Opportunities:

- It would provide another source of revenue for WDI, which would diversify the company's revenue streams.
- This investment would provide WDI with a list of 654 potential new customers in Nova Scotia. This includes 400 restaurants, 250 food processors, 3 hospitals, and a university. WDI may be able to sell its other services to these new customers. Also, there would be the opportunity to sell the organic waste treatment service to WDI's current customers.

- Municipalities were looking for organic waste processors, and WDI was losing contracts because it did not provide these services. This is still likely the case, with increasing regulations to divert waste from landfill sites. Having an organic waste processing plant may provide new customers.
- TNC's customer mix will help to diversify WDI's customer base.
- Organic waste treatment is expected to grow at 5% for the next several years, and processing fees for organic composting are also increasing. Therefore, the profitability of the project may improve beyond the above projections.
- The facility has 10,000 tonnes of capacity available to sell to new customers or existing WDI customers.

Integration

Of all the strategic issues, this option provides the shortest duration (five months) between the investment and beginning of revenue, since these assets are part of a currently operating business. Therefore, Jack is more likely to support this investment, given that it will provide a more immediate return relative to the other available options. There is a positive indication of an ROA that will meet or exceed current targets. This option also aligns with the board's goal of investing in areas that align with the mission and vision. Overall, this alternative seems to be a good compromise between satisfying Jack Kingsley's preference for an immediate return and Laura's preference for investing in sustainable options for WDI.

Conclusion

The acquisition of TNC will provide WDI with an expanded service line, given that the company currently lacks an organic waste processing facility — a weakness of the company. There are many advantages to this acquisition. It would improve the company's ROA if the cost of upgrading the facility could be kept to a reasonable level. It would also satisfy the board's desire to invest in sustainability. Since the facility currently operates at only 80% capacity, WDI could sell this service to existing customers. The purchase would also provide WDI with a new customer base for its collection, transfer, landfill, and other recycling services.

Among the major risks is the fact WDI has no experience in this sector and the reputation of TNC is tied to the owner, who has been very involved in the facility's day-to-day operations. If Giselle is unwilling to stay on in some capacity, at least to renew the significant contracts, this investment becomes much riskier. Laura suggested she may be able to negotiate with Giselle to manage the transition. This will likely be vital for the success of the investment. Giselle leaving may result in the loss of customers and may impact the operation internally (for example, increased employee turnover, reduced productivity, etc.).

Despite the risks, this is a good opportunity for WDI to enter a growing market that fits well with its current mission, vision, and objectives. Organic waste is expected to grow at 5% in the future, faster than the industry growth rate of 2%. However, with a total investment price of $16 million to $20 million, there will be no cash available to invest in other areas after the dividends are paid out. The asking price may be on the high side, given the owner may leave and the contracts are short term and expire soon. WDI should try to negotiate a lower price, potentially with an incentive tied to contract renewal or the owner providing and being paid for services, which could further improve the ROA.

However, if the current owner will not stay on long enough to at least help secure the upcoming contract renewals, the risk of the investment will increase significantly. If this is the case, WDI may want to reconsider this investment.

Assessment Opportunity #3 (Strategic Issue #2: Sell all WDI's New Brunswick assets to CWM)

A competent candidate will complete both a quantitative and qualitative assessment of the potential sale of the New Brunswick assets.

Quantitative: Candidates should recognize and highlight the impact of this decision (the relative size of the New Brunswick division and how its sale would affect the company overall) and also consider the impact on the ROA and the objective of selling underperforming assets.

Qualitative: Candidates should discuss the qualitative considerations related to the decision to sell the New Brunswick assets, including the fit with WDI's vision, mission, core values, and objectives. Candidates should also discuss what could be done with the sales proceeds (e.g., pay dividends, make investments, and/or possibly buy back Kingsley's shares).

Canada Waste Management Incorporated (CWM), a national competitor of WDI, has recently made an offer to purchase the entirety of WDI's New Brunswick (NB) assets for $93 million. In NB, there are two collection centres (out of five), one transfer station (out of three), one landfill site (out of three), and two recycling plants (out of four) that WDI currently operates.

Quantitative Analysis

Although the collection and transfer division combined have a low ROA and are performing poorly, there is no market for these assets on a stand-alone basis. Selling the NB assets will result in the company selling a significant portion of its current operating income (i.e., 45%: $10,804,000 − $4,800,000 = $6,004,000 ÷ $13,259,000), and as stated by Laura, a significant portion of its assets.

If sold, there will be a loss of some synergies. For example, the selling and administrative expense allocated to New Brunswick may not be real savings since many of these costs are integrated and may be incurred for both Nova Scotia and New Brunswick. Further analysis is necessary.

Qualitative Considerations

Shareholder objectives:

Given that the collection centres and transfer station in combination have an ROA of less than 3%, selling the NB assets would partially meet the board's objectives. However, the entire NB division has an ROA of 11%, which is higher than the 7.2% generated in 2022. Therefore, selling these assets will decrease WDI's overall ROA . The NB division as a whole currently has an ROA that exceeds even the industry average of 10%, which is most likely why WDI is being offered such a generous price for these assets. Therefore, a sale would not help achieve the ROA objective.

However, selling these assets may allow WDI to further invest in modern technologies and trends within the waste management industry. This outcome may help to meet the board's objective to expand into services that support WDI's stated mission, vision, and core values, depending upon how the proceeds of the potential sale are invested.

Mission/vision:

- Selling all the NB assets does not fit with the company's vision to meet the needs of its customers, employees, and the local communities of New Brunswick. By selling these assets, WDI would only be able to provide services related to Nova Scotia and would limit its geographic scope.
- One of WDI's core values is to treat employees with respect. What will happen to the employees who currently work in the NB division if these assets are sold? Will the new owner keep them on? Should retaining employees for a specified period be part of the negotiations?
- Selling the recycling facilities and the landfill site goes against the objective of investing in sustainability, since the landfill sites produce biogas that is used for energy and the recycling plants recycle a variety of products, which reduces GHG emissions. Only the sale of the collection and transfer divisions would help meet the sustainability objective.

Risks:

- The current cost efficiencies that exist between WDI's Nova Scotia and NB operations would be lost, and as a result, WDI's overall performance would be hurt.
- Selling the NB assets to CWM, a national competitor, may make WDI less competitive and more vulnerable to a future takeover, since WDI would be roughly half its current size after the sale, while CWM would be larger.
- WDI's board and Laura want to move into service areas that require more specialty skills and modern technology. However, selling the recycling plants would reduce the company's involvement in these service areas.
- Robert does not want to sell the recycling and landfill sites because these are currently what differentiate WDI, and demand for these services will be increasing in the future.
- Recycling is a growth area, and currently the company is differentiated by being able to recycle PET plastics. Selling off the NB facility would reduce its participation in this sector.

Integration

The Kingsley contract is to supply drivers and trucks for the NB operations. As there appear to be current problems with this service contract, transferring it to a new buyer would alleviate this concern.

Conclusion

The proposal is to sell all the NB assets for $93 million to CWM, a national competitor. This offer price is higher than comparable market prices. However, these assets and profits represent a significant portion of WDI's operations, and selling the NB assets would shrink WDI to roughly half its current size, making it difficult to compete in the industry. Although this generates immediate cash, the sale would most likely hurt WDI in the long term. Selling the recycling plants, which have high profits, will result in lower margins and returns and will not help WDI achieve its goals for 2023. Selling the landfill site and recycling plants that support sustainability would be counter to the strategy to invest in sectors that are sustainable and require leading-edge technology.

However, WDI currently has a cash constraint that must be considered. The funds from this potential sale would be substantial and would help to alleviate the constraint. The proceeds could be used to pay down debt. WDI also currently has several potential reinvestment projects available, and it could allocate a portion of the proceeds towards investment in emerging areas of the industry. One other possibility would be to use the proceeds to buy out Kingsley, if Laura is serious about terminating all dealings with Jack. It may be that Jack would welcome the idea of liquidating his investment in WDI (it has been stated that Jack would like to exit his position in WDI within the next year or two).

Assessment Opportunity #4 (Strategic Issue #3: Invest in a Flexi-P production facility)

A competent candidate will complete both a quantitative and qualitative assessment of investing between $18 million and $22 million in a Flexi-P processing facility.

Quantitative: Candidates should determine if the proposed investment of $18 million to $22 million is reasonable based on the expected revenue and cost estimates.

Qualitative: Candidates should discuss qualitative aspects of making this investment, including risks, advantages, and disadvantages for WDI and the fit with the company's stated mission, vision, and objectives.

WDI has been offered the opportunity to work with Manchester Design Limited (MDL). MDL, a company owned by professional engineers, has developed a new type of recycled flexible plastic (Flexi-P). Flexi-P appears to be superior relative to typical recycled plastic, since it is stronger and more environmentally responsible upon disposal. MDL has formulated Flexi-P and wants WDI to become MDL's sole supplier of the new material.

MDL has proposed a 10-year agreement. Under the agreement, WDI would be required to build a new plant that MDL expects will cost between $18 million and $22 million. In return, MDL would give WDI sole access to the technology related to Flexi-P so that WDI could produce and sell it. WDI would have to agree to sell its Flexi-P production volumes first to MDL and only then to other customers.

Quantitative Analysis

Capacity of the new proposed plant is 30,000 tonnes. MDL requires 17,000 tonnes initial capacity usage. Year 1 will be 2025, given that the facility will take two years to build. Growth in MDL's demand is 9% per year. Capacity will be reached in 2032 (after approximately eight years).

The projection below does not include the additional revenue that WDI could generate by selling the excess capacity of Flexi-P to other purchasers. Therefore, this projection may be understated.

MDL has promised to pay WDI $750 per tonne of Flexi-P. WDI projects that variable costs will equal $415 per tonne of production, whereas fixed costs are estimated to be $1.25 million per year. The projection assumes a discount rate of 15%, given WDI's preference to use this measure while assessing investment proposals.

The rate of return of the project depends on how much of the new plant's capacity will be used. If production volume is lower than anticipated, the profitability of the project could be significantly reduced.

Also, as MDL's engineers pointed out, because Flexi-P is an entirely new product and process, it is a challenge to determine precise cost estimates. It is also very important to note these projections are based on figures that were provided by MDL. It is possible that the project's costs (building cost, variable costs, and fixed costs) could differ significantly compared to what has been projected (as MDL has an interest in making this investment proposal look as lucrative as possible). Cost overruns and lower-than-expected margins are a real possibility with this project.

Therefore, the following projection may change when more accurate data becomes available.

	2023	2024	2025	2026	2027	2028
Year	**0**	**1**	**2**	**3**	**4**	**5**
Initial investment	$20,000,000					
Volume	-	-	17,000	18,530	20,198	22,015
Revenue from MBL	-	-	$12,750,000	$13,897,500	$15,148,275	$16,511,620
Variable costs	-	-	7,055,000	7,689,950	8,382,046	9,136,430
Fixed costs	-	-	1,250,000	1,250,000	1,250,000	1,250,000
	-	-	4,445,000	4,957,550	5,516,230	6,125,190
Discount factor (15%)	1.00	0.8696	0.7561	0.6575	0.5718	0.4972
	$(20,000,000)	-	$ 3,361,059	$ 3,259,670	$ 3,153,922	$ 3,045,302

	2029	2030	2031	2032	2033	2034	
	6	**7**	**8**	**9**	**10**	**11**	**Total**
Volume	23,997	26,157	28,511	30,000	30,000	30,000	**246,407**
Revenue from MBL	$17,997,666	$19,617,455	$21,383,026	$22,500,000	$22,500,000	$22,500,000	**$184,805,542**
Variable costs	9,958,708	10,854,992	11,831,941	12,450,000	12,450,000	12,450,000	**102,259,067**
Fixed costs	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000	**12,500,000**
	6,788,957	7,512,463	8,301,085	8,800,000	8,800,000	8,800,000	**70,046,475**
Discount factor (15%)	0.4323	0.3759	0.3269	0.2843	0.2472	0.2149	
	$ 2,935,054	$ 2,824,213	$ 2,713,639	$ 2,501,509	$ 2,175,225	$ 1,891,500	**$ 7,861,094**

The project has an approximate $8 million present value when analyzed according to the assumptions provided. If the estimates used in the model are accurate, then this project appears to be a profitable option. As well, if the capacity left after MDL's use is deployed for sales to other customers, this project would become even more profitable.

The Flexi-P project also appears to satisfy the board's objective to increase WDI's ROA from its current 7.2%. If the projection provided is accurate, the project's ROA in its first year of operation would be approximately 17% (on a discounted basis).

Qualitative Considerations

Mission/vision:

- The project supports WDI's strategy to invest in sustainable businesses.
- It also supports the board's objective to invest in areas that adhere to the company's stated mission and vision.
- Kingsley (verbalized by Dianne) may not want to invest in areas that are not tied to waste management, since that is WDI's core competency.
- Brian supports the investment since it allows WDI to diversify into a new market segment.

Opportunities:

- The selling price of recycled materials continues to increase. Flexi-P appears to be a superior product relative to normal recycled plastic. Given this, WDI may be able to sell Flexi-P at a higher-than-normal price.
- The volume of PET plastics being recycled is expected to increase by 8% annually over the next three years. Therefore, there will likely be an increased demand for facilities able to recycle PETs.
- Government legislation is also pushing up demand for recycled materials. This trend can help WDI gain confidence that its new Flexi-P facility would be fully utilized.
- In addition, because Flexi-P is a specialized product that requires leading-edge technology, if WDI invested in Flexi-P, the company would adhere to its stated strategy. It also provides entrance into a new segment of the recycling market.
- The demand for recycled material is impacted by government regulations. Therefore, if there is support for green policies on industrial and commercial users, this will increase the demand for MDL's products.
- Legislation is being developed that would require many types of plastic products to be made of at least 55% recycled material. Since MDL's product consists of recycled material, this could increase the demand for MDL products.
- Flexi-P is a brand-new product developed from a new process. If WDI enters this sector, it may gain a valuable competitive advantage over its rivals and would also have a large customer (MDL) from the outset of the project.
- MDL has been operating in Nova Scotia for 11 years and has seen a significant annual growth in sales. Therefore, MDL appears to have a wealth of experience and a successful formula, which should help WDI gain confidence in MDL's project and projections.

Risks:

- Given this is a new material, it is possible that the market for the products produced from Flexi-P will not be as strong as MDL has projected. As a result, it may take longer to achieve the kind of profitability that has been projected in the analysis above.
- At this point, it seems that WDI is relying completely on MDL's assessment of Flexi-P. What does WDI know about the Flexi-P manufacturing process, and how confident can it be in the future success of this material? Prior to making an investment in this area, it is necessary to complete independent research on the utility of Flexi-P and the production process.
- Given WDI's new plant will be based on a new technology, it is possible that the plant's building process will be long and complex. Does WDI currently have the internal expertise to manage this plant/project? WDI may need to allocate more resources towards this project than anticipated.

Additional considerations/suggestions:

- The terms of the agreement specify that WDI is required to fulfil MDL's orders for Flexi-P first. Therefore, if WDI arranges Flexi-P contracts with other customers, it must ensure that the facility has enough capacity to meet MDL's orders. This could make logistics a challenge if MDL's requirements vary from its original projection.
- The facility is projected to have a 10-year useful life, given that its technology will most likely be outdated by then. Is it possible that Flexi-P will become obsolete even quicker than that?

Integration

It will take around two years before this project starts to generate cash flow for WDI. As previously mentioned, WDI is currently facing a significant cash shortage. By investing in this project, WDI's cash situation will worsen before it starts to improve in two years. This fact may deter Jack from accepting this proposal, since he wishes to earn as immediate a return on his investment in WDI as possible.

Conclusion

Quantitatively, the project appears to be profitable. Qualitatively, the project adheres to the company's stated mission/vision and meets the board's objectives. However, there are many unknown variables relative to the project and, therefore, the projections provided may not accurately reflect its actual results. For this reason, it is very important for WDI to perform its own due diligence on Flexi-P and MDL prior to making this investment. WDI needs to determine whether the cost estimates provided by MDL are accurate or, at a minimum, based on reasonable assumptions. If during the due diligence process WDI discovers that the information provided by MDL is accurate, then this project would be a lucrative one for WDI.

This investment would help WDI diversify into a promising new segment of the industry. Also, it would provide WDI with a strong working relationship with MDL, which appears to be a successful and forward-thinking company within the industry.

However, since the initial expansion would cost between $18 million and $22 million and WDI has roughly $22 million remaining in cash for reinvestment (after paying the dividends Jack has requested), if this investment is made, there would be no additional funds left to invest in anything else. Given that WDI currently has a major cash constraint, it may not be possible to invest in a Flexi-P plant if other investments are judged to be superior to this one. Moreover, even if WDI's board wishes to invest in this area, Jack may veto the project given his particular investment goals (a quick return).

Assessment Opportunity #5 (Strategic Issue #4: Rayland Energy Inc. (REI) joint investment)

A competent candidate will complete a qualitative assessment of the proposed joint investment in a battery recycling plant with REI and identify what additional information is required before a complete analysis is possible.

Qualitative: Candidates are expected to identify that this is a risky investment based on the timing and nature of the investment. Candidates should assess the proposal's fit with WDI's stated mission, vision, and objectives. Candidates should also suggest areas of concern and changes to the proposed arrangement.

The proposal is for WDI to invest $17 million in a battery recycling plant. REI will invest the same amount in the proposed plant (WDI and REI will each own 50% of the proposed plant). No figures have been provided to analyze the return on the investment. However, candidates should assess whether to consider this option further based on the strategic fit (mission, vision, etc.) it presents.

Quantitative Analysis

REI projects an ROA of approximately 8%. If this projection is accurate, then by investing in this plant, WDI's 7.2% ROA would marginally improve, meeting the board's objective. However, the 8% projected ROA is still less than the industry average of 10%. According to REI's projection, the new battery recycling plant will have additional capacity to take on other contracts, which could help push the project's return above 8%, but it is impossible to determine the impact on the profitability of the project.

The ROA also depends on the potential future legislation requiring batteries to be recycled, which means there is risk involved with this investment for WDI.

Qualitative Considerations

<u>Mission/vision:</u>

- Investing in a battery recycling plant meets WDI's mission and vision to be involved in the recycling sector.
- Diverting alkaline batteries from landfill sites meets its mission to use environmentally responsible methods.

- Investing in a state-of-the-art plant that requires significant expertise is in line with WDI's goal to invest in sustainable businesses with leading-edge technologies.
- Diverting waste from landfills aligns with the core value of sustainability.

Opportunities:

- Provinces are required to regulate manufacturers to be responsible for disposal of their products and packaging at the end of the product's useful life. If alkaline batteries become a hazardous waste product, as anticipated, then a method to collect and recycle these products becomes necessary, and WDI/REI will be ready to meet these needs.
- Governments are considering legislation that would require alkaline batteries, which account for 90% of all batteries sold, to be recycled. If passed, this will lead to a large increase in the demand for battery recycling.
- WDI will earn additional income from this project through the management fee it receives as compensation for managing the daily operations of the plant, reducing the risk of the investment.
- As Laura mentioned, REI tends to make prudent and well-informed decisions. WDI has the opportunity to use REI's expertise to help propel WDI into a new market segment.

Risks:

- Since recycling is not yet mandatory, the supply of batteries may be too low to generate a profit in the early stages of the project.
- The timing of legislation is a concern. Currently, the plan is to have the facility operational by June 2024. However, it is possible the new expected legislation will not take effect for at least another three years. If this is the case, the new plant may have a significant amount of excess capacity. The longer it takes for legislation to come into effect, the more WDI would suffer financially.
- WDI will have to invest $17 million initially, but the amount may increase if more funds are required or if losses occur due to low supply of batteries or high costs.
- The transfer or sale of shares would be prohibited unless the other party agrees to the sale. Therefore, should WDI wish to remove itself from the project in the future, the sale of shares could be complicated, time consuming, and contentious.
- WDI's competitors may become aware of this opportunity and may build their own battery recycling facility, creating the risk that WDI may not be able to acquire sufficient contracts to make the venture profitable.

Joint investment:

- The risk of entering this new market will be equally shared between WDI and REI.
- As the battery manufacturer, REI will be able to provide a large supply of batteries since they will most likely be required by law to collect and dispose of the batteries they produce.
- All decisions related to operations, strategy, and finances must be made unanimously, which may be difficult if WDI and REI have different objectives and goals. No one party will have control.

- WDI and REI will also have equal representation on the proposed four-person board. Arriving at a unanimous decision could be a challenge and result in governance issues. WDI may have to consider adding an additional independent director to the board in order to avoid a stalemate during voting.

<u>Additional information:</u>

Before a final decision can be made, a net present value (NPV), or some other form of analysis, should be completed to determine if the investment will generate an adequate return. NPV analysis will require inputs such as the following:

- Initial investment costs — even though $34 million is the estimated total investment, what does this cover (i.e., land, building, and equipment)?
- What is the capacity of the plant?
- How does this capacity compare to the supply that will be available in the local area?
- What is the current processing fee to recycle the batteries and who will pay this?
- What are the forecasted volumes of batteries that will be recycled?
- What are the processing costs?
- What are the selling prices for the recycled materials?
- What does the demand for these recycled materials depend on, and what is the forecast for the demand?
- What will be the life of the project?
- Will additional financing be required?

Conclusion

This proposal is in the early stages. Additional information is necessary to be able to perform a quantitative assessment and reach a decision. Currently, the legislation that requires alkaline batteries to be recycled has not passed, and although REI believes it will be passed in 2024, this adds risk and uncertainty to the decision. This investment would allow WDI to share the risks of the battery recycling plant with a battery manufacturer with experience in the industry. This investment supports the strategic direction of WDI since it is an investment in a business that is sustainable and requires leading-edge technology.

With WDI's cash constraint, if this $17 million investment is made, there will not be enough cash left over for any other strategic investment. Given the many unknowns associated with this investment, as well as the fact that legislation may not pass for several years, it may be prudent to delay the investment in this project. As well, Jack may not support this investment, given its risk and lack of immediate return.

WDI could indicate that it is willing to pursue the idea and agree to work with REI to develop numbers for an NPV, and then WDI will be in a better position to decide how best to proceed. Finally, there are currently some conditions in the proposed agreement that should be renegotiated to give WDI more control.

Assessment Opportunity #6 (Governance Issues)

A competent candidate should recognize that the differences in Jack's and Laura's views and desired outcomes for WDI have widened since Capstone. It is a factor that needs to be addressed in the board of directors' decision-making process. However, candidates should recognize that Kingsley, being the controlling shareholder, ultimately has control over WDI.

Candidates could also consider alternative ways to contend with the problem (e.g., board restructuring, negotiating a buyout of Kingsley, etc.).

There are two main concerns regarding the relationship between Kingsley (and, therefore, Jack, who is the owner of Kingsley) and WDI. First, through the trucking/collection contract that WDI has with Kingsley, Kingsley is possibly taking advantage of WDI and appears to be harming WDI's reputation in New Brunswick. This service may now be more expensive than WDI's in-house collection service. Second, and more significantly, Jack's desire to earn a more immediate return limits WDI's ability to make strategic investments, some of which could strengthen the company in the long term.

Collection Contract

The consulting agreement WDI signed with Kingsley in June 2020 has resulted in a further dispute between the two parties. WDI has received complaints and reports that Kingsley drivers are both rude and ineffective. WDI has discussed this concern with Kingsley, but the issue has persisted. Kingsley has also violated the terms of the agreement by raising prices beyond inflation rates. WDI originally outsourced this function to Kingsley because it was thought that WDI would be able to cut its overall expense. However, since WDI converted to natural gas, this cost savings is no longer applicable, particularly with the continued rate increases imposed by Kingsley. Given all this, Laura wants to terminate the contract entirely.

If Kingsley has in fact violated the terms of the contract, WDI may have grounds to contest and terminate the trucking/collection contract. However, this approach will likely result in a worsened relationship with Kingsley, as well as potentially significant legal costs (which WDI cannot afford). It may be prudent to attempt to discuss the issue with Kingsley and Jack one last time prior to taking any kind of legal action. WDI could also consider mediation as a way of finding a resolution to this dispute. This may make it possible to negotiate a limit to the rate increase. In the long term, WDI may decide to move this function back in-house or find a different contractor.

Governance

The greater concern is the governance issue. Even though WDI's board members seem united in their vision for WDI's long-term health, Jack's focus appears to be on WDI's short-term profitability. As mentioned, Kingsley is the majority shareholder of WDI, which gives Jack control of WDI via Kingsley. Ultimately, Jack controls the decision making. Because Jack desires a quick return on his investment, he is unlikely to approve any investments that do not translate into more immediate returns.

The conflicting views and objections held by Jack and Laura are impacting the board's ability to manage and govern WDI. If this matter is not resolved, WDI's future success will likely be jeopardized. WDI currently has $12.65 million available cash, and it appears that Jack has decided to pay out $10.7 million of cash dividends this year. Jack's plan for a large dividend payment will deplete WDI's cash resources, which will lead to a cash constraint. With the maximum amount of lending available, after the dividends are paid, WDI has an estimated $21.85 million to invest. Without further loans, WDI has limited capital to invest in new areas within the industry.

Nevertheless, increasing the value of WDI is a common goal shared by Jack, Laura, and the rest of WDI's board. Based on this common goal, it may be possible to agree on a strategy that would be acceptable to all parties involved. As a first approach, WDI's board may want to consider mediation or some other form of dispute resolution. However, if Jack remains unwilling to negotiate a compromise with WDI's board, other strategies for resolution should be considered:

- It may be possible to buy out Kingsley's shares with the proceeds from the sale of NB. However, there are many risks associated with this approach (as discussed above), and it remains unclear how much it would cost for the buyout, assuming Jack agrees to it.
- If interested, would Jack consider a payout that consists of both cash and debt? If so, this may be an effective way to alleviate the cash constraint.

Other Governance

Discussion points around the current board structure:

- WDI should have at least one more board member who is truly independent — someone who is not involved in management. This independent director could act as an intermediary between Kingsley and WDI, and they could review any related-party transactions between Kingsley and WDI to ensure they are fair transactions.
- WDI could consider hiring an independent lawyer to review the disputes from a legal, company perspective.
- The original shareholder agreement could be reviewed for any guidance on how disputes between shareholders is meant to be resolved, if such guidance exists. If it does not, a dispute resolution process could be drafted that would allow WDI to quickly resolve any shareholder conflicts so that the company's ability to operate effectively is not once again hampered in the future.

- Dianne, the chair of WDI's board, has a duty to act in the best interest of the company. Although she works for Kingsley, her fiduciary duty, as a member of WDI's board, is to make decisions that are in the best interest of WDI. Dianne stated that she disagrees with Jack's approach but still appears to be following his guidance. This could be a breach of the duty she owes to WDI.

Conclusion

Kingsley is the controlling interest of WDI, so Laura may not be able to change anything. It may be in WDI's best interest for Laura to compromise to the extent possible with Jack. At this point, WDI's board should arrange for a discussion of the future of WDI with Jack in the hope of creating a unified and agreed-upon direction. Does the board want to continue to operate and grow WDI into the future? If so, Laura could attempt to explain her perspective to Jack in the hope he will change his mind, or she could present alternative ways to meet his needs. If that does not work, perhaps offering to buy Jack out using the New Brunswick proceeds is warranted (he has stated that he wants to exit his position from WDI within the next year or two). The sale of the NB assets may provide sufficient cash, after repayment of the debt if necessary, to buy back Kingsley's shares if Jack is willing to set a reasonable price. This course of action may be the best alternative for securing the long-term future of WDI. While selling the NB assets will initially shrink the company, it would allow WDI to refocus on the new strategic direction it wants to take.

Summative Assessment #3 – Conclude and Advise

For Summative Assessment #3, the candidate must be assessed for reasonableness of attempt:

Yes – The candidate provided reasonable conclusions for each major issue.

Unsure – The candidate attempted to provide reasonable conclusions for each major issue.

No – The candidate clearly did not complete reasonable conclusions for each major issue.

Enabling Competencies
2.1.4 Integrates information to investigate each potentially viable solution or conclusion.
2.1.5 Recommends and justifies a solution or conclusion based on an integrative view of information for the situation.

A competent candidate will complete a logical conclusion that is consistent with their analysis and integrated across the strategic issues, taking into consideration the cash flow requirements.

The candidate should provide logical conclusions and a recommendation on the strategic direction WDI should take. The candidate's analysis should <u>*integrate*</u> *the analysis for all four major issues (acquisition of TN Composting Limited organic-waste processing facility, sale of New Brunswick assets, investment in Manchester Design Limited, joint investment with Rayland Energy Inc.).*

The recommendations should be strategic in nature and display good professional judgment and logic. Suggesting that further information is required is acceptable where justified and consistent with the analysis.

Candidates should prioritize which investments WDI should make, given its current cash constraint and the governance issues presented. This prioritization should consider the following:

- Does the alternative help to meet WDI's objectives of improving ROA/selling off poorly performing assets?
- Does the alternative fit with the current objectives, as agreed by the board, which are to expand into sectors that adhere to the company's stated mission and vision?
- Regarding level of risk, what upfront investment is required? How different is this alternative in comparison to what the company does, and given industry trends?
- Which alternatives provide the "best use of cash" (consider the need to pay dividends and make debt payments)?
- What alternatives are likely to appeal to both WDI's board and Jack (who has ultimate control over these decisions)?

As well, an overall conclusion should be presented to provide a sense of completion to the report (a wrapping up/prioritization of the recommendations).

As noted, cash available equals $12.65 million. If all the dividends requested by Jack are paid, this would not leave adequate cash for strategic investment without the company raising additional debt or selling assets. Debt can be raised that would increase the total cash available by an additional $20 million.

There are a variety of recommendations that a competent candidate could provide; there is no one correct answer. The key is that they are consistent and consider the cash available and how Jack may react (e.g., saying, "Don't sell New Brunswick assets, pay the dividends, and invest in everything," is not realistic).

Strategic Alternatives

TNC appears to be an attractive alternative. Processing organic waste fits well with WDI's mission/vision and is also set to increase in demand over the coming years. In addition, TNC's customer list would significantly expand WDI's current customer list and could potentially allow WDI to acquire new contracts. The project is expected to earn a reasonable rate of return, and if costs can be contained, this acquisition would help bolster the company's ROA. Without either of the constraints (cash and Jack's preferences), this acquisition looks like a strong one. One major question remains, however: Will Giselle stay on long enough for TNC's existing contracts to be re-signed? If not, the risk of this project will increase significantly. In relation to Jack, this project will most likely be the one he likes most. This is because TNC's facility is already built and producing income, so the lag time between investment and cash flow is only hampered by the equipment upgrades (whereas the other investment opportunities involve building facilities, along with other potential time-consuming issues). This project will cost WDI between $16 million and $20 million, depending on the final cost of the equipment upgrade. If this investment is made, WDI will have no further funds left to invest elsewhere, taking into account the dividend payment that will likely need to be made.

The project with MDL also appears to have promise. This investment fits with WDI's mission/vision. In addition, the volume of plastic being recycled is increasing, and government legislation is putting pressure on manufacturers to use more recycled material in their products. Flexi-P appears to be a superior form of recycled plastic, and WDI can become the sole manufacturer of the material. If the revenue and cost projections provided by MDL are accurate, this project appears to be a profitable one. However, Jack may not like this alternative because of the two-year time lag between investment and earning a return, and the fact that Flexi-P is an unproven and new segment of the market. Prior to presenting this investment alternative to Jack, more due diligence and market research is required. WDI's board will need to satisfy itself and Jack that this investment will help improve the financial position of the company. As with TNC, if an investment in MDL is made, there will be no funds available for any other strategic investment.

Finally, the investment with REI in a battery recycling plant could be a suitable venture for WDI. However, at this point there are too many unknowns to make a confident recommendation. Before a decision can be reached, WDI needs to acquire sufficient data to complete a robust quantitative analysis of the project. WDI should also investigate for itself when the legislation will pass requiring batteries to be recycled rather than disposed of in landfill. This piece of knowledge will be vital to deciding when construction on the battery plant should commence. Currently, this investment is consistent with the board's stated objectives but may not be supported by Jack since it has limited short-term profits (the plant is not expected to open prior to 2024). In addition, as with the other investment proposals, should WDI decide to invest in REI, there will be limited funds remaining for investment in the other options. WDI may want to push this investment into future years (to correspond with legislation) so that the cash investment can be delayed to years when cash resources are hopefully more abundant and there is more certainty around the legislation.

If the New Brunswick assets were sold, WDI would shrink in size by approximately 50%, leaving it vulnerable to a takeover. This would also shrink the company's margins, given the loss of cost savings that occur when having a larger operation. Unless WDI needs the funds to buy out Jack (and that is truly feasible), selling all of its New Brunswick assets to CWM is not recommended as it hurts the company overall.

WDI's board should begin discussions with Jack immediately. It is recommended that both the TNC and MDL investment opportunities be highlighted. Jack controls the ultimate decision as to the direction taken, but each of these investments appears to be promising, contingent on WDI's further due diligence substantiating the projections. However, if Jack is unresponsive and unwilling to invest in any of the projects presented, WDI may want to consider some form of dispute resolution. If all attempts to work with Jack fail, then it may be necessary to initiate mediation or a buyout process (if it is possible).

Summative Assessment #4 – Communication Hurdle

For Summative Assessment #4, the candidate must be assessed for reasonableness of attempt:

Yes – The candidate adequately communicated their response.

No – The candidate clearly did not communicate their response adequately.

Insufficient communication in a candidate's response would generally include some of the following:

- The reader needs to re-read sections several times to understand them.
- It is not clear what point the candidate is trying to make.
- The quantitative analysis does not make sense because of a lack of labelling or illogical ordering.
- There is an excessive amount of spelling and grammatical errors.
- The candidate uses unprofessional language.

Summative Assessment #5 – Overall Assessment

For Summative Assessment #5, the candidate must be assessed in one of the following, based on their overall performance:

Clear Pass – Overall, the candidate provided an adequate response, clearly meeting the minimum standards for each of the summative assessments.

Marginal Pass – Overall, the candidate provided an adequate response, with some errors or areas of omission, but the underlying key concepts were presented.

Marginal Fail – Overall, the candidate provided an attempt at a response, with several errors or an incomplete analysis.

Clear Fail – Overall, the candidate did not provide an adequate response because the response was deficient in multiple areas.

To be assessed a Pass, the candidate is expected to perform adequately in all the summative assessments and demonstrate that, overall, they addressed the issues of relevance to all of the shareholders.

Markers considered the following in making their overall assessment:

- Did the candidate step back and see the bigger picture, and then address the broader issues identified?
- Did the candidate prioritize the issues by discussing the major and minor issues in appropriate depth?
- Did the candidate use both quantitative and qualitative information to support their discussions and conclusions? Did the candidate identify where additional information was required?
- Did the candidate use the appropriate tools to perform quantitative analysis?
- Did the candidate use sufficient case facts (current case and Capstone 1 case) about the external and internal environment to support their discussions?
- Did the candidate communicate their ideas clearly, integrating and synthesizing the information?

SAMPLE RESPONSE – WDI VERSION 1

Below is an actual passing candidate response.

To: The WDI Board

From: CPA

Re: WDI's Strategic & Operational Issues

WDI's Mission statement, Vision statement and core values haven't changed since Cap1:

<u>MISSION STATEMENT:</u>

To be a premier waste management company while meeting the needs of our customers, employees, local communities, and the environment.

<u>VISION STATEMENT:</u>

We are waste disposal experts providing collection=n, disposal, and recycling services to our customers, using environmentally responsible and sustainable methods and leading-edge technologies.

<u>CORE VALUES:</u>

1. Operate safely and in compliance with all safety regulations.
2. Act with integrity and honesty in an ethical manner.
3. Treat employees with respect and ensure they are adequately trained and fairly compensated.
4. Provide customers with effective and efficient service.
5. Stay up to date with waste disposal technologies and educate customers on waste disposal alternatives.
6. Promote sustainable practices within the company.

<u>KSF:</u>

1. Effectively managing fuel, disposal, and regulatory compliance costs.
2. Build strong customer relationships.
3. Provide a variety of services.

4. Vertically integrate to include collection, transfer, and recycling & landfill sites to reduce overall costs.
5. Consolidate to achieve lower costs.
6. Investing in up-to date technologies
7. Reduce GHG emissions & other environmental initiatives.

WDI's Objectives:

1. The Board of Director's 2023 objective is to improve ROA from 7.2% to industry average 10%.
2. Any assets with ROA less than 5% should be sold.
3. Preferences should be given to those investments that supports WDI's mission, vision & core values.
4. If any new investments are made, there should be cash available to pay out the preferred shares & common share dividends. Jack will likely only support investments that provide a more immediate return.

FINANCING AVAILABILITY:

WDI can access additional $20 million in debt financing without breaching its existing debt covenant and has $12.65 million of cash available. However, WDDI has to keep $120,000 minimum in its balance.

SWOT ANALYSIS:

Strengths:

1. WDI has switched its fleet vehicles to natural gas which helps WDI to reduce fuel costs & meet the sustainability goals.
2. WDI has invested in landfill biogas recapture equipment which helps WDI to promote sustainability and environmentally responsible as WDI can use biogas on its fleet.
3. Due to investment in recycling, WDI's revenues in recycling have increased substantially which helped WDI to improve its operating margin.
4. WDI has strong customer relationships as WDI has maintained the other customers by keeping the same contract which has helped WDI to earn stable revenues from the existing customers.

Weaknesses:

1. WDI didn't proceed with the organic waste treatment facility & due to not investing, WDI lost 4 municipalities contract and contracts went to competitor which has affected WDI's revenues.
2. Jack & Laura's objectives are not in aligned with each other as Laura wants to diversify and Jack wants to remain in traditional segment. This has caused friction in WDI's board.

3. Laura wants to keep the cash in the company & Jack wants to pay put dividends which has created conflicted between them and WDI may not be able to make strategic decisions.

4. WDI's operations are in Nova Scotia which limits WDI's growth and market share.

Opportunities:

1. WDI has investment in recycling and the volume of PET plastics recycled is expected to increase by 8% annually for the next three years. Thus, WDI has opportunity to increase its recycling revenue more & increase the market share.
2. Organic waste is expected to increase by 5% and by investing in organic waste facility, WDI can increase its revenues and gain more market which will help WDI to improve its return on assets and operating margin.

Threats:

1. More competitors will enter into recycling market which may affect WDI's revenues as WDI may lose out some contracts to new competitors.
2. WDI has investment in landfill sites, however, landfill diversion have tightened which may cause WDI to reduce the landfill revenues more. As WDI's landfill revenues have decreased by 16% from 2020. The regulations may cause the landfill revenues to decrease more.

WDI's Ratios:

1. Operating margin has increased from 8% to 11% since 2020 & it's due to the investment in recycling division that allows WDI to recycle PET plastics.
2. WDI's gas emissions have improved & met the objective of reduction in GHG by 30% and it's due to convert its fleet to natural gas.
3. WDI's operating profit margin has improved to 12% (9745.37/81,200)
4. Return on assets have improved from 2.6% in 2020 to 7.2% in 2022 and it's due to upgrades at four recycling plants.

<u>STRATEGIC OPTIONS:</u>

<u>Per Exhibit – A</u>

<u>Quantitative Factors:</u>

<u>Assumptions:</u>

- I've assumed the full capacity of 500,000 tones will be used and the upgrades will cost $6 million.
- I've not considered any revenues lost as the facility will be closed for 6 months which will affect the NI of WDI and total return on assets may be less than 10% which is board's objective.
- I've used tax rate of 26.5% from WDI.

WDI has 20 million of financing available and buying TNC assets for $14 million plus $6 million of upgrade. Thus, financing is available.

<u>Strategic Issue1:</u>

<u>Whether WDI should buy the assets from TNC and whether the return will be high enough for Jack?</u>

<u>Pros of investing in TNC:</u>

1. TNC has an existing plant & customer base that will allow WDI to enter into the existing market and expand its operations in organic waste treatment which will align with **WDI's KSF** of providing variety of services.
2. TNC is an organic waste processing facility that uses anaerobic digestion, it's a process that generates biogas which can be converted into electricity to fuel the facility. This will help WDI to **align with its core values** and the **vision statemen**t that is to promote sustainable practices within the company.

3. TNC has excellent reputation in the community and customers have been with TNC since 2007. This indicates that WDI can capitalize on TNC's customer base and grow its revenues in other streams by providing recycling services. This will align with **WDI's vision statement** that is to meet the needs of customers, local communities and the environment.

4. As organic waste segment is expected to increase by 5% annually for several years, by investing in this option, WDI can stabilize its revenues which will be attracted to a strategic buyer who will see strong financial statements of WDI and Jack can earn higher value of its shares.

5. Many people are showing interest in TNC which indicates that there's demand of TNC's customer base & in organic facility.

Cons of investing in TNC:

1. The equipment in TNC hasn't been upgraded in the past five years and relies on outdated technology. Thus, WDI will need to spend at least $6 million, thus affect WDI's cash flows which misaligns with Jack's objectives that is to get immediate return on the investment.

2. Since, TNC uses the outdated technology and this misaligns with **WDI's mission statement** that is to use leading edge technologies.

3. The upgrades in TNC will take at least five months to complete and the facility will be closed during the time. Thus, this will affect WDI's revenues & cash flows negatively. Hence, WDI may not be able to pay dividends.

4. TNC's contracts are for three years and TNC customer accounts for 70% of total revenue and if customers don't renew their contracts, WDI will lose the revenues and may not recover its investment.

CONCLUSION: I'd recommend WDI to buy TNC assets and upgrade the facility as organic facility is in growth phase & customers are demanding thus, WDI will be able to meet the needs of its customers and return on assets from TNC is above the board objective and will help WDI to meet its ROA objective and there's financing available. However, I'd recommend WDI to negotiate the purchase price on assets & do proper due diligence procedures to get the good price. WDI can tell Giselle that the technology need to be upgraded and she shall lower down the purchase price on assets.

Strategic Option2:

Should WDI sell all of its NB division and accept an offer of $93 million for its entire NB division?

QUANTITAIVE ANALYSIS:

EXHIBIT -B

If WDI sells its NB divisions, operating margin of WDI will be reduced by 16% and return on assets will be reduced significantly as NB is getting 11% on return on assets.

WDI will have $81 million of cash which will help WDI to pay out dividends to Jack & invest in other strategic options.

I've taken 26.5% of tax to calculate the after tax cash flows.

CWB is giving WDI of almost 9 times of operating income.

Pros of selling NB Division:

1. There's an offer of $93 million from CWB to purchase the entire NB division which will help WDI to have cash flows right away & meet Jack's objective that is to have immediate return on his investment.

2. WDI can use the funds towards other strategic options such as include aluminum recycling or organics waste segment which will help WDI to expand its operations and will align with **WDI's KSF** that is to provide a variety of services.

3. No one is interested in buying NB's collection centers & transfer stations. This indicates that there's no buyer and WDI may not be able to sell it in future and get an offer that's worth $93 million.

Cons of selling NB Division:

1. NB represents a significant portion of WDI's business & by selling NB assets, WDI's revenues and operating margins will be affected negatively.

2. NB division consists of collection centers, transfer station, landfill site & recycling plants and by selling the division, WDI's cost will significantly increase and **misaligns with WDI's KSF** that is to vertically integrate and consolidate to reduce the overall costs.

3. By selling NB division, WDI will not have strong local & government support as WDI will have less presence in the operations.

4. By selling the NB division, employees will be laid off and will affect the remaining employee' morale and productivity as they will think that WDI's operations are in financial stress.

5. By selling the NB division, WDI will not be able to meet the needs of its customers and local community as WDI will not be able to provide the services to its existing customers. This will misalign with **WDI's vision statement** which is to meet the needs of the customers & local community.

CONCLUSION: I'd recommend WDI not to sell NB division as its significant part of WDI's operations and reduce WDI's overall costs by vertical integration **and by selling the NB division, WDI return on assets will be reduced significantly which is against WDI's objective to meet the ROA.**

Strategic Option3:

Should WDI get into agreement with Manchester Design Limited to supply the new material, Flexi-P & build a new recycling plant that is capable of producing Flexi-P?

QUANTITAVIVE ANALYSIS:

There's no certainty that demand will increase by 9% and I've taken the acreage of $18 $ $22 million.

Pros to get into agreement with MDL:

1. Flexi-P is environmentally friendly upon disposal and by providing this new material, WDI will align with its **mission & vision statements** that is to be environmentally responsible.

2. By providing Flexi-P, WDI can diversify its revenue and gain a competitive advantage over its competitors which will help WDI to increase its revenues and market share. Hence, improves the margins and will also align with **mission statement** that is to be waste disposal expert in providing recycling services as Flexi-P is a different type of recyclable material.

3. WDI can expand its operations across Canada and increase its revenues in other segments such as landfills. This will help WDI **to improve its weakness**.

4. MDL will provide WDI with exclusive access to the technology involved in Flexi-P's production process. This will align with WDI's core value that is to stay up-to-date with the technology.

5. MDL manufactures products using recycled PET plastics and by getting into agreement, WDI can grow its revenue in recycling services to MDL as well.

6. WDI will be the sole supplier, thus, WDI will have upper hand to negotiate the prices on new material.

Cons to get into agreement with MDL:

1. The new plant must be ready to produce within 2 years of signing an agreement and if WDI is unable to to meet this requirement, there may be serious consequences such as MDL get out of the agreement or impose serious penalties that will effect on WDI's cash flows.

2. The investment is quite high as it's between $18-$22 million and Jack may not go ahead with this project due to upfront investment and not get an immediate return on investment as it takes 2 years to build the plant.
3. The technology is changing quickly and will be obsolete in 10 years, thus, WDI may not recoup its investment and hence, affects WDI's cash flows & margins.

4. MDL is experimenting with this new recycled flexible material, this indicates that the demand is not certain and there's no guarantee that WDI will be able to sell al the material & make some profits.

5. Costs are difficult to estimate as its new technology, thus, costs can be increased significantly and WDI will be unable to project & forecast there revenues from this stream.

CONCLUSION: I'd recommend WDI not to invest even though the NPV is positive but WDWI should not invest in Flexi-P facility as it's still uncertain that this product will create demand as MDL is still experimenting with this product.

Strategic Option 4:

EXHIBIT – D

- WDI has enough financing to invest in joint agreement as WDI has $20 million of financuing & WDI will have cash to pay out dividends to Jack after investing in this option.

Should WDI diversify its operations by getting into Joint agreement with REI?

Pros of getting into Joint Investment with REI:

1. REI's goals & objectives are similar to WDI's. This indicates that WDI will not have any issues and conflicts. Thus, WDI can make right strategic decisions with REI.

2. REI has been in the business for a very long time, this indicates that REI has experience in running business and Laura knows REI's shareholders. Thus, Laura knows the management integrity & culture which will help WDI to run the operations smoothly.

3. WDI can diversify its operations in hazardous waste disposal products which will help WDI to expand its revenues & market share. This will align with **WDI's KSF** that is to provide a variety of services.

4. By providing this services, WDI can divert the batteries from landfills which will be environmentally friendly & aligns with **WDI's vision statement** that's to meet the needs of local communities by being environmentally responsible.

Cons of getting into Joint Investment with REI:

1. There will be four directors on the board, and it'll be hard to make decisions because WDI will have two directors & REI has two and may conflicts when making strategic decisions due to even number of boards.

2. The investment is high and there may be additional financing required in the future. This will affect WDI's cash flows negatively. Jack may not approve of this investment due to high financing and this will cause conflict in the board with Laura if WDI decides to pursue this option.

3. If legislation is not passed, the volume will be low & there will be very little financial return for recycling alkaline batteries. Thus, WDI may not be able to recoup its investment.

4. There's high investment of $17 million, thus, WDI may not be able to invest in other strategic options where the demand is growing such as organics facility.

CONCLUSION: I'd recommend WDI not to go with Joint agreement with REI as investment is quite risky and if agreement cannot be reached, it will cause more issues for WDI.

OPERATIONAL ISSUES:

Issue: The issue is customers are complaining that drivers are rude & waste has been left behind and there's no improvement as Jack didn't act on it.

Analysis:

WDI's strength is to have strong customer relationships by providing effective & efficient service to the customers. Since, customers are complaining that waste has been left behind & drivers are rude. This misaligns with WDI's core values that is to provide customers with effective & efficient service.

Jack who is the major shareholder hasn't made any changes as there was no improvement. Thus, this will affect the relationship between Jack & Laura. WDI's reputation will be affected negatively if WDI start getting a bad name in the market. Hence, it affects WDI's long term revenues and WDI may lose out some contracts due to the driver's attitude.

Recommendation:

Laura should communicate with Jack one more time explaining that reputation of WDI affects negatively and Jack should communicate with drivers and proper training need to be provided to drivers that they represent WDI and their core value is to provide customers with effective & efficient service.

If still there are complaints from customers, WDI can look this matter further with its legal counsel and give out the contract to other drivers or WDI can train Kingsley's drivers which will meet with WDI's core value that is to treat employees with respect & adequately train the,.

Issue: The contract with Kingsley states annual increase will be limited to inflation but each year the increase has been more than double that rate and another rate increase above inflation is coming on May 1, 2023 and Laura wants to cancel the contract as it's a violation of the agreement.

Analysis:

WDI core value is to fairly compensate the employees and by increasing the contractor's rate more than what's in the agreement and more than the inflation which will impact WDI's employees morale and productivity as they will think the contractors are getting paid more than they are being paid. This will also increase WDI's labor costs which will affect WDI's margins and cash flows negatively.

By cancelling the contract, there will be a friction in the board and the board may not be able to make strategic decisions going forward effectively and if lawyers get involved. This may impact on WDI's reputation in the market that the board is not going along and WDI may be bought other **by someone else or no other investor may want to invest in WDI.**

Recommendation: I'd recommend WDI to have full financial analysis and read the contract throughugly. I'd also recommend WDI to compare the costs if costs are lower compared to its own drivers and trucks. Laura can communicate with Jack personally so that they can resolve the issue together and have the operations run smoothly.

<u>MANAGEMENT ISSUES:</u>

Jack's & Laura's objectives are not in aligned as Jack will not like expanding into areas that are not ties to traditional waste segment and Laura wants to invest diversify WDI's operations. Thus, the board may have issues making right strategic decisions.

Kingsley wants to have an immediate return on its investment through dividend payments whereas Laura wants to keep the cash in company and invest it where it can generate a strong return

<u>OVERALL CONCLUSION:</u>

- **I'd recommend WDI to invest in organic facility due to increased demand in industry and meet the ROA board's objective.**
- I'd not recommend WDI to sell NB divisions as it' significant part of WDI's assets, hence affects WDI's employees morale & productivity.
- I'd not recommend WDI to invest in Flexi-P facility due to uncertainty around the product and MDL is still experimenting.
- I'd recommend WDI to not go with joint investment with REI because there could be additional financing and WDI has to pay a fixed % of revenues. : I'd recommend WDI not to go with Joint agreement with REI as investment is quite risky and if agreement cannot be reached, it will cause more issues for WDI.

PRIORTITZE STRATEGIC & OPERATINAL OPTIONS:

As WDI has only $20 million of financing available, I'd recommend WDI to purchase TNC assets and upgrade the facility which will cost WDI $6 million. AS there's significant demand of organic waste, WDI can improve its revenue for long term which will also help WDI's strategic buyer in future. I'd recommend WDI to negotiate the price with Giselle and do due diligence procedures so that the price is reasonable.

I'd also recommend WDI to communicate the driver issues with Jack, Kingsley so that issues don't hurt WDI's reputation. I'd recommend WDI to resolve this matter as early as possible may be in a week to protect WDI's reputation.

I'd also recommend WDI to do proper financial analysis & read out the drivers wage contract so that WDI can resolve the matter internally & no legal action to be taken. If Dianne can talk with Jack by the end of this month, that is before May 31, 2023 to reflect the changes in drivers contract.

I'd also recommend WDI to solve board issues to be in align with WDI's best interests.

EXHIBIT - A

PURPOSE: To determine if investment in TNC will generate enough return for Jack

ANALYSIS:

Organic waste	40,000.00	tonnes
Operating Income	1.60	million

With orgaic waste of 50,000 tonnes
Operating income 2,000,000.00

Giselle is asking $14 million for assets & if full capacity is used 50,000 tonnes
WDI will have an operating income of $2 million

Operating Income of WDI		13,259,000.00	
Operating Income from TNC		2,000,000.00	
Total Operating income		15,259,000.00	
Tax	0.2650		
NI		11,215,365.00	
NI from TNC after tax		1,470,000.00	
SP of assets		14,000,000.00	
Upgrades		6,000,000.00	
Return on Assets		7.35%	
Cash available		12,650,000.00	
Remaining cash vailable:	**1,950,000.00**	After paying out dividends	

Conclusion: Return on assets are 7% from TNC which is above the board's objective of 5%
Thus, return will be high enough for Jack.
WDI has enough cash, $12.65 to pay out dividends to Jack as dividends will be $10.7 million

EXHIBIT - B

Purpose:
If WDI sells its NB division,

Purchase Price		93,000,000.00
Tax	26.50%	
After tax cash flows		68,355,000.00
Cash available		12,650,000.00
After tax cash flows from selling NB division		68,355,000.00
Total cash available		81,005,000.00

Conclusion: BY selling NB division, WDI will have enough cash to pay out dividends to Jack & invest in other strategic options.

EXHIBIT - C

Purpose: To determine the cost to build a facility of producing Flexi-P

Analysis:

	LOW		HIGH								
Build plant	18,000,000.00		22,000,000.00								
	Year0	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10
SP	750.00		750.00								
VC	415.00		415.00								
CM	**335.00**	**-**	**335.00**								
Tonnes		17,000.00	18,530.00	20,197.70	22,015.49	23,996.89	26,156.61	28,510.70	31,076.67	33,873.56	36,922.19
Build	20,000,000.00										
Total revenue	-	5,695,000.00	6,207,550.00	6,766,229.50	7,375,190.16	8,038,957.27	8,762,463.42	9,551,085.13	10,410,682.79	11,347,644.24	12,368,932.23
FC		1,250,000.00	1,250,000.00	1,250,000.00	1,250,000.00	1,250,000.00	1,250,000.00	1,250,000.00	1,250,000.00	1,250,000.00	1,250,000.00
Depreciation		2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00	2,000,000.00
Operating Income	-	2,445,000.00	2,957,550.00	3,516,229.50	4,125,190.16	4,788,957.27	5,512,463.42	6,301,085.13	7,160,682.79	8,097,644.24	9,118,932.23
Tax 26.50%											
after tax cash flows		1,797,075.00	2,957,550.00	3,516,229.50	4,125,190.16	4,788,957.27	5,512,463.42	6,301,085.13	7,160,682.79	8,097,644.24	9,118,932.23
NPV	$2,499,291.32										

Conclusion: NPV is positive

EXHIBIT- D
Purpose: If the investment should be made or not
Analysis:

WDI's portion	17,000,000.00
Return on assets	8%

Conclusion: It will meet WDI's return on asset objectives.
Investment should be made based on quantitative factors.

APPENDIX E

THE COMMON FINAL EXAMINATION
DAY 1 WDI VERSION 2 BOOKLET – SEPTEMBER 13, 2021

COMMON FINAL EXAMINATION
SEPTEMBER 13, 2021 – DAY 1

Case (WDI-Version 2) **(Suggested time: 240 minutes)**

It is March 2023 and Shawn, your boss at Stineman Consulting Group, informs you of a new engagement with Waste Disposal Inc. (WDI) that you have been assigned to.

Shawn met with Laura for an update. She explained that, while under the control of Kingsley Investment Inc. (Kingsley), WDI's strategy was to concentrate on its core business and maximize value while keeping capital investments to a minimum. The only exception was to convert the trucks to natural gas. Kingsley's representatives voted against all other proposals. Profits continued to decline. In November 2021, disappointed with WDI's results and the fact that no dividends had been paid since Kingsley's initial investment, Jack Kingsley decided to sell the WDI common shares that Kingsley held back to WDI, and is no longer involved with WDI.

Based on revised revenue and income projections, Thom's proposal to open a consulting division was accepted in late 2021. The consulting division opened in January 2022.

In February 2022, WDI's Board of Directors updated the company's vision and mission statements to reflect the new consulting business:

Vision: "*To be a premier waste disposal and consulting company while meeting the needs of our customers, employees, and local communities, and respecting the environment.*"

Mission: "*We are waste disposal experts providing collection, disposal, recycling, and consulting services to our customers, using environmentally responsible and sustainable methods and leading-edge technologies.*"

Despite the economy stagnating, with annual growth rates averaging only 1% over the past three years, the waste management industry has been growing at an annual rate of 3%. Interest rates remain low, with a prime rate of 2.5%. Given a sharp increase in packaging generated through online sales, OCC and paper recycling are expected to grow by 5% per year. Hazardous waste disposal is expected to grow by 6% annually.

To gain efficiencies in the traditional services of collection, transfer, landfills, and recycling of OCC and paper, the larger industry competitors continue to expand horizontally. Over the past two years, some large national and international competitors have purchased smaller, locally-owned companies that were unable to compete in these sectors. As well, competitors have continued to invest in technology to reduce recycling costs and to recapture biogas in their landfills. Aside from the natural gas conversion of its collection fleet, WDI has not made any significant technological improvements.

Smaller companies remain competitive in specialty services related to hazardous waste disposal, recycling of plastics and metals, and consulting. Since the institution of additional government regulations intended to reduce GHG emissions and make manufacturers responsible for end-of-life plastic products and packaging, there is increasing demand for consulting services that can assist with regulatory compliance.

In 2021, both the Nova Scotia and New Brunswick provincial governments significantly reduced the allowable capacity of landfills. This forced many local landfills to close an average of seven years earlier than expected. For those landfills with available capacity, such as WDI's, the annual volume received has increased. As a result, tipping fees are expected to increase by 10% annually for the next three years.

With Kingsley no longer a shareholder, the directors are eager to determine a future direction for WDI. Securing the long-term success of WDI is the board's primary objective for 2023. They have turned to Shawn and your team for guidance.

Shawn asks you to draft a report for WDI's board that first evaluates each proposal being considered, and then recommends a strategic direction, based on what you believe will secure WDI's long-term success. For each proposal, you are to advise the board of any significant factors they may not have considered, identify information they should obtain before making a decision, recommend a course of action where possible, and discuss any other significant issues you identify.

INDEX OF APPENDICES

APPENDIX I
BOARD MEETING DIALOGUE WITH SHAWN BRYSON IN ATTENDANCE

March 15, 2023

Laura: Thank you, Shawn, for attending our board meeting. I am now the board chair and CEO, Brian is treasurer, Josefina is secretary, and Peter is vice-chair. There have been no changes in our management positions, but the following significant events have occurred:

2020	April 15	WDI sold its surplus recycled materials, closed its recycling plants for an undefined period, and outsourced its existing recycling contractual commitments. To prevent deterioration of the building and equipment, minimal maintenance is still taking place.
2020	May 12	Kingsley withdrew the proposal to supply vehicles and drivers.
2020	October 2	As recycling services were no longer provided, two major customers terminated their contracts and signed with a large international competitor.
2020	November 21	The system to optimize collection routes was not implemented.
2021	March 14	Three additional customers did not renew their contracts with WDI, given its higher prices relative to competitors.
2021	June 6	Conversion of the remaining fleet to natural gas was completed, reducing GHG emissions by 10%.
2021	September 4	The line of credit was renewed, with the same conditions and terms. The next renewal date is September 2023.
2021	November 19	Kingsley sold its shares back to WDI for $11 million: $3 million cash and a loan of $8 million. The loan matures in February 2027 and can be repaid earlier without penalty. Interest of 12% is payable annually. The principal portion is due at maturity.
2021	November 19	Brian, Josefina, and Peter each purchased 57,000 shares for a total cash investment of $3,135,000. Laura now owns 70% and the other three shareholders each own 10%.
2022	December 31	At year-end, the total debt-to-equity ratio was 3.4 and EBIT to interest was 2.0. As a result, WDI does not have access to any additional debt financing.

APPENDIX I (continued)
BOARD MEETING DIALOGUE WITH SHAWN BRYSON IN ATTENDANCE

Laura: Although WDI's financial results for 2022 show a profit for the first time since 2019, some of our decisions—mainly the closing of our recycling plants—have hurt our good reputation in the industry and our profits. We must find a way to restore both. Brian, please start with the first proposal.

Brian: USWM Corporation (USWM), an international waste management company that needs more landfill capacity in Nova Scotia, has offered an initial price of $18 million to purchase both of our Nova Scotia landfill sites. As the municipalities where these landfills are located have recently mandated the recapture of biogas, this is a timely offer. We either sell them or we will be forced to upgrade both landfills. I have gathered relevant information on the landfill sites.

Laura: I am reluctant to sell these sites. This includes one of the first properties my father purchased, laying a foundation for WDI in Nova Scotia. Selling to an international company may not be well received by the community.

Josefina: Laura, as you know, the regulatory requirements surrounding landfills are becoming more onerous. If sold, WDI would also not have to worry about maintaining or closing these landfills, which has become a large future obligation that may increase with time.

Peter: If we sell, we must still fulfill our existing contracts, which could have significant implications. We would need to outsource that function and we may lose more customers. We also need to consider the long-term employees working at these sites.

Josefina: Owning landfills represents a higher risk than ever before. As our landfills age, I worry that leachate will pollute the ground water and create potential lawsuits. The older our landfills get, the harder they may be to sell.

Brian: It is time that WDI moved into more specialized areas of the industry, where there are fewer large competitors. We should sell our landfills and invest the proceeds elsewhere. We could even pay down some debt.

Laura: I am not convinced that selling our landfills is prudent. Our landfill operations are a key element of WDI's traditional business and one of our core competencies. The biogas upgrade would lead to reduced costs and help restore our reputation in the community. The upgrade may also help reduce future carbon taxes that we would have to pay.

APPENDIX I (continued)
BOARD MEETING DIALOGUE WITH SHAWN BRYSON IN ATTENDANCE

Laura: Moving on, Thom has asked to make a presentation on expanding our consulting services.

Thom joins the meeting.

Thom: Our division currently provides consulting services on site remediation and sustainable power and water usage. Things are going well, and it is time to expand our services. There is a growing niche market where we can help manufacturers improve their product's end-of-life impact on the environment. Since safe disposal at the end of a material's life is highly interrelated with the material itself, this will be an exciting challenge. Because of regulatory changes, this niche service is expected to grow rapidly. If we get in early, we will have a competitive advantage.

Nova Scotia University (NSU) is offering us the opportunity to collaborate on research to create a new type of material that will drastically reduce the toxicity of certain products upon disposal. Once a less toxic material has been developed, WDI will generate revenue by providing manufacturing companies with information on how to use the new material within their existing product line, to replace less environmentally-friendly materials. This collaboration is the quickest way for us to enter this niche and will cost less than creating our own team of researchers, which is what some of the large consulting firms are doing. I see this as a new revenue source that will not require a large upfront investment. Also, the margins for this type of consulting are typically high.

Laura: This seems like a natural progression for the consulting division, and will attract new clients. Collaborating with NSU may help restore our reputation. However, this arrangement is quite different from the consulting services we currently offer. Are WDI's role and responsibilities within the proposed NSU arrangement clear?

Thom: NSU will provide the equipment, resources, and expertise, and WDI will provide a portion of the upfront funding. NSU will also apply for government research grants. We will only get paid if our consulting services produce a viable solution for our clients. However, even if only a portion of these projects prove successful, the overall financial results should be positive.

APPENDIX I (continued)
BOARD MEETING DIALOGUE WITH SHAWN BRYSON IN ATTENDANCE

Josefina: How much upfront cash must we contribute, and how and when do we get a return on our investment? What kind of success rate does NSU have with its R&D activities? We will need to clarify many issues before we proceed.

Thom: Granted, some details still need to be worked out. As it currently stands, NSU will own the intellectual property created; however, given the collaboration, WDI will be given an exclusive license to use the intellectual property. The university will have the right to use the intellectual property for research and publish the findings.

In addition, once WDI has access to the intellectual property for the new material, we can become experts at recycling it. This could provide another potential source of revenue.

Peter: Research has certain risks, but a potential payoff exists in terms of consulting services and recycling opportunities for WDI. If Thom says we should offer this service, I support the idea.

Laura: Thanks for bringing this to the board, Thom.

Thom leaves the meeting.

Laura: I received another interesting proposal, from Jim Pendleson. Jim is the sole shareholder of Pendleson Incorporated (PI) and he wants WDI to buy all his shares in PI. He believes that we can strengthen both companies if we combine forces. Also, I know that Jim is worried about being able to provide PI's customers with landfill services, given that PI's landfills are quickly nearing capacity. He has offered to sell all his shares of PI to WDI for a total of $56,310,000. This figure will be broken down into a $10 million upfront cash payment, a loan of $40 million, and 350,000 common shares in WDI. Jim also wants to be a director and to have a key management position. He has provided additional information.

Peter: What a great idea! This acquisition will nearly double WDI's size. We would be one of the largest local companies. That said, our cash position is a concern. Can we afford to make this investment? I wonder if Jim would be willing to revise his proposed terms if we suggested changes?

Brian: To me, the terms are irrelevant. I think it would be a much better idea to focus on new emerging areas of the industry.

APPENDIX I (continued)
BOARD MEETING DIALOGUE WITH SHAWN BRYSON IN ATTENDANCE

Josefina: Let us not forget that PI has also recently lost customers. What if it is already too late for both of our companies to regain customers? Will combining the two companies really make us more competitive?

Laura: If we combine, we can share more expenses and thereby lower costs, and we might also increase revenue by providing PI's current customers with some of our existing services. Also, PI has a good reputation with its customers and within the community, and Jim has been in business a long time. His expertise will undoubtedly help WDI improve operations.

Peter: PI's recycling plants have all been upgraded, so we could provide recycling services again, and maybe reopen our own plants. Along with the administration cost savings, there are undoubtedly other synergies.

Laura: PI does have low debt. Interesting idea.

I received another proposal. The Town of Devyn (The Town) is a progressive municipality. The Town currently incurs high transportation costs to ship its electronic waste, because there are no local recyclers. The Town wants to provide this service locally instead, and has asked whether WDI is interested in building an electronic-waste recycling facility. They have provided some preliminary figures.

Brian: If we build the facility, I doubt we will have any problem reaching capacity within the first few years. A lot of corporations need to dispose of electronic waste, and we should be able to capture their business. It might also be possible to obtain a sizable government grant for this project.

Josefina: There is local demand, but also a huge liability if something goes wrong. In addition to safety concerns, the protection of any recyclable devices holding personal information will certainly be an issue.

Peter: I do not know if we can locally hire the expertise required to manage the facility. Very strict regulations will have to be met before we can open. Given the time required to build and obtain the permits for the facility, we will likely not be able to open until 2024. Also, when they learn that a hazardous-waste disposal facility is in their backyard, the local community might react negatively.

APPENDIX I (continued)
BOARD MEETING DIALOGUE WITH SHAWN BRYSON IN ATTENDANCE

Brian: There will also be added compliance and certification costs. Hazardous-waste handling requires many special features, such as dust collection systems, uniforms, showers, and extra training. But it looks very profitable, even at low volumes. We will need to be extremely cautious, but we should do it. It is a great opportunity.

Peter: Hmm… I'm not sure everything has been included in the projection provided. The return appears to be higher than what I have seen across the industry, and payback is quicker than normal.

Laura: The Town was one of the first major customers that we lost in 2021. They have committed to using WDI's services again if we build this facility. They will also guarantee us between 25,000 and 30,000 pounds of waste material for the first year and will provide a property tax reduction for up to five years, although they have not said by how much.

Josefina: Why are they offering all these incentives?

Laura: I do not know, but I will take them! I also like that we would already have one large customer. But I am still hesitant because this idea is so different from what WDI usually does. Perhaps we should prepare a list of questions to ask The Town.

I have one more item. Peter, please tell us more about the toxic leachate that was found in one of our landfill sites in Nova Scotia.

Peter: Oh! How did you hear about that? About three weeks ago, one of our technicians found that some leachate had contaminated a small amount of ground water, but we think it is contained. I did not think it was a serious leak and did not want the media to blow things out of proportion and get the public unnecessarily panicked. I intended to tell the board.

Josefina: When? Leachate can contaminate the surrounding area through the ground water or runoff. Did you test for contamination in other places, inside and outside the landfill site? The liability associated with pollution and cleanup costs is one of our greatest risks. You should have done this three weeks ago!

Peter: Well, the issue is resolved, so we can file it away.

APPENDIX I (continued)
BOARD MEETING DIALOGUE WITH SHAWN BRYSON IN ATTENDANCE

Laura: The issue is not resolved. I do not understand why you did not follow the protocols of informing us, doing the proper tests, and informing the public. We need to figure out how to properly handle the matter. We need Shawn and his team to provide further guidance.

APPENDIX II
EXCERPTS FROM WDI'S INTERNAL REPORTS

Statement of Cash Flows
For the year ended December 31, 2022
(in thousands of Canadian dollars)

Operating activities		
Net income	$	2,784
Amortization		9,390
Accretion on landfill		390
Change in non-cash working capital balances		(1,916)
Cash flows from operating activities		10,648
Investing activities – investment in PP&E		(5,300)
Financing activities		
Repayment on term loan – GBI		(4,000)
Increase in line of credit		299
Cash flows from financing activities		(3,701)
Change in cash		1,647
Opening cash and cash equivalents		1,473
Closing cash and cash equivalents	$	3,120

APPENDIX II (continued)
EXCERPTS FROM WDI'S INTERNAL REPORTS

Earnings Report
For the year ended December 31, 2022 compared to December 31, 2020
(in thousands of Canadian dollars)

	Collection	Transfer	Landfill	Recycling	Consulting	Total
Revenue	$43,560	$7,400	$19,800	$4,300	$4,003	$79,063
2020 comparatives	*48,400*	*8,200*	*17,300*	*7,300*	*0*	*81,200*
% change	*-10%*	*-10%*	*14%*	*-41%*	*NA*	*-3%*
Labour and benefits	7,800	1,140	2,230	120	1,986	13,276
Outsourcing cost for recycling	0	0	0	4,850	0	4,850
Purchases – fuel	13,200	1,300	2,470	60	0	17,030
Amortization	4,200	650	4,190	350	0	9,390
Remediation of landfill accretion	0	0	390	0	0	390
Other operating costs	10,800	2,740	3,980	95	365	17,980
Selling and administrative	Not allocated	Not allocated	Not allocated	Not allocated	Not allocated	8,610
	36,000	5,830	13,260	5,475	2,351	71,526
Net operating profit	$ 7,560	$1,570	$ 6,540	$(1,175)	$1,652	$ 7,537
Net operating profit margin	*17%*	*21%*	*33%*	*-27%*	*41%*	*9.5%*
Interest expenses						
Line of credit						(60)
GBI loan						(2,704)
Kingsley loan						(960)
Income before taxes						3,813
Income taxes						(1,029)
Net income						$ 2,784

APPENDIX III
SALE OF LANDFILL SITES IN NOVA SCOTIA

Current Details on Nova Scotia Landfill Sites

- The carrying amount of the Nova Scotia landfill sites is $12.4 million.
- In 2022, these landfill sites generated $11,880,000 in revenue.

Details on Mandated Biogas Capture Upgrade Project for Nova Scotia Landfill Sites

- If we decide to retain these landfills, the biogas recapture upgrades will cost a total of $8 million.
- The after-tax annual operating cash flows of these two landfills, which includes the fuel cost savings, will be $5,819,000 for each of the next eight years.
- Our best estimate for the present value of the closing costs and post-closure maintenance costs, when the landfills are eventually retired, is $3,723,000.
- The discount rate used is 11%.

APPENDIX IV
ACQUISITION OF PENDLESON INCORPORATED

PI has been in business in Nova Scotia and New Brunswick for 20 years. PI operates four collection centres, three transfer stations, four landfill sites (which are close to the capacity limit), and four recycling plants that recycle OCC and mixed residential paper using updated technology.

About 40% of PI's customers are municipalities and 60% are commercial. PI has ten-year contracts with municipalities, which will start to expire in three years. The commercial contracts are for five years or less, many of which will need to be renegotiated next year. PI has lost customers who were attracted to larger competitors, causing its revenues and income to fall steadily over the past three years.

The $40 million loan will be repaid annually (principal and interest) over 20 years and will carry an interest rate of 5%.

Recent transactions indicate that waste management companies of a similar size sell for 8.5 times after-tax net income.

If combined, WDI believes annual after-tax savings in administration will be $1 million.

Extracts from PI's 2022 audited financial statements are as follows *(in thousands of Canadian dollars)*:

Collection	$ 33,000
Transfer	7,300
Landfill	21,760
Recycling	13,600
Total revenue	$ 75,660
Operating income	$ 7,860
Income taxes	(1,900)
Net income	$ 5,960
Annual cash flow from operations less required capital investments and loan repayments	$ 4,670

APPENDIX V
ELECTRONIC WASTE – PRIMARY RECYCLING FACILITY

- A $12 million initial investment will be needed to build a primary recycling facility that will disassemble incoming electronic waste, such as televisions, computers, and cell phones. The parts will be sorted by robots into circuit boards, steel, plastic, and glass. These parts will then be sent to secondary recyclers for further processing.
- The facility will process up to 40,000 pounds annually. Additional investments can be made to increase the capacity.

Estimates at various volumes are as follows (prepared by the Town of Devyn):

Pounds processed annually	**25,000**	**30,000**	**40,000**
Selling price per pound recycled	$ 450.00	$ 450.00	$ 450.00
Rebate to municipality (5%)	(22.50)	(22.50)	(22.50)
Net revenue per pound	427.50	427.50	427.50
Processing cost per pound (assumed to remain constant)	240.00	240.00	240.00
Net margin per pound	187.50	187.50	187.50
Income before taxes	4,687,500	5,625,000	7,500,000
Less income taxes at 27%	(1,265,625)	(1,518,750)	(2,025,000)
Net income	$ 3,421,875	$ 4,106,250	$ 5,475,000

APPENDIX F

DAY 1 (VERSION 2) – SEPTEMBER 13, 2021
MARKING GUIDE AND SAMPLE CANDIDATE RESPONSE

MARKING GUIDE
WASTE DISPOSAL INCORPORATED (WDI)
VERSION 2

Summative Assessment #1 – Situational Analysis

For Summative Assessment #1, the candidate must be assessed for reasonableness of attempt:

Yes – The candidate used a reasonable situational analysis when analyzing the major issues facing WDI.

Unsure – The candidate attempted to use a reasonable situational analysis when analyzing the major issues facing WDI.

No – The candidate clearly did not use a reasonable situational analysis when analyzing the major issues facing WDI.

Based on the 2020 CPA Competency Map:

Technical Competencies
2.3.2 Evaluates the entity's internal and external environment and its impact on strategy development

Enabling Competencies
1.4.1 Performs work carefully, thoroughly and competently in accordance with relevant technical and professional standards
2.1.1 Applies knowledge of the organization's competitive environment and strategic direction when performing assigned work
2.1.3 Identifies the strategic impact of internal decisions and external influences on project plans and initiatives
6.1.1 Identifies and articulates issues within areas of work responsibility
6.2.1 Maintains an objective and questioning mindset to avoid biased analyses

Competent candidates should complete an appropriate situational analysis. Candidates should draw upon their situational analysis when analyzing the major issues facing WDI (selling the landfill sites in Nova Scotia; expanding the consulting services; the acquisition of Pendleson Inc.; investing in an electronic waste recycling facility; ethical issue.)

Mission/Vision

In this Day 1 case, there are changes in WDI's vision and mission from Capstone 1. Specifically, consulting services have been added. See the bolded items that follow.

WDI's mission, vision, and core values approved by the board in February 2022 were:

Vision statement: *To be a premier waste disposal* ***and consulting company*** *while meeting the needs of our customers, employees, and local communities, and respecting the environment.*

Mission statement: *We are waste disposal experts providing collection, disposal, recycling,* ***and consulting services*** *to our customers, using environmentally responsible and sustainable methods and leading-edge technologies.*

Core values (no change from Capstone 1)

- Operate safely and in compliance with all safety regulations
- Act with integrity and honesty in an ethical manner
- Treat employees with respect and ensure they are adequately trained and fairly compensated
- Provide customers with effective and efficient service
- Stay up to date with waste disposal technologies and educate customers on waste disposal alternatives
- Promote sustainable practices within the company

New Objectives

The board's primary objective for 2023 is to secure the long-term success of WDI. The company has recently gone through a period of internal conflict (given Jack Kingsley's influence on the board of directors). During this period, WDI struggled to formulate a cohesive and coordinated strategy. The result has been lower profitability in the company's traditional business and a loss of major customers. Now that Jack is no longer involved with the company, WDI wishes to secure the long-term success of WDI with a viable strategy.

Laura mentioned that WDI's reputation with the public has recently suffered given some of the company's business decisions. It is also her objective to redeem the company's reputation within the community.

WDI's Strategy

In 2021, Kingsley sold its shares back to WDI. Jack Kingsley's departure from WDI has provided the company with the opportunity to re-examine and revise the company's strategy. Currently, there seems to be a division on the board regarding the strategic direction that WDI should focus on going forward. Laura seems partial to refocusing on the traditional aspects of WDI's business, whereas Brian wants to focus on the emerging areas of the industry that require leading-edge technologies.

CPA is asked to evaluate each investment proposal and then recommend a strategic direction that will help WDI secure its long-term success.

Financing Commitments

Outstanding debt (the same loans from Capstone 1 are outstanding)

- The line of credit was renewed with the same conditions and terms on September 4, 2021 (Appendix I). In Capstone 1, the line of credit is secured by the accounts receivable and has a maximum limit of $5 million. The loan bears interest at prime plus 2%. The line of credit cannot exceed 50% of the balance in the accounts receivable. There is a covenant that must be maintained: EBIT to interest cannot be less than 1.8 (this remains unchanged from Capstone 1). In this Day 1 case, the line of credit has been renewed. The next renewal date is September 2023 (in 2 years).
- The term loan is secured by the property, plant and equipment and is still outstanding. The loan is repayable in annual principal payments of $4 million and bears interest at 6.5%. The loan matures in 2032. The loan has a debt covenant that requires that the total debt-to-equity ratio not exceed 3.5.

Equity/debt issued (case facts)

- In this Day 1 case, Kingsley sold its 600,000 shares back to WDI for $11 million (paid as $3 million in cash and an $8 million loan that bears interest at 12%). The total principal is due in February 2027, although earlier principal payments can be made with no penalty. This interest rate is very high in comparison to the rates paid on the line of credit and term loan.
- In this Day 1 case, on November 19, 2021, 57,000 shares were each issued to current managers Brian, Josefina, and Peter. Each invested $1,045,000. In total 171,000 shares were issued for $3,135,000 (10% of WDI owned by each). The price per share is $18.33 ($3,135,000 ÷ 171,000). This information is relevant since an acquisition using shares is being considered. Laura owns 70% of the current outstanding shares of WDI.

Cash available

Based on the covenants on the line of credit and the term loan, WDI does not have access to any more debt. Its total debt-to-equity ratio is 3.4 and EBIT to interest is 2.0. Any cash required for investments must, therefore, come from current cash, the cash flow generated from operations, new equity issuances, or the sale of assets.

WDI generates about $11 million in operating cash flows as per the 2022 statement of cash flows. Therefore, between operating cash flow and cash on hand, the company has a maximum of approximately $14 million available ($3,120,000 + $11,000,000). Debt repayments of $4 million are required, leaving available cash flow for investment of approximately $10 million. WDI will need to consider ways of funding its investments while respecting its commitments and debt covenants.

[Candidates are NOT expected to recap KSFs and SWOT in detail. However, they must draw upon these in their analysis of the strategic options presented.]

Key Success Factors (KSF from Capstone 1)

Key success factors of the overall industry include the following: manage fuel, disposal, and regulatory compliance costs; have long-term customer contracts to maximize capacity usage; comply with all levels of government regulations; design collection routes to be faster and cheaper; and have good customer relationships, ensuring contracts are renewed and new contracts are obtained.

Key success factors in the recycling segment include the following: have a large local customer base; have strong local support for recycling; be vertically integrated with collection and recycling; comply with all levels of government regulations; and invest in up-to-date technology to continually improve efficiencies and reduce labour-input costs.

In the waste collection and disposal industry, operational success is viewed as being a low-cost provider (since waste management companies complete on price) and using up-to-date technology, fuel, and processes that reduce GHG emissions.

Strengths

- WDI is one of few competitors that has landfill sites with available capacity.
- Tipping fees are expected to increase 10% annually for the next three years.
- WDI now offers consulting services with high margins, which differentiates it from competitors and has helped to diversify the company's revenue stream.
- Laura, Josefina, Peter, and Brian have all worked in the waste management industry for many years. In addition, Laura has a chemical engineering degree with a specialization in environmental studies. The board is involved in day-to-day management operational decisions, as well as strategic and financial decisions. Additionally, the shareholder group appears to have a good working relationship and the shared goal of building a sustainable future for the company.
- WDI has operated in Nova Scotia since 1985 and New Brunswick since 2010. Although its reputation has suffered in the past few years, it may be able to salvage it given its history in the community.
- WDI has vertical integration between collection, transfer, landfills, and recycling plants, which reduces subcontracting costs and lowers operating costs. However, its recycling facilities were closed and these functions are currently outsourced, at a higher cost.
- WDI owns transfer stations and facilities that are close to customers, minimizing transportation costs.
- WDI has converted its entire fleet to natural gas, thereby reducing its fuel costs and GHG emissions. WDI was behind in technology investments, including converting vehicles to renewable fuels.
- WDI decided to take the ethical action to sell its surplus recycled material and not dump the material in a landfill site. This was an ethical dilemma for WDI. This indicates ethical behaviour consistent with its values.

Weaknesses

- WDI's reputation has been deteriorating because it does not provide recycling and cannot offer competitive pricing for its contract renewals. It has lost some major customers during the past two years. A good reputation with existing customers had been a strength of the company .
- The recycling facilities remain closed, and WDI's recycling division is operating at a loss due to having outsourced this function to competitors' facilities at a higher cost. .
- Collection and transfer revenues are declining because of customers not renewing their contracts, which is due to WDI's inability to compete on price and to provide "full service" by offering recycling.
- Unlike many of its competitors, WDI has not invested in biogas recapture equipment at any of its landfill sites. This investment would create fuel as a by-product and would, therefore, reduce fuel costs for the company. Two municipalities in NS have now mandated this upgrade. Therefore, WDI must upgrade the two landfills if it does not sell them to USWM.
- The industry has grown overall at 3%, while WDI is losing major customers and suffering revenue declines in many divisions.
- WDI cannot recycle PET, aluminum, or organics, which customers want as part of their service agreements.
- WDI is small relative to its competitors and unable to achieve economies of scale that the larger competitors can. Given WDI's higher production costs per unit relative to competitors, the company cannot compete on price alone.
- Large competitors are acquiring smaller firms and are continuing to reduce their operating costs, making it even more difficult for WDI to compete in traditional waste management services.
- The interest rate on the Kingsley loan is very high at 12%. WDI's debt is high, and there is no excess capacity to raise additional debt due to the existing debt covenants.

Opportunities

- Total industry revenues are expected to grow at 3%, while the economy is only growing at 1%. The waste management market is growing at 3%, and OCC and paper recycling is expected to grow at 5% annually, whereas hazardous waste disposal is expected to grow at 6% annually.
- The prime rate has only slightly increased to 2.5%, which makes debt still relatively cheap.
- WDI can expand its business by roughly half if it decides to purchase PI (a horizontal expansion). This would provide it with cost savings (given economies of scale) and may also help it become more competitive and takeover resistant.
- Small companies are successfully providing speciality services related to hazardous material disposal, recycling of plastics and metals, and consulting. WDI has an opportunity to move more heavily into these market segments.
- Stricter regulations that make manufacturers responsible for end-of-life product disposal and reducing GHG emissions have resulted in increased demand for consultants who can help guide companies to successfully meet these regulations.

- Municipalities must divert electronic waste from landfill sites, creating a demand for electronic waste recycling services. Due to increased regulation, there is reduced available capacity at landfill sites, which is causing tipping fees to increase.

Threats

- Toxic leachate from one of WDI's landfills in Nova Scotia has recently contaminated the surrounding area. This is a major risk and could potentially lead to high clean-up costs and further harm to WDI's already diminished reputation.
- Large competitors are expanding horizontally and becoming more efficient in traditional waste management services, including collection, transfer, landfill sites, and recycling of OCC and paper. Large companies are acquiring smaller local companies that cannot compete in these areas.
- Competitors continue to invest in technology to reduce the cost of recycling. WDI has not kept up with this trend, which may affect its ability to compete effectively.
- The economy is currently stagnant, with growth rates of only 1% annually. This could result in a lower demand for WDI's services in the future.
- There has been a recent increase in regulatory requirements that reduce each landfill site's capacity. These regulations could become even more strict, which could have a negative impact on WDI's landfill operations.
- Two municipalities close to WDI's NS landfills have recently mandated that these landfills be upgraded to recapture biogas. This is another example of increasing regulation within the industry.
- Competitors have invested in biogas recapture equipment within their landfill sites to reduce costs. WDI has not done so, which will potentially affect its ability to compete.

Conclusion on the Situational Analysis

While Kingsley was the majority shareholder (2020 to 2021) of WDI, very little changed within the company. No new investments were made except for the fleet's conversion to natural gas. Consolidation within the industry has become more commonplace, with large national and international companies acquiring smaller companies that are no longer able to compete in the industry. This has allowed these larger companies to achieve even greater economies of scale. WDI is now facing the same issues as other small companies. It has been unable to compete on price within its traditional services of collection, transfer, landfill sites, and recycling of OCC and paper. In addition, WDI does not offer recycling services due to its decision to close the facilities indefinitely. Since WDI has been unable to provide all the sought-after services (recycling) required for its long-term contracts and has been unable to match prices on contracts, WDI has lost some major customers. Despite the successful expansion into consulting, WDI's revenues and profits have declined, and the company has lost its good reputation as a result of making poor business decisions.

These past decisions, strongly influenced by Jack Kingsley, have damaged the company to the point where it is becoming increasingly difficult to compete. The status quo does not seem to be sustainable. The one bright spot is that due to changes in regulations and increases in tipping fees, the landfill sites have become very profitable, as has the new division providing consulting services.

At present, WDI faces an existential risk in that it has become increasingly difficult to compete with the large national and international waste management companies. To survive, WDI must use its resources and experience to steer the company in a sustainable direction. Two distinct strategies are presently available to WDI: refocus on the core business or divest from the core business and focus instead on the new emerging areas of the industry.

Summative Assessment #2 – Analyzes the Major Issues

For Summative Assessment #2, the candidate must be assessed for reasonableness of attempt:

Yes – The candidate sufficiently completed a reasonable assessment of the major issues facing WDI.

Unsure – The candidate attempted to complete a reasonable assessment of the major issues facing WDI.

No – The candidate clearly did not complete a reasonable assessment of the major issues facing WDI.

Technical Competencies
2.3.3 Evaluates strategic alternatives

Enabling Competencies
1.1.3 Exhibits ethical behavior by complying with laws and regulations, organizational policies, societal norms and personal ideals
6.1.2 Uses qualitative and quantitative techniques to clarify the nature of problems
6.1.3 Demonstrates skepticism, objectivity, due care and persistence when identifying issues
6.2.3 Questions the relevance and tests the quality of information and assumptions in own analysis
6.2.4 Completes thorough quantitative and qualitative analyses to identify and evaluate potentially viable alternatives

This summative assessment is based on Assessment Opportunities #2 to #6.

Assessment Opportunity #2 (Strategic Alternative #1: Sell the landfill sites in Nova Scotia to USWM Corporation or upgrade for biogas recapture)

A competent candidate will complete both a quantitative and qualitative assessment of whether WDI should sell the NS landfill sites or upgrade them for biogas recapture.

Quantitative: Candidates should complete a preliminary calculation of the value of the landfill sites. They should also calculate the net present value (NPV) of the investment in biogas equipment and compare the NPV to the proceeds from the potential sale. Candidates could also discuss the potential impact of industry trends on the valuation.

Qualitative: Candidates should discuss the advantages, disadvantages, and risks of each option given industry trends and the fit with WDI's strategy, vision, mission, and core values.

Candidates should offer a conclusion that incorporates and logically follows from their quantitative and qualitative analyses.

WDI has an offer to sell both of its Nova Scotia landfill sites. This offer has come from an international competitor who needs more capacity. WDI is trying to decide whether to accept the offer.

Given a recent mandate by the municipalities local to these two landfills, the alternative is to invest in biogas recapture equipment at the company's Nova Scotia landfill sites. The proposed investment could help to reduce costs and improve margins since the biogas produced could be used internally or sold as fuel to help offset the landfill's operating costs.

Quantitative Analysis

Net present value (NPV) analysis if WDI retains the landfill sites and invests in biogas:

NPV		
Initial investment for biogas recapture		$ (8,000,000)
Present value of annual operating after-tax cash flows		
Annual operating after-tax cash flows	$ 5,819,000	
Present value annuity factor: 11%, 8 years	5.14612	29,945,272
Present value for closing and ongoing maintenance costs		(3,723,000)
		$ 18,222,272

Comparison to offer to sell

- The offer price of $18 million is roughly the same as the NPV of upgrading the NS landfills for biogas recapture.
- The sale would provide $18 million (before taxes) of cash to be used for other investments or paying off debt.
- If sold, there will be income tax related to the recaptured CCA and capital gains since the net book value of the assets is $12.4 million and proceeds are greater at $18 million.
- To assess whether the offer is reasonable based on current market values of the assets, an independent valuation should be obtained.

Sensitivity

- The calculations above are based on no changes to revenues and costs. However, tipping fees are expected to increase 10% annually. Therefore, the NPV of owning the site will be higher than calculated.
- Are the estimated closing costs reasonable? This would impact the NPV. If it sells the sites, WDI would transfer this obligation to the new owner.

Impact of potential sale on WDI's business

- WDI will not only give up the tipping fees (that are expected to increase at 10% annually), it will also have to pay these higher fees to its competitors in order to dispose of its Nova Scotia waste (assuming WDI stays in waste collection).
- If the sites are sold, WDI's profit in 2023 will increase (in the short run) with the gain on sale of $5,600,000 ($18,000,000 − $12,400,000).
- Based on segmented information, WDI's landfill sites contribute $19,800,000 of the revenue of $79,063,000 (25%) and $6,540,000 ($7,537,000 + $8,610,000) or 40.5% of the net operating margin before adjusting for selling and administrative expenses. Selling the Nova Scotia landfills would significantly reduce the company's revenue, gross margin, and profit.
- However, there could be an offsetting new source of revenue, depending on how it invests the $18 million in proceeds from the sale.

Cash flow

- WDI will require $8 million cash to make the investment into biogas recapture. Without access to any further debt financing, if it makes this investment, there would be little cash remaining for investment in other projects.
- If the local municipalities will provide WDI with extra time to upgrade the landfills for biogas recapture, WDI may want to consider forgoing this investment in the current year and waiting until future years, when it has additional cash flow.

From a quantitative perspective, USWM's offer has a similar NPV to the biogas upgrade option. There are some unknown and fluctuating variables that could affect the long-term profitability of the biogas option (such as the tipping fees, which vary over time). However, there could also be unknown risks and costs associated with selling the landfill.

Qualitative Analysis

<u>If the sites are sold</u>

- Selling the landfill sites would mean WDI can no longer provide this service to its NS customers, which contradicts its mission statement.
- The sale of the landfill would also be contrary to the company's vision, since it would not be serving the waste disposal needs of its customers and local communities.
- A KSF is to be vertically integrated by providing collection, transfer, landfill sites, and recycling services. If the landfill sites are sold, the company will only have its New Brunswick landfill site, making it less competitive. Companies that are vertically integrated are able to reduce costs and, therefore, have an advantage when quoting new contracts.
- If the proceeds are used for other investments in the emerging growth areas of the industry, this would support a potential new strategy of moving away from traditional sectors.
- WDI is one of few competitors that has landfill sites with available capacity. WDI would lose this advantage if they are sold.
- WDI's reputation has been deteriorating given its lack of recycling service and inability to provide competitive pricing on contract renewals. Selling the landfill sites could further harm the company's reputation and could lead to the loss of more customers.
- It may be more difficult to sign new clients if WDI does not offer landfill services within Nova Scotia. Those potential clients may sign with a company that offers a comprehensive waste disposal service. Divesting itself of the Nova Scotia landfill sites may hinder WDI's ability to compete within the industry.
- Ongoing, WDI would no longer earn the landfill revenues of $11.88 million, which will reduce total revenues and operating cash flows.
- Companies must comply with environmental regulations for landfills. This entails large costs when a site is closed and ongoing maintenance after the closure. If it keeps the sites, WDI has the ongoing maintenance and site restoration responsibility. The recent leachate leak in one Nova Scotia landfill site is an example of the risk and potential problems that can be avoided if sold. Nevertheless, it is important to note that WDI may still be legally liable for any leachate contamination that occurred while it owned the landfill site.
- If regulatory requirements increase, the amount of waste diverted from landfill sites may increase in volume and, therefore, the revenue earned from these may decrease. If they are sold, this risk would be transferred to the new owner.

- It is possible USWM would terminate the employees who currently operate the landfill. This would be counter to WDI's core values of treating employees with respect.
- WDI could use some of the proceeds to pay down debt, such as the Kingsley loan, which carries a high interest rate.
- WDI would likely lose some synergies between its other operations; therefore, the overall profit margin of the company could suffer as a result of the sale.

<u>If the biogas upgrade is made</u>

- WDI would collect the tipping fees, which are expected to increase at 10% annually for the next three years. This would help to increase profits from the landfill sites, since most costs are fixed.
- Regulatory requirements have become more stringent recently. If regulations continue to change in the future, WDI will have to comply. The cost of these potential changes is currently unknown and could increase significantly.
- Retaining the landfill sites and making an investment in biogas recapture would support the strategy of focusing on WDI's traditional business. As Laura mentioned, the Nova Scotia property has been a cornerstone of WDI's business since the beginning. By retaining this asset, WDI could continue to leverage one of its core competencies.
- The investment in biogas will support WDI's mission/vision to use sustainable and environmentally responsible methods while employing leading-edge technologies.
- WDI would remain vertically integrated, allowing it to more easily acquire contracts. This could also help it avoid losing more customers, as seen with the closure of the recycling plants.
- WDI's landfill sites have a high operating margin, and if the investment in biogas recapture equipment is made, WDI's profit may be even higher relative to 2022 due to the savings on the fuel costs and the potential for reduced cardon taxes in the future.

<u>Link with leachate leak at one of the Nova Scotia landfill sites</u>

As mentioned by Laura and verified by Peter, a technician at one of the NS landfill sites has recently discovered that some leachate, which is toxic, has contaminated the surrounding groundwater. Peter claims this leak is insignificant and has been contained, but it is possible that this is not the case (this type of leak is a major risk for WDI).

This issue needs to be investigated and rectified as soon as possible. USWM will surely require in-depth due diligence as part of this asset purchase. When the leak comes to light, it is possible that USWM will no longer pursue this asset, given the liability associated with the contamination.

Summary

Landfill sites currently provide a substantial proportion of WDI's profit. Based on industry trends, these profits should increase in the future. Selling the NS landfills would worsen WDI's future earnings, even though profits in 2023 would increase due to the large gain on disposal. In future years, profit and revenue diversification will depend on how the proceeds are invested. However, selling these assets would bring in $18 million of cash that could be used for investments in new, specialized areas of the industry and/or repaying debt. The risk of selling is that vertical integration is important in the industry, and unless WDI provides all the necessary services, it may lose more customers and end up paying higher tipping fees at competitors' landfill sites, worsening its competitiveness in this sector. Selling the asset is not in keeping with the vision and mission to be a premier waste disposal company that provides services, including landfill sites, to meet the needs of its customers. Selling may also worsen the company's reputation unless the proceeds are used for a new niche investment (i.e., the company significantly changes strategic direction).

If the landfill sites are not sold, WDI will be forced to use a portion of its investment funds to upgrade them, given the recent mandate. However, the biogas upgrade is in accordance with the company's mission and vision, and it would help WDI maintain its current advantage of having available landfill space. It should also be noted that if WDI decides to upgrade the landfill sites, the cash resources available for other investments will be limited. Therefore, if WDI wishes to pursue the PI acquisition option, it may need to negotiate a different payment schedule with Jim.

Assessment Opportunity #3 (Strategic Alternative #2: Collaborate with NSU to research new material and expand consulting services)

A competent candidate will complete a qualitative assessment of the collaboration with NSU and the expansion of the company's consulting services.

Candidates should discuss the fit with WDI's vision, mission, and core values. Candidates should assess the benefits and risks of the proposed collaboration.

Candidates should offer a conclusion that incorporates and logically follows from their qualitative analysis.

[No quantitative analysis is required as it is too early in the process and not enough information is available.]

WDI's initial venture into the consulting world has been successful. In 2022, the consulting division had a positive operating margin, and Thom argues that it is time for WDI to expand its consulting services. Given regulatory changes, WDI has an opportunity to invest in a currently niche service that has the potential to grow into a lucrative aspect of WDI's consulting business.

Mission/Vision

These consulting services are in line with the new mission, which states that WDI wants to be a premier consulting company advising and using environmentally responsible and sustainable methods. They are also in line with the mission to use leading-edge technologies.

These consulting services also help WDI achieve its core value of staying up to date with waste disposal technologies and educating customers on waste disposal alternatives.

Fit with WDI's Objectives

The impact of expanding is not clear at this stage. Therefore, it is difficult to say whether this venture would improve the long-term success of WDI. Thom believes the margins will be high for this type of consulting. However, larger consulting firms are entering the market, which may impact pricing.

The details of this potential collaboration are not far enough along yet, so it is impossible to determine the financial outcome of the proposed project. However, it appears that consulting can help to improve the company's bottom line regardless of the strategy that WDI chooses to pursue.

Given that this project will focus on the creation of a less toxic material, it is possible that it will improve WDI's reputation. This aligns with Laura's stated objectives.

Industry

The government has implemented stricter regulations that make manufacturers responsible for end-of-life plastic products and packaging and hazardous products. These companies are hiring consultants and partnering with waste disposal companies to manage their responsibilities. As a result, it looks like demand for this type of consulting engagement will increase. WDI has an opportunity to enter this sector early and, therefore, gain the requisite knowledge and experience.

In addition, if WDI does not offer services in this area, is it possible that it will lose more of its customers to firms that do?

Collaboration Proposal

Partnering may be a good way to enter this segment of the consulting market. However, because the investment amount that NSU expects is not yet known, it is impossible to say whether WDI has the resources necessary to make the investment or whether the venture will be a financial success.

If NSU can successfully research and produce a suitable material, WDI may benefit financially. It is possible, as Thom points out, that this venture will be lucrative. However, there is the risk that a viable material for clients may not be found. If this happens, WDI will not get a return on its investment. This is a risk that must be assessed.

The proposal appears to have WDI entering an area that is higher risk than its normal consulting services. If the research project does not result in a suitable product, the intellectual property that WDI has access to as part of the agreement has no value, and there will be no return for WDI.

WDI should request more information relative to this investment proposal:

- How much of an investment does NSU expect WDI to make?
- Has NSU begun any sort of preliminary research? If so, has there been any indication of the relative chance of success in terms of discovering a new, viable material?
- How many competitors have entered this space?
- How long of a time horizon can be expected between the beginning of research and when a suitable material may be discovered?
- What role, beyond funding a portion of the upfront cost, will WDI play in the partnership, if any?

Other Considerations

- Large competitor companies are setting up their own research teams. WDI has the opportunity to split these costs with NSU and, therefore, also share the risk. Given WDI's cash situation, this might be the only way for the company to enter the market.
- WDI may also be able to become expert at recycling this material. This could provide a whole new source of income in the future.

Summary

The board's primary objective for 2023 is to secure WDI's long-term success. The proposed partnership with NSU could help achieve this. However, we do not have all the data that we require to make an informed decision. More due diligence is required. Nevertheless, on the assumption that a suitable material is found through NSU's research and Thom's predicted high return is accurate, this project could be a lucrative one.

Depending on the size of the investment required by NSU, WDI may not have sufficient cash on hand in order to make this investment. If WDI decides to purchase PI or upgrade the landfill sites, there may be no funds left over to invest with NSU. WDI needs to decide on its investment priorities and risk tolerance before a final decision can be made on cash allocation.

Assessment Opportunity #4 (Strategic Alternative #3: Proposal to acquire Pendleson Incorporated)

A competent candidate will complete both a quantitative and qualitative assessment of whether WDI should acquire Pendleson Incorporated (PI).

Quantitative: Candidates should compare the offer price to a multiple of net earnings after tax that is based on similar recent transactions. Candidates could also calculate the implied price per share and assess the impact of the current shareholders.

Qualitative: Candidates should discuss the qualitative aspects of making this investment, including the risks, advantages, disadvantages, and fit with WDI's mission, vision, core values, and industry trends.

Candidates should offer a conclusion that incorporates and logically follows from both the qualitative and quantitative analyses.

Jim Pendleson, the sole shareholder of PI, has offered to sell his shares of PI to WDI for \$56.31 million (\$10,000,000 cash + \$40,000,000 loan + 350,000 common shares). Like WDI, PI operates in Nova Scotia and New Brunswick and shares a similar asset mix relative to waste management. PI's facilities consist of four collection centres, three transfer stations, four landfill sites, and four recycling plants.

Combining these two companies would double WDI's current size and allow the company to take advantage of various synergies and economies of scale. As a result, WDI would most likely be able to lower its expenses and, therefore, become more competitive relative to the larger waste management companies in the area. PI also has recycling plants that have been upgraded. This would help to augment the services WDI currently offers.

Quantitative Analysis

- The offer price of \$56.31 million is 9.5 times net earnings (\$56,310,000 ÷ \$5,960,000). Based on recent sales that are comparable to this one (a selling price of 8.5 times net earnings after tax), the purchase price would be \$50.66 million (\$5,960,000 × 8.5). This results in a difference of \$5.65 million.
- Annual loan payments of approximately \$3.2 million will need to be paid to Jim, given the loan component of the acquisition. However, since PI currently generates \$4.67 million of cash after loan and capital payments, WDI's cash flow will improve with the transaction.
- The company expects synergistic gains of \$1 million after tax. At 8.5 times after-tax earnings, these synergy gains have a value of \$8.5 million, which may help WDI justify the higher asking price for PI. Therefore, the selling price may be reasonable, but given that this proposal is still being negotiated, it is possible that WDI may acquire PI at a lower price if Jim is willing to negotiate (especially when we consider that PI's landfills are almost at capacity).

Summary of the combined operations:

For the year ended December 31, 2022	**PI ('000s)**	**WDI ('000s)**	**Total ('000s)**	**% of Revenue**
Collection	33,000	43,560	76,560	49.5%
Transfer	7,300	7,400	14,700	9.5%
Landfill sites	21,760	19,800	41,560	26.9%
Recycling	13,600	4,300	17,900	11.6%
Consulting		4,003	4,003	2.6%
Total revenue	75,660	79,063	154,723	100%
Operating profit	7,860	7,537	15,397	
Net earnings after tax	5,960	2,784	$8,744	
After-tax synergistic gains			1,000	
			$9,744	

Fit with Board Objectives

The board's primary objective for 2023 is to secure the long-term success of WDI. If the information provided by PI is correct, it appears as though the combination of WDI and PI could help to satisfy this objective. It has been an ongoing industry trend for the larger national and international firms to expand horizontally by buying out the smaller firms that can no longer compete in the industry. If WDI accepts PI's offer, the size of the company would effectively double. This will help reduce overall costs (as more costs are shared) and will reduce — or potentially stop completely — the trend of PI and WDI losing customers to larger firms that offer a wider array of services at a lower price.

Additional Considerations

- If WDI accepted PI's offer, it would have eight recycling plants (4 + 4), four of which are equipped with updated technology; nine collection centres (5 + 4); six transfer stations (3 + 3); and seven landfill sites (3 + 4). This would make WDI one of the larger local companies. However, PI's landfill sites are getting close to capacity. It will be important for WDI to determine the remaining life and the retirement obligations of these landfills before the acquisition is made.
  - Also, given the recent mandate to upgrade WDI's landfill sites for biogas recapture in Nova Scotia, WDI should perform due diligence procedures around PI's landfill sites to ascertain whether any further investment is required.
- Given that WDI would purchase 100% of the outstanding shares of PI, WDI would assume not only PI's current assets but also all its liabilities and commitments. It is, therefore, very important that WDI conduct an in-depth due diligence process to ensure PI has disclosed all its potential liabilities. PI has recently been audited, which should help provide WDI with some comfort over PI's financial statements.

- PI's landfill sites are nearing capacity. Therefore, if the company is purchased, it may need to use WDI's landfill sites or contract out to fulfill customer contracts. Given that landfill space has dwindled across the industry, this could have a significant effect on WDI's operation.
- If WDI makes the acquisition, there will be additional annual net cash flow of approximately $1.5 million (after the necessary debt payment is made) that it could use for investments and/or debt repayment. In terms of the cash consideration given up in the proposed offer, it would only take approximately seven years to earn that cash back.
- Given PI has low debt, there may be some additional debt capacity. Moreover, the combined assets and earnings will improve WDI's existing loan covenants and solvency ratios. This could help secure WDI's long-term success by giving the company access to additional debt financing.
- WDI will require $10 million of cash upfront to make this acquisition. Given the company currently has limited funds, it will need to consider whether this option is the best use of those funds. However, as Peter suggested, it may be possible to negotiate with Jim to make the payout terms more favorable to WDI (such as lowering the asking price or the initial upfront cash required).
- The share consideration is valued at $18.03 per share [($56,310,000 − $10,000,000 − $40,000,000) ÷ 350,000 shares]. In December 2021, WDI issued new shares to the new shareholders at a price per share of $18.33 ($3,135,000 ÷ 171,000). Therefore, the share value inherent to the PI offer is slightly lower. Is that fair to the other shareholders? Would it be possible to negotiate the number of shares given to Jim?
- On issuing the 350,000 shares, WDI will have 921,000 shares outstanding (400,000 + 171,000 + 350,000). Laura will own 43.4% (400/921), Jim will own 38% (350/921) and Brian, Josefina, and Peter will each own 6.2% (57/921) shares. Therefore, the ownership of the existing shareholders — Laura, Brian, Josefina, and Peter — would be reduced. Laura will still be the majority shareholder but will not have absolute control of the company should the other shareholders all vote in the same direction.
- Jim will be a new director on the board. Another board member could make decision making more difficult since Laura would not have more than 50% voting control anymore. She may not want that, based on her experience with Kingsley.
- Jim also wants to have a key management position, which will need to be determined.

Integration

- A KSF is to have updated technology. PI's recycling plants have been updated, which would help satisfy this KSF.
- A KSF is to have a good reputation and good customer relationships. PI has both of these; therefore, the acquisition will help restore WDI's reputation.
- Operational success includes being a low-cost provider. By combining the two operations, economies of scale will result and operating costs are likely to be reduced. It may be that even more synergies can be realized with the combination of the two businesses.

- PI's current business and operations appear to be consistent with WDI's vision and mission statements to be a premier waste disposal company, meet the needs of the local communities, and be experts in collection, disposal, and recycling.
- PI's business is the same as WDI's. Therefore, WDI is already familiar with managing these waste management functions. There are no new skills or expertise required. Integrating these companies is likely to be far less cumbersome relative to building a new electronic waste recycling facility.
- With this acquisition, WDI would make a firm decision to commit to its traditional business (especially given the 20-year loan component of the deal).
- PI has existing contracts with municipalities and commercial customers that start to expire in three years and one year, respectively. This provides WDI with some time to re-sign these contracts and secure these customers. However, if WDI is unable to do this, the success of the merger may be significantly reduced.
- By acquiring PI, WDI would send a strong message to the community that it intends to operate within the area for a long time to come. Additionally, by adding PI's service line, WDI could expand back into recycling. Both factors could help to improve the reputational damage WDI has suffered in recent years.
- Traditional waste services are expected to increase at 3%. The acquisition allows WDI to take advantage of this trend.
- PI has a good mix of municipal and corporate customers (40% and 60%, respectively) that WDI could sell its consulting services to.
- This acquisition does not move the company into any other specialized areas, something of interest to Brian. Additionally, if this investment is made, there would be less funds available to invest in emerging areas of the industry.
- PI is very similar to WDI and facing the same risks as WDI based on the current business model. Competition for these traditional services is still based on price. Even though WDI would double in size with this acquisition, this may not make the combined entity big enough to continue to compete with the large national and international companies on price. In-depth due diligence and forecasting should be completed so that the economic effect of combining these two companies can be understood before a final decision is made.
- PI has also lost customers to the larger competitors, causing its revenues and profits to steadily decline over the past three years. This means that it is facing the same threats as WDI within the industry. Is it possible for either company to regain the customers that have been lost?
- Although Jim has been in the business for 20 years, his experience centres on the traditional aspects of the industry. What additional expertise, if any, does he bring that relates to the newer, specialized sectors that WDI has considered entering?
- PI's recycling plants have been upgraded, and with this acquisition, WDI should be able to use these facilities to once again offer recycling services.

Summary

PI is facing many of the same risks in the traditional waste management sectors as WDI — both companies are losing customers to the larger competitors who can provide services at lower costs. Combining the two companies appears to achieve some economies of scale, although it is questionable if this will be enough to be competitive with the large companies that are already established. However, given the industry trend of large companies horizontally expanding to acquire smaller, less competitive companies, this acquisition would likely help protect WDI from an eventual takeover. Therefore, the company's main objective for 2023 — to secure the long-term success of WDI — would seem to be met by this acquisition. Additionally, this acquisition may help WDI improve its reputation, profit, and operational cash flow. There is a risk of not being able to keep PI's customers as their contracts begin to expire. Finally, the acquisition will bring Jim on as a director. However, WDI has only just recently freed itself of Jack Kingsley. Is it possible that Jim will cause similar headaches? With the acquisition, WDI will remain in the traditional sectors facing the same threats it currently does. This option does not help WDI diversify into the new, emerging areas of the industry.

Assessment Opportunity #5 (Strategic Alternative #4: Invest in an electronic waste recycling facility)

A competent candidate will analyze the investment based on the information provided and provide a list of questions for the Town.

Quantitative: Candidates should provide a preliminary calculation of the investment's potential profit margin and payback period.

Qualitative: Candidates should identify this as a very risky investment due to the regulatory requirements that must be met. Candidates should also assess this proposal considering WDI's vision, mission, core values, and industry trends.

Candidates should offer a conclusion that incorporates and logically follows from both the qualitative and qualitative analyses performed.

The Town of Devyn (the Town), a progressive municipality, wants to reduce the cost of transporting its electronic waste by building an electronic waste recycling facility in the local area. It has approached WDI about building a facility that can recycle electronic waste.

Quantitative Analysis

Annual pounds processed	**25,000**	**30,000**	**40,000**
Gross revenues ($450/pound)	$11,250,000	$13,500,000	$18,000,000
Net income	$3,421,875	$4,106,250	$5,475,000
Profit margin	30%	30%	30%

<u>Discussion of estimates</u>

- Are the estimates realistic, since they show the facility is very profitable and pays back very quickly?
  - Net profit margin is 30% on the gross revenue ($3,421,875 ÷ $11,250,000). Brian supports the investment since the numbers are profitable even at low volumes. But is the return of 30% too optimistic? Peter seems concerned that the returns are much higher than he has seen in the past.
  - The payback period is 3.5 years for the 25,000 pounds ($12,000,000 ÷ $3,421,875), which is very reasonable. However, this is a very low payback period and may be overly optimistic.

Given what appears to be a potentially overstated projection, WDI should ask the Town the following questions:

- One assumption is that $240 per pound for processing costs is constant. This is likely incorrect since there will be some component of the costs that are fixed and some that are variable. Therefore, as volumes increase, the profits should achieve margins higher than the initial 11% due to economies of scale. What is the breakdown between variable and fixed costs, labour, overhead, and other costs?
- Is amortization of the investment included? Are tax benefits of the initial investment included?
- How is the selling price determined, given it will comprise a mix of recycled materials? Is it an average? Won't this differ depending on the nature of the electronic waste recycled?
- Does the facility investment of $12 million include the added costs of handling hazardous wastes, including good dust collection systems, uniforms, shower facilities, and training?
- What are the costs required to certify the facility and WDI's electronic waste recycling processes? How often are these certifications renewed?
- How often will inspections occur at the facility? What is the expense of these inspections, and have they been included in the Town's forecast?
- What are the insurance costs for the increased liability that results from the handling of hazardous waste materials?
- Are selling and marketing costs included?
- How much is the property tax reduction that the Town would give WDI, and is this incorporated into the estimates?
- How volatile are the selling prices of the recycled materials?

Fit with Board Objectives

The facility will not be operational until 2024. WDI will need to allocate a considerable amount of cash towards the project but will not start to earn a return until at least 2024. Once the facility is operational, the company's long-term success may be supported through this investment. However, more information and analysis are required before a confident decision can be made.

If this investment were made, WDI would not have any funds left over for investment in other areas of the industry. Given that this investment is firmly in the direction of the new, emerging areas of the industry, by accepting this proposal, WDI would indicate that the traditional aspects of the business, the aspects that WDI has built its business on, are no longer the focus of the company's long-term strategy.

Qualitative Analysis

- There is an increasing amount of hazardous waste as electronics have shorter useful lives (e.g., telephones). Hazardous waste requires special collection, handling, transport, and treatment. This will increase the demand for proper disposal facilities.
- This investment supports the vision to meet the needs of its customers, since at least one customer (the Town) is asking for the service.
- There may be unidentified synergies between WDI's current business and the inclusion of an electronic waste recycling facility since many of its current collection customers may have electronic waste to recycle now and at some future date.
- This investment will support the mission to be disposal experts in recycling and to use environmentally responsible methods and leading-edge technologies.
- This investment is in line with the core value to stay up to date with waste disposal technologies.
- Small companies are the ones providing speciality services related to hazardous material disposal, recycling of plastics and metals, and consulting. Therefore, WDI may be better able to compete in this area. Additionally, there appear to be few competitors in this segment currently. Therefore, higher prices may be achievable.
- Hazardous waste disposal is expected to grow at 6% annually.
- The investment would support Brian's desire to offer specialized services with higher margins.
- There are significant risks in this industry related to handling of hazardous materials and privacy protection. Additionally, third-party certification is required. These risks are greater than WDI's current business risks. There are concerns about the ever-increasing regulations in this area and the increasing compliance and certification costs.
- WDI has no experience in this area of the industry and will have to hire qualified and skilled people to manage and work in the facility. Without the necessary skill, it would be very dangerous for WDI to operate the proposed facility.
- WDI should better understand the motivations behind the Town offering so many incentives. WDI should do a full due diligence review.
- When capacity is reached at the facility, it can be expanded with additional investments. Therefore, the new facility could be scaled up to deal with potentially increasing demand. As a result, the long-term financial success of the project could be higher than anticipated.
- Given the industry trend and existing opportunity, another competitor will likely build this facility if WDI does not and WDI will lose the opportunity to invest in this area of the sector.
- WDI should require a guarantee from the Town on the length of time it will ship electronic waste to WDI. Currently it has just guaranteed one year's volume.

Summary

This investment is in a specialized, non-traditional sector of the waste management industry. Based on the projections provided by the Town, the investment may be lucrative. However, these projections could be overly optimistic and may be incomplete relative to the costs that may arise while building and operating the new facility. Before an investment decision can be made, more due diligence and analysis are required.

WDI would also be taking on a significant increase in operational risk should it choose to build and operate this facility. As mentioned, there are many risks associated with handling hazardous waste. Given WDI does not have any experience in this area, the company may not be able to limit this risk to a reasonable level.

The board’s main objective for 2023 is to secure the company’s long-term success. It is possible that this investment opportunity will meet that objective, but at this time there are too many unknown variables and potential risks to confidently draw that conclusion. In fact, WDI may suffer further reputational and financial damage if a safety issue (tied to handling hazardous waste) arises at the new facility. Given the leachate leak that recently occurred at the Nova Scotia landfill, WDI needs to be even more careful when considering this.

This venture appears to present WDI with a high amount of risk and a currently indeterminable return. For this reason, it is not recommended that WDI pursue this venture until a substantial amount of due diligence has been completed. Also, if the company decides to focus more on the traditional areas of the business, this investment alternative would not be in keeping with that strategy.

Assessment Opportunity #6 (Issue #5: Ethical and governance issues — what to do about possible contamination in the landfill site and Peter’s actions)

Peter has withheld important information from the directors that could have significant implications for WDI. A competent candidate will discuss what to do as a result of Peter’s actions, the fact that protocols were not followed, and the ethical issue of whether WDI should inform the public.

Three weeks ago, toxic leachate was found to have contaminated the groundwater of a Nova Scotia landfill site. There are two primary issues here. First, how should WDI respond to the leak? What measures should be taken? And second, why did it take so long for the board to hear about the leak? It appears Peter did not intend to mention this issue (even though he says he was going to tell the board). Instead, it was Laura who brought it up. How should the board respond to Peter’s apparent breach of protocol?

Contamination Liability Risk

WDI must immediately respond to this news with a full investigation and analysis into the extent of the contamination. How much leachate leaked? Has it been properly cleaned up? Have there been other leaks that have gone undetected or unreported? What is the current condition of the Nova Scotia landfills in general? WDI may wish to consider hiring a third-party company to carry out the investigation. This will help ensure transparency and could also help improve WDI's public relations in the future.

After the investigation has been completed, WDI should take any remedial action required to restore the environment to the state it was in prior to the leak. Depending on the severity of the leak and whether leachate has contaminated the wider area, WDI will need to inform the public of what transpired, the extent of the damage, and what WDI plans to do to rectify the situation. This would obviously do further harm to WDI's reputation, but this is the responsible course of action and aligns with the company's corporate values (to act with integrity and honesty, and to comply with all safety regulations). Additionally, if WDI were to conceal a major leak only to have it discovered later, the company could be at risk of serious legal action — or worse.

Finally, WDI must consider how this issue will affect the potential sale of the Nova Scotia landfill sites. Will USWM retract its offer once its due diligence process uncovers this issue? It is possible that the contamination will render the landfill unsellable, at least temporarily. WDI will not know how it may affect USWM's offer until a thorough investigation has been completed. Therefore, it is even more crucial that the company respond as quickly and effectively as possible.

Governance Issue: Peter's Inaction

Peter, a senior employee and board member, did not follow the protocols related to communication, implementing the proper tests, and informing the public.

Peter chose to not inform the board immediately and decided on his own that the leak was not serious. This is a breach of protocol since, no matter the size of a contamination, the board should have been made immediately aware of the issue. This is because a toxic spill represents one of the company's greatest risks and, therefore, any inkling of a spill should raise the alarm bell. The board now worries about the extent of the contamination. Furthermore, Peter breached the company's core values, as mentioned above. WDI needs to investigate the events that occurred alongside the leak in order to assess whether Peter deliberately deceived the board. If Peter covered up a serious leak, then legal action may be required. In the worst case, Peter would be asked to resign from the board, as well as management, and would be forced to sell his shares back to the company.

It may be that the leak was indeed small and inconsequential. If this turns out to be the case, Peter should still be strongly reminded of the company's protocols. In fact, this incident might provide WDI with the incentive to do a company-wide audit of its protocols and whether WDI's employees are aware of them.

Nevertheless, Peter's response has been clearly inadequate. How did he know the extent of the leak without proper testing? How did he conclude that it was not an issue? The directors should ask Peter to take them through the decisions that he made at each step and why these decisions were made. Once this information is gathered, the directors will be able to decide on the appropriate response.

Also, the board needs to consider at what point the public should be informed of the leak. The contamination was found in groundwater, which means that the surrounding neighbors' groundwater may also be contaminated (given runoff and proximity). One of the company's core values is to act with integrity and honesty and in an ethical manner. Therefore, after investigation and proper testing, WDI should immediately inform the public about what they found, the actions taken, and the risk of further contamination.

Finally, the board must consider the best way to communicate this issue to the company's employees. WDI should investigate how many employees knew of the leak and why those employees did not follow the company's protocols. Along with the process audit, WDI may want to consider whether its current communication protocols are complete and effective. For instance, does the company have a whistleblower program? The board and management of WDI need to do their utmost to ensure that a similar situation does not occur in the future.

Summative Assessment #3 – Conclude and Advise

For Summative Assessment #3, the candidate must be assessed for reasonableness of attempt:

Yes – The candidate provided reasonable conclusions for each major issue.

Unsure – The candidate attempted to provide reasonable conclusions for each major issue.

No – The candidate clearly did not provide reasonable conclusions for each major issue.

Enabling Competencies

6.3.1 Uses evidence and judgment to recommend and justify solutions or conclusions
6.3.2 Articulates limitations to recommendations
6.3.3 Applies decision criteria to choose among viable alternatives
6.3.4 Ensures that decision criteria do not conflict with professional ethics and values

A competent candidate will provide a logical conclusion that is consistent with their analysis and that does not exceed WDI's currently available investment capital without a discussion on how that shortfall could be mitigated.

The candidate should provide a logical conclusion that integrates their analysis of all issues discussed. Emphasis should be given to the four major strategic issues (sale or upgrade of the landfill sites in Nova Scotia; acquisition of PI; investment in the Town's electronic waste facility; expansion of the consulting business). The governance issue around how to handle Peter is also important, but not directly related to WDI's strategy. However, the toxic leachate contamination integrates with the strategic proposals and is, therefore, an important element of the discussion of the strategic alternatives.

The candidate is expected to recommend a strategy that will help WDI secure the long-term success of the company. The overall recommendation should be consistent with the analysis performed and conclusions drawn for each option. The candidate's choices should be "consistent/align with" their recommendations for each strategic option and logically link to each other.

Based on the analysis performed and the company's objective for 2023 — to secure the long-term success of WDI — it appears there are two main strategic directions: a continued focus on its traditional business (collection, transfer, recycling, and landfill sites) versus a move towards the new, emerging areas of the waste industry (electronic waste recycling and consulting).

As the board wishes to secure the company's future, I recommend that WDI limit its risk exposure to as manageable a level as is possible. Due to limited cash resources, the company is not in a financial position– to invest in all the alternatives it has been presented with. Therefore, these funds must be used strategically to best protect WDI's future.
WDI should consider the following key factors before deciding which strategy to take.

Price Competitiveness/Cost Reduction

A recent trend within the waste-management industry is for large national and international companies to purchase smaller, locally owned companies. One of the main reasons for this is because the smaller companies cannot take advantage of economies of scale and, therefore, lower their expenses. As a result, to survive, these small companies must charge a higher price for their services relative to the larger companies.

WDI could potentially double its size through the acquisition of PI. This acquisition, as mentioned, would allow WDI to lower both expenses and prices, making it more competitive.

USWM is currently offering to purchase WDI's Nova Scotia landfill sites. This is a perfect example of how large companies are expanding by purchasing smaller companies. If it makes this sale, WDI would shrink in size and would lose access to some of the last remaining landfill space in Nova Scotia.

From a quantitative perspective, WDI should negotiate with PI to lower the acquisition price and then make the purchase. This decision would help to lower WDI's risk. However, given WDI's limited investment capital, the company may struggle to afford this investment. For this reason, WDI should also negotiate with Jim to lower the initial amount of cash that WDI must pay upon acquisition.

Experience

As Laura pointed out during the recent board meeting, WDI's experience and expertise resides in the areas that it has always operated in: collection, transfer, landfill sites, and recycling. WDI has limited or no experience in areas such as electronic waste recycling and research. Therefore, if it decided to move into more specialized areas of the industry, the company would need to learn a brand-new skill set. Is WDI prepared to make this sort of transition?

On the other hand, WDI could invest in areas in which the board and management have a vast amount of experience. Laura and the board understand waste management and how the industry operates. By focusing on the traditional elements of its core business, WDI can solidify its position in the community and its ability to operate into the future.

Research/Investment Risk

Both the investment in the Town and the research project with NSU have a level of uncertainty that is far greater than the strategy to focus on traditional services. It is possible that NSU's attempts at a breakthrough will not occur. It is also possible that some technical or unforeseen issue could disrupt WDI's ability to operate the new electronic waste recycling facility.

On the other hand, WDI's landfill sites and PI's operations are already producing a source of consistent cash flow. These assets are earning a return today and will continue to do so into the future. WDI could further limit the company's risk by focusing on its core competencies and allocating its investment dollars accordingly.

Given that WDI's core competency and experience reside with its traditional business, and because WDI currently has available opportunities to expand that aspect of the business, I suggest WDI forgo investment in the electronic waste facility and NSU's research, and instead upgrade the landfill sites and then acquire PI if finances allow or Jim agrees to renegotiate a revised payment schedule of the acquisition.

It is acceptable if candidates recommend an alternative strategy to the one listed above. However, any recommendation should address the key concerns of the shareholders and display good professional judgment while also recognizing the key constraint (no financing available/cash is limited). Suggesting that further information is required is acceptable if it is justified and consistent with the analysis.

Combination 1 (traditional business): In this case, the company upgrades the landfill sites and acquires PI. The investment in the electronic waste facility is not made. The available cash of $10 million is used as follows: upgrade landfill sites for biogas recapture (as this upgrade has been mandated, WDI must move forward with the upgrade if the landfills are not sold); next, acquire PI. However, given the cost of the landfill upgrade, WDI will need to renegotiate a different set of payment terms with Jim to be able to acquire PI (perhaps Jim will allow the cash payment to be made over a number of years). WDI could also try to negotiate with the two municipalities that have mandated the landfill upgrades to see if it is possible to complete the upgrade in the following year. The acquisition of PI will help WDI to generate additional operating cash flow that can be used for further investment or debt repayment in the future. WDI should also continue to explore ways to expand WDI's consulting division.

Combination 2 (new, niche areas): This is a bold move, where the company takes action on the basis that it can no longer compete on price in the traditional sectors due to its inability to lower its costs enough to provide competitive bids. Instead, the directors see that to be sustainable in the long term, the company must change and invest in niche sectors. In this scenario, WDI should sell the Nova Scotia landfill sites. The $18 million from that sale, along with the cash available of $10 million, can be used to invest in the electronic waste recycling facility, collaborate with NSU, and pay down debt. More work will be required on the electronic waste facility to ensure the forecasts are reasonable and incentives from the Town are reasonable. The company also actively pursues expansion into the new consulting area. This strategy of investing in niche areas will eventually reduce the company's reliance on its traditional business, but it will take time. Profits will eventually increase once the electronic waste facility is operational. This strategy also provides cash flow for other opportunities that might come along and strengthens the company's balance sheet. It allows for investment in new opportunities and reduces the threats WDI is facing in the traditional waste management sectors. In the meantime, the consulting services should add profits at higher margins, as long as the contracts are properly managed. Finally, if the board decides to take WDI in this new direction, then the company's mission and vision should be updated to reflect the focus on the emerging areas of the industry.

Summative Assessment #4 – Communication Hurdle

For Summative Assessment #4, the candidate must be assessed for reasonableness of attempt:

Yes – The candidate adequately communicated their response.

No – The candidate clearly did not adequately communicate their response.

Insufficient communication in a candidate's response would generally include some of the following:

- The reader needs to re-read sections several times to gain an understanding.
- It is not clear what point the candidate is trying to make.
- The quantitative analysis does not make sense because of a lack of labelling or illogical ordering.
- There is an excessive amount of spelling and grammatical errors.

- Unprofessional language is used.

Summative Assessment #5 – Overall Assessment

For Summative Assessment #5, the candidate must be assessed in one of the following, based on their overall performance:

Clear Pass – Overall, the candidate provided an adequate response clearly meeting the minimum standards for each of the summative assessments above.

Marginal Pass – Overall, the candidate provided an adequate response with some errors or areas of omission, but the underlying key concepts were there.

Marginal Fail – Overall, the candidate provided an attempt at a response, one that contained several errors or where the analysis was incomplete.

Clear Fail – Overall, the candidate did not provide an adequate response; the response was deficient in multiple areas.

To be assessed a Pass, the candidate is expected to perform adequately in all the summative assessments and demonstrate that, overall, they addressed the issues of all of the shareholders.

Markers considered the following in making their overall assessment:

1. Did the candidate step back and see the bigger picture, and then address the broader issues identified?
2. Did the candidate prioritize the issues by discussing the major and minor issues in appropriate depth?
3. Did the candidate use both quantitative and qualitative information to support their discussions and conclusions?
4. Did the candidate use the appropriate tools to perform quantitative analysis?
5. Did the candidate use sufficient case facts (current case and Capstone 1 case) about the external and internal environments to support their discussions?
6. Did the candidate communicate their ideas clearly, integrating and synthesizing the information?

SAMPLE RESPONSE – WDI VERSION 2

Below is an actual passing candidate response.

To: WDI
From: CPA
Re: WDI Strategic & Operational Issues

Situational Assessment

Vision Statement, Mission Statement & Core Values

Updated Vision Statement: "*To be a premier waste ~~management~~* ***disposal and consulting*** *company while meeting the needs of our customers, employees, and local communities, and respecting the environment.*"

Updated Mission Statement: "*We are waste disposal experts providing collection, disposal, recycling****, and consulting*** *services to our customers, using environmentally responsible and sustainable methods and leading-edge technologies.*"

Core Values:

1. Operate safely and in compliance with all safety regulations.
2. Act with integrity and honesty in an ethical manner.
3. Treat employees with respect and ensure they are adequately trained and fairly compensated.
4. Provide customers with effective and efficient service.
5. Stay up to date with waste disposal technologies and educate customers on waste disposal alternatives.
6. Promote sustainable practices within the company.

Key Success Factors

1. Building strong customer relationships.
2. Offering competitive pricing.
3. Using technological advances to improve efficiencies.
4. Utilizing sustainability practices within the company.
5. Effectively managing costs.

Board Objectives

The board's primary objective is to secure the long-term success of WDI.

External Analysis – SWOT

Strengths	Weaknesses
• WDI still has capacity in their landfills, which gives them an edge in the marketplace over competitors who have had to close due to updated government restrictions. This gives WDI access to additional customers and revenues that other companies may no longer have access to.	• WDI has had many customers terminate their contracts or not renew their contracts due to their inability to offer competitive pricing. • Closing the recycling plants have hurt WDI's reputation in the industry and their profits.

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With Kingsley having sold his shares in the company, WDI's management team is more aligned on their goals and values for the company and will be able to make decisions that are more efficient and promote the financial health of the company.
WDI has converted its remaining fleet to natural gas, which has reduced GHG emissions and promoted sustainable practices within the company, which is aligned with one of their core values. It also supports their overall reputation and image as a company.

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WDI has not made any technological improvements, which means they have not been able to maintain a competitive edge over other companies in the industry. It also is not aligned with their mission statement and goal to provide top services to their customers.

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Opportunities

OCC and paper recycling are expected to grow by 5% per year. WDI could potentially reopen their recycling facilities to capitalize on this expected increase in demand.
Hazardous waste disposal is expected to grow by 6% annually. WDI has the opportunity to enter this stream and diversify their operations and expand their revenues.
There is an increasing demand for consulting services that can assist with regulatory compliance. WDI's consulting division has been very successful so far and this could be an opportunity for them to capitalize on this excess demand, especially given that they have reduced their own GHG emissions by 10%.

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Threats

In recent years, larger companies have been purchasing smaller companies that are unable to compete in the collection, transfer, landfill and recycling sectors. There is a risk that WDI could be acquired if they are unable to remain competitive in these business lines.
Nova Scotia and New Brunswick governments have recently significantly reduced the allowable capacity of landfills, which has resulted in many local landfills closing much earlier than expected. WDI's landfills will hit capacity earlier than expected and this may not be a profitable area of operation for much longer.

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Financial Analysis

WDI renewed their line of credit with the same conditions and terms. The line of credit cannot exceed 50% of the balance in the accounts receivable. EBIT to interest cannot be less than 1.8. At year-end it was noted as being 2.0.

There is a term loan that requires debt-to-equity ratio not to exceed 3.5. At year-end, this ratio was 3.4

Kingsley sold his shares back to WDI for $11 million. This included $3 million in cash and a loan for the remaining $8 million. Interest on this loan is 12% and the loan matures in February 2027.

WDI currently has just over $3 million in available cash flows, which could be utilized to pursue potential opportunities. However, they do not have any room for additional debt financing unless they are able to pay down some of their current outstanding debt.

Strategic Issues

Strategic Issue #1 – USWM offer to purchase Nova Scotia landfill sites

USWM Corporation has made an offer of $18 million to purchase both of WDI's Nova Scotia landfill sites.

Quantitative Analysis

See Exhibit 1 in the attached document for the analysis of the landfill purchase and the landfill biogas upgrade. The $18 million offer will result in a gain on the sale of $5,600,000. This gain will be included at 50% for tax purposes at $2,800,000 and will result in increase taxes for the year of sale. This capital gain can be offset by any capital losses incurred or carried forward from prior years.

The biogas recapture upgrades will result in an NPV over 8 years of $24 million. Factoring in the estimated present value of the closing costs and post-closure maintenance costs, the total net NPV for completing the upgrades is $20.3 million.

If WDI proceeds with the sale there will be an opportunity cost of lost revenues of $11,880,000 related to the two landfills.

Qualitative Analysis

Pros:

- The local municipalities have recently mandated the recapture of biogas. This means that there is a large future obligation that may increase with time. Selling the landfills now will mean that WDI is not responsible to meet this obligation down the road.
- Selling now could avoid potential future lawsuits. There is a worry that the leachate will pollute the ground water, which seems likely as this has already been noted as happening, as discussed below. This would promote the environmental sustainability that WDI includes in its mission statement.
- Currently, WDI is at the top of their debt-to-equity ratio, as noted in the financial analysis in the situational assessment above. The funds received from the sale of the landfills could be used to pay off some of this debt, which would increase WDI's availability to pursue other potential investments. As well, WDI may not be able to afford the biogas upgrades currently, as they only have $3 million in available cash flows and no room for additional debt.
- With the recent government mandates for reduced capacity in landfills, selling now could allow WDI to avoid these problems in the future and not have to worry about the shorter useful lives on their landfills. As well, selling in the future may be more difficult, as the landfills get older and closer to full capacity.

Cons:

- Currently, landfill space is hard to come by and WDI has an edge in the marketplace, as noted in the situational assessment, by having excess space in their landfills. By continuing to operate these landfills, they would be capitalizing on this advantage and likely attracting additional customers.
- Selling the landfills to an international company may not be well received by the local community and risks hurting WDI's reputation more than it already has been. This goes directly against their vision statement of meeting the needs of local communities.

- WDI will still be required to fulfill their existing landfill contracts, which may results in them outsourcing the service and losing additional customers. As noted in the situational assessment, WDI has already lost many of their customers due to not offering competitive pricing and so this additional risk may make this weakness worse.
- Selling the landfills means that they will not have access to recaptured biogas, which they could potentially utilize to fuel their fleet now that it has fully been converted to natural gas. This means WDI could be missing out on potential cost savings, which is noted as a key success factor in the industry.

Recommendation

Although the upgrades project a NPV of over $20 million dollars over the next 8 years, I recommend that WDI proceed with the sale of the landfills. The cash earned from the sale could be used to finance other investments or opportunities and pay off some of their outstanding debt so that they are not as close to breaking their debt covenants. As well, given the recent government regulations reducing capacity on landfills, WDI is likely to face issues with this down the road that could be very costly for them to deal with. Selling now will reduce their future obligation and lower their risk of lawsuits in the future. This will help to secure their long-term success as it provides them the opportunities to focus their efforts on other business opportunities.

<u>Strategic Issue #2 – Collaboration with Nova Scotia University</u>

The Nova Scotia University (NSU) is offering WDI the opportunity to collaborate on research to create a new type of material that will reduce the toxicity of certain products upon disposal. This collaboration will allow the consulting division to expand their services and enter a niche market.

Quantitative Analysis

The only financial consideration here is that WDI will be required to provide a portion of the upfront funding. As stated in the situational assessment, WDI currently only has an available $3 million in free cash flows. However, if they proceed with selling the landfills this could provide additional funds required to proceed with this opportunity.

Qualitative Analysis

Pros:

- Entering the niche market early could provide WDI with a competitive advantage over other competitors and bring in additional revenues. As noted in the situational assessment, there is an increased demand for consulting services that can help companies with regulatory compliance. WDI could capitalize on this demand by collaborating with NSU to develop this new material.
- This proposal is aligned with WDI's mission to use environmentally responsible and sustainable methods in their operations, as the research will help to reduce toxicity of certain products being disposed and be better overall for the environment.
- This collaboration would help to improve WDI's reputation in the industry and perhaps help them attract new customers to replace the ones they have lost in the last few years.
- Once WDI has access to the intellectual property, they have the opportunity to become experts in it, which could allow them to diversify their consulting operations and meet the needs of their customers.

Cons:

- This service is very different from the consulting services currently offered by WDI. WDI may not have the experience or knowledge to provide the top quality services they promote to meet the needs of their customers.
- This opportunity seems very risky, as WDI will only get paid if their consulting services produce a viable solution for their clients. As such, they could be contributing a large undisclosed amount of funds for little to no reward.
- WDI would not own the intellectual property created, only be given an exclusive license to use it. However, there is no guarantee that the intellectual property developed will be successful for lots of products or useful to WDI's current customers. As well, all published findings will be by the university and may not trickle down to WDI to help promote their reputation.
- There are many unknowns currently in regards to how much WDI will be required to invest or whether or not they will earn a return on the investment. As well, there is no indicated timeline for how long the research would take and whether NSU has developed similar things in the past. WDI could be investing into something that will not earn them any money or promote long-term company success.

Recommendation

WDI should first clarify how much cash they will be expected to contribute, when they would see a return on their investment and what the success rate is of NSU's R&D activities. Currently, it is too risky to proceed with this investment. However, should the investment be reasonable and the expected returns strong, the opportunity is aligned with WDI's core values and mission and would allow them to recover from the damage they have recently suffered to their reputation and I would recommend that they proceed with the collaboration. In the long run, the license to the intellectual property will help WDI maintain a competitive edge in the consulting industry and aligns with their mission of using leading-edge technologies.

<u>Strategic Issue #3 – Acquisition of Pendleson Incorporated (PI)</u>

Jim Pendleson, the sole shareholder of Pendleson Incorporated (PI) has offered for WDI to purchase all his shares and acquire the company for $56,310,000.

Quantitative Analysis

See Exhibit 2 for the valuation of PI. Based on a multiplier of 8.5 and including the expected admin savings of $1,000,000, the value of PI is $59,160,000. The offer price of $56,310,000 is therefore a fair price for the company.

The acquisition would come with a $40 million loan and will carry interest at 5%. The current debt-to-equity ratio is 3.4, which is just under the allowable 3.5. Potentially, WDI may be able to negotiate with Jim so that he provides more equity financing as opposed to debt financing.

Jim will get 350,000 shares valued at $18.03 a share. This is less than the $18.33 paid by Brian, Josephina and Peter when they purchased their ownership. As such, the value of the debt or cash paid up front may be able to be negotiated.

Qualitative Analysis

Pros:

- The acquisition will allow WDI to double in size. This means that WDI will be able to compete with larger companies in the industry and will no longer be at risk of being acquired, as noted in the external analysis of the situational analysis as a threat.
- PI has a good reputation with customers and in the community. WDI can capitalize on this to improve their own reputation and attract new customers and build additional revenues.
- Jim has lots of expertise to offer to WDI, which can be utilized to improve operations and effectively manage costs, which has been noted as a key success factor in the situational assessment.
- There are many synergies that can be capitalized on. PI's recycling plants have all be updated and WDI could offer those services again. This would allow WDI to move with the growing demand for recycling activities and is aligned with their vision to be environmentally responsible.

Cons:

- The proposal is very expensive and requires an upfront cash payment of $10 million. Current cash flows could not support this unless proceeds from the sale of the landfills were used as additional finance. The proposal also requires a loan of $40 million which would put WDI in breach of one of their debt covenants.
- PI's landfills bring in annual revenues of $21,760,000 and have been noted as being close to capacity. If their landfills hit capacity, PI will lose this revenue and will no longer be offering at a surplus. If WDI proceeds with selling their Nova Scotia landfills, they may also not have the capacity to meet this additional capacity to ensure revenues remain up and risk the acquisition not being profitable.
- The proposal includes Jim receiving 350,000 shares, which would give him a significant ownership percentage of the company. He will become a director on the board and receive a key management position and Laura and the other management team may have differing opinions and views on how to best operate the company. This could lead to conflicts within the management team, which as seen by the Kingsley collaboration, is not beneficial for company operations.
- Many of PI's contracts are coming up for renegotiation in the next couple of years. WDI risks acquiring the company and then losing the customers who make up the bulk of the revenues earned by the company.

Recommendation

Acquiring PI would provide WDI with many additional opportunities and potential cost saving efficiencies. WDI could open discussions with Jim to see if he would be willing to alter the terms of the agreement so that it was more equity focused then debt however, Jim is already receiving 350,000 shares of WDI and increased equity financing will likely shift this so that Jim is receiving even more ownership than he already is. Laura is unlikely to favor this option if it means she loses more control over her family's company. Therefore, I recommend that WDI does not proceed with this acquisition at this time. They cannot afford to increase their debt and break the debt covenants they already have and do not currently have the required cash flows for the upfront cash payment. As well, there is lots of risk surrounding the landfill capacities and lost customers that PI has been realizing and WDI could end up losing money in the long run, which would not be beneficial to the company's long-term success.

Strategic Issue #4 – Building an electronic-waste recycling facility

The Town of Devyn (The Town) has asked whether WDI is interested in building an electronic-waste recycling facility.

Quantitative Analysis

See Exhibit 3 in the attached document for the calculation of the payback period on the electronic waste facility. The facility would require an initial investment of $12 million. Depending on the output, this will result in a payback period of 3-4 years. Additional investments can be made later on to increase the capacity of the facility. WDI has indicated that it does not believe it will have issues reaching capacity at these facilities, so it is likely the payback period will be 3 years and not 4.

It has been assumed that processing cost per pound will remain constant. However, there is nothing supporting this assumption or indicating that costs will not be subject to inflation going forward. This would likely increase the timeline for the payback period.

Qualitative Analysis

Pros:

- There is lots of local demand for this service, which is aligned with WDI's vision to meet the needs of local communities. This also provides WDI with the opportunity to increase their overall revenues.
- This opportunity allows WDI to diversify their operations, which could help them increase their operating margins and expand their customer base. They could also offer this service to some of their already existing customers, better meeting their needs and aligning with their vision statement.
- It may be possible for WDI to obtain a sizable government grant for this project, which would help them fund the investment and effectively manage their costs, which has been noted as a key success factor.
- WDI will be bringing back a major customer that they lost in 2021. The Town will also be guaranteeing 25,000 – 20,000 pounds of waste material for the first year and will provide a property tax reduction for up to five years. This could potentially attract some of the other customers WDI lost in 2021.

Cons:

- There is a huge liability if something goes wrong. WDI will be required to protect recyclable devices holding personal information, as well as manage safety concerns. Should something happen and personal information be breached, WDI could be subject to lawsuits and would further injure their reputation.
- There are very strict regulations that have to be met before they can open the facility. As such, they will not be able to open until 2024. This means that the payback for the facility will be delayed till 2027-2028 to earn back the investment they make in the facility.
- Local community could react negatively to hazardous-waste disposal facility in their backyard. This would go directly against their vision statement if local communities do not want the facility around.
- There will be additional compliance and certification costs that WDI will be responsible for, which could reduce the overall profitability of the venture. The projection itself seems

higher than expected so there could be other unanticipated costs that would reduce the profitability of this project.

- It seems very suspicious that The Town is offering so many incentives to get WDI to build the facility. It is possible they made the offer to other companies and got turned down due to items that WDI is currently unaware of. WDI should potentially do some more investigating on the requirements of hazardous-waste handling and the negative impacts they might sustain to their reputation.

Recommendation

Before proceeding with this opportunity, there are several items that should be clarified with The Town:

1. How does the community feel about having a local hazardous-waste handling facility and will the facility be well received?
2. Are there other unidentified costs of operating the facility not currently considered in the projection?
3. What did The Town use to base its projections and assumptions on?
4. How much of a property tax reduction will they be offering?
5. Would they guarantee waste material amounts for after the first year?
6. What security measures will WDI be required to install to ensure there is adequate protection of devices holding personal information?

If the Town can provide adequate information on these concerns, WDI should reconsider the opportunity. They should also conduct their own research into whether the projections made are accurate or whether there are other additional costs that need to be considered. Whether or not WDI has the available cash flows to make the investment without incurring additional debt and breaking their covenants is also a concern. This concern may be mitigated though, if WDI is able to receive a government grant to fund the building of the facility. Further information should be gathered on the type of grant that WDI can receive and how much money they would get. Should all of these issues be addressed, WDI should proceed with building the facility.

Operational Issues

Toxic Leachate Contamination

Recently, toxic leachate was discovered in one of WDI's landfill sites in Nova Scotia. Peter did not follow proper protocols upon discovering the contamination and this is a major concern for WDI.

The primary concern is whether the proper tests have been completed to determine whether the leak is contained or whether it has contaminated the surrounding area through ground water or runoff. The next concern is regarding Peter's actions in the matter.

WDI has protocols in place to handle these specific matters: informing the board, doing the proper tests, and informing the public. WDI has an ethical and environmental responsibility to notify the public of any contaminations. It is also part of their vision statement to meet the needs of local communities and respect the environment. If WDI does not report the leak, they are violating both of these ideals. As well, it is one of WDI's core values to operate safely and in compliance with all safety regulations. There are likely many regulations regarding contamination to the environment and WDI is obligated to abide by these. Pollution and cleanup costs is one of WDI's greatest risks and it is important they handle these issues quickly and efficiently.

Peter likely kept the matter quiet to avoid further harm coming to WDI's reputation. However, he could potentially have made this worse if the public finds out that WDI knew about this contamination and did not notify the public immediately. His actions were directly against that core values and directed protocols of the company and WDI must deal with this.

Recommendation

I recommend that WDI immediately conduct further testing to determine the severity and full impact of the toxic leachate. They should then release a statement to the public stating that there was a leak and how bad it was and the actions WDI has taken to remediate the issue.

As well, if a further liability is determined to exist, WDI may need to consult their legal team and record the liability in their financial statements.

WDI should also sit down and have a discussion with Peter over his actions. If this is the first time he has acted in such a way, a written warning should be given and placed in his employee file so that there is a record of the infraction. As well, he should be required to take refreshment training on company protocols so that he is fully aware of them going forward. If this is not the first instance of Peter not following company protocol, further disciplinary action should be taken. This could include placing a different individual in charge of some of Peter's more important duties or demoting Peter to a lower position. If this behavior continues going forward, Peter should be removed from the company altogether.

As well, further investigation should be completed into which other employees knew about the contamination and whether or not it is in WDI's protocols for them to report these things. If they are responsible to report just to Peter, WDI should consider changing this so that serious matters such as this are reported directly to upper management and the Board.

<u>Overall Recommendation and Implementation</u>

Based on my above assessment of the strategic and operational issues, I recommend the following implementation plan:

1. Immediately conduct further testing to determine the severity of the toxic contamination discovered. Once further testing has been conducted, WDI should proceed with the necessary remediation steps and put out a statement to the public to disclose the leak and remain open and honest with the local communities.
2. The Board should immediately have a discussion with Peter regarding his actions not following protocols. A written warning should be issued and filed away and the Board should ensure he is monitored for a period of time to ensure he is acting with the best interests of the company in mind.
3. WDI should proceed with selling the Nova Scotia landfills. The funds earned from this sale should be used to pay down some of the existing debt and help to finance other potential investments.
4. WDI should follow-up with NSU to determine how much the collaboration will require of them and whether they will earn a return on their investment. The Stineman Consulting Group can determine if the venture is profitable once more information is obtained regarding upfront capital, length of development and expected returns.

5. I recommend that you do not proceed with the acquisition of PI. This will ensure that WDI remains compliant with their debt covenants and has cash flows available to proceed with the consulting business expansion.
6. WDI should submit follow-up questions to The Town before making a decision about whether to invest in building an electronic-waste disposal facility. There are many concerns currently regarding the projections provided and how accurate they reflect the costs involved.

Exhibit 1

Purpose: To quantitatively analyze the sale of the landfill sites compared to the mandated bigas upgrade.

Offer price	18,000,000.00
Carrying amount	12,400,000.00
Gain on sale	**5,600,000.00**

Biogas Upgrade

		Current	2024	2025	2026	2027	2028	2029	2030	2031
After-tax cash flows			5,819,000.00	5,819,000.00	5,819,000.00	5,819,000.00	5,819,000.00	5,819,000.00	5,819,000.00	5,819,000.00
Biogas recapture		(8,000,000.00)								
Tax	1	2,158,929.98								
		(5,841,070.02)	5,819,000.00	5,819,000.00	5,819,000.00	5,819,000.00	5,819,000.00	5,819,000.00	5,819,000.00	5,819,000.00
PV		(5,841,070.02)	$5,242,342.34	$4,722,830.94	$4,254,802.65	$3,833,155.54	$3,453,293.28	$3,111,075.03	$2,802,770.29	$2,525,018.28
NPV		24,104,218.32								
PV of closing costs	app III	(3,723,000.00)								
		$ 20,381,218.32								

Notes

1 Income tax calculated as $1,029/3,813 (app II)
27%

Conclusion: The gain on the sale of the landfills is $5,600,000. The NPV of the landfills after the biogas upgrades is $20,381,218.32.

Exhibit 2

Purpose: To quantitatively analyze the purchase offer for Pendleson Incorporated.

After-tax net income			5,960,000.00
Admin savings			1,000,000.00
			6,960,000.00
Multiplier	app IV		8.50
Value		**$**	**59,160,000.00**
Shares			350,000.00
Value		$	6,310,000.00
Share value		$	18.03
Shares purchased by Brian, Josephina and Peter			171,000.00
Amount		$	3,135,000.00
		$	18.33

Conclusion: The value of PI including the annual administration savings is $59,160,000.
The shares purchased in WDI would be values at $18.03, in comparison to the $18.33 paid by Brian, Josephina and Peter.

Exhibit 3

Purpose: To quantitatively analyze the electronic-waste disposal facility.

Initial investment	12,000,000.00		
Pounds processed annually	**25,000.00**	**30,000.00**	**40,000.00**
Revenue per pound	427.50	427.50	427.50
Processing cost per pound	240.00	240.00	240.00
Net margin per pound	187.50	187.50	187.50
Income before taxes	4,687,500.00	5,625,000.00	7,500,000.00
Less: income taxes	(1,265,625.00)	(1,518,750.00)	(2,025,000.00)
Net Income	**$ 3,421,875.00**	**$ 4,106,250.00**	**$ 5,475,000.00**
Payback period	**4**	**3**	**3**

Conclusion: The payback period for the electronic-waste disposal facility is 3-4 years depending on the output.

row 63

APPENDIX G

THE COMMON FINAL EXAMINATION
DAY 1 VERSION 3 BOOKLET – SEPTEMBER 7, 2022

COMMON FINAL EXAMINATION
SEPTEMBER 7, 2022 – DAY 1

Case (WDI-Version 3) **(Suggested time: 240 minutes)**

It is November 2024, and Shawn Bryson, your boss at Stineman Consulting Group (SCG), informs you, CPA, that Kingsley Investment Inc. (Kingsley) has hired SCG for a consulting engagement related to Waste Disposal Inc. (WDI). He has forwarded you the following update from Brian Leung, WDI's CFO.

Soon after SCG issued its last report, Laura Simmons announced that she was unhappy with the direction of the company and decided to exit WDI. Kingsley purchased her common shares and now owns 100% of WDI.

After the last engagement, WDI decided to partner with the municipalities to build an organic-waste treatment facility. During its first year of operations, as many of WDI's existing customers signed up for this sustainability-focused addition to their contracts, the project generated a higher-than-expected profit margin. Given the increased priority that many organizations have placed on environmentally-responsible business practices, the addition of the organic-waste treatment facility has also helped WDI retain customers. While Jack and the Board of Directors still view WDI's strong customer relationships and traditional waste management service contracts as the most valuable part of the business, the organic-waste treatment facility's success has made them more receptive to investments in sustainable alternatives.

Over the past several years, due to a rapid increase in demand, the selling prices of recycled materials have increased. This has allowed WDI to reopen its recycling plants, and all collected OCC and glass can currently be recycled and sold at a profit. Because WDI decided the upfront cost of converting its fleet of vehicles to biogas was too high, its vehicles still rely exclusively on regular diesel fuel. The current price of diesel fuel is $1.25 per litre (L), but due to an increase in taxes and pressure on the diesel fuel supply chain, prices are rising rapidly.

With stricter regulations around less sustainable waste management methods, the cost to operate landfills continues to rise. Also, because of public opposition to converting additional land to landfills, it has become more difficult for companies within the industry to secure landfill space. There is growing awareness and societal demand for a higher commitment to sustainability in the industry. Recently, a potential new customer turned down WDI's services because too much of their waste would be directed to landfills.

In 2022, as part of a new government incentive program, WDI began producing an annual greenhouse gas (GHG) emission statement, and set an emission reduction target to be achieved by 2025. However, WDI does not currently expect to meet this target. Also, in an effort to achieve their own sustainability targets, some of WDI's customers have asked WDI about its sustainability efforts. This is because WDI's emissions are higher than the industry average. Most of WDI's competitors are implementing programs to reduce GHG emissions to satisfy their customers' demands and to qualify for the growing number of government incentives available for reducing emissions.

Shawn asks you to review the information provided and prepare a report for WDI’s board that strategically analyzes and makes a recommendation for each proposal being discussed. You are also to advise the board of any significant factors that may not have been considered, identify information that should be obtained before making any decisions, and recommend an overall course of action that will best meet the objectives specified by WDI’s board. For this engagement, please ignore any tax implications within your analysis and recommendations.

INDEX OF APPENDICES

APPENDIX I
BOARD MEETING WITH CPA IN ATTENDANCE

Marlene: Thank you, CPA, for attending our board meeting. Now that Kingsley has 100% control of WDI, we have very clear directives for the future. Jack has replaced Laura on the board as CEO; otherwise, the board composition remains the same.

Jack: Nice to meet you, CPA. WDI has performed well for the last two years, and Kingsley is on track to sell WDI within our expected timeframe. WDI has $5 million in cash available to use for investments, if required. However, any investments made should provide a first-year return of at least 10% and should align with our plan to sell WDI within the next two years.

Marlene: It's funny you should mention that, Jack. Yesterday, we received an offer to sell 100% of WDI's outstanding shares to Sustainable Disposal Ltd. (SDL). The offer price, which expires in two months, is $35 million. SDL has a great reputation, a lot of capital to invest, and is very familiar with the industry and WDI's operations.

Robert: I'm familiar with SDL. It is known for purchasing underperforming waste management businesses and modernizing them with operations that emphasize sustainability.

Jack: The offer is interesting. However, with the improvements we have made over the past few years, I do not consider WDI to be underperforming, especially given the strength of our long-term and loyal customer list. Either way, the offer is worth evaluating.

Marlene: Since most of the board is not familiar with selling a waste management company, I had Brian contact an experienced business broker. Brian has summarized the details of the offer and the broker's comments on the market.

Jack: I would like to maximize Kingsley's return on the sale of WDI, but I recognize that the market will limit the price we receive.

Robert: Next, we must develop a plan to tackle our GHG emission target. We are not currently forecast to meet our targeted reduction by 2025, which means we will not receive the significant federal incentive. In addition, if we miss the 2025 target, we also miss out on improving our relationship with customers who have committed themselves to sustainable practices.

APPENDIX I (continued)
BOARD MEETING WITH CPA IN ATTENDANCE

Jack: That is disappointing. We have already made some big sacrifices in our current operations to cut GHG emissions, and have spent extra money and time to train staff on how to compile our GHG emission statement. All this money and effort may not be worth it for one incentive program, especially when we might not even receive the incentive.

Robert: The target we set in 2022 was quite aggressive because, at that time, we were considering some significant upgrades to WDI's sustainable practices that we did not actually complete. If we had, the target would have been achievable. However, at this point, the target cannot be changed.

Marlene: Regardless, we need to determine whether it is still possible to qualify for the $500,000 incentive by next year. We must also decide whether WDI should commit to future incentive programs. As well, if there are any potential investments that would help us qualify for the incentive, it could influence our decisions on which strategic investment options to choose.

Jack: The $500,000 would be a significant contribution to our income for the year.

Brian: Whether we accept SDL's offer or not, there is currently an open bid for a ten-year waste management contract for the municipality of Truro, Nova Scotia (Truro). The municipality signed up for our new organic-waste program, and has invited WDI to bid on their waste management contract. They had to suddenly terminate their existing contract due to the contractor's non-compliance with dumping regulations. The bid is only open for two weeks, and Truro wants the contract to begin one month from now. As we are used to dealing with this kind of short timeline, I do not think it will pose a problem. We can use our standard process to calculate our bid price.

Marlene: Although it would be short notice, I am confident our suppliers can provide us with any new capital equipment needed to satisfy the contract. I wonder if adding this long-term contract would help attract a higher sale price for WDI, especially because the potential client is a municipality as big as Truro. I have also heard that the previous contractor's reputation has been tarnished. With an increased presence in the area, WDI might be able to attract other organizations that want to move away from this non-compliant contractor.

APPENDIX I (continued)
BOARD MEETING WITH CPA IN ATTENDANCE

Brian: Also, Truro has excess landfill capacity, and given how difficult it has become to obtain new landfill space, that is quite an advantage. They are also including an incentive for the successful bidder to use that excess capacity right away, and to potentially purchase an entire landfill if the relationship goes well. This would help us relieve some capacity pressure at our other landfills.

Jack: This contract aligns well with our operations and creates efficiencies. If the costs and profit margin of the contract are acceptable for us, there does not seem to be much risk in moving forward with it. We should look at the project's details more closely to see if we can come up with a competitive bid.

Brian: Next, my friend Lucy is selling her Halifax-based PET plastic recycling plant assets and operations. I know we opted out of building a similar plant in the past, due to how long construction would take, but operations would begin right away with this purchase. Based on the information Lucy has provided, we would be profitable from the first day after purchase.

Jack: If we can reach our targeted return on investment (ROI) in the first year, it may be worth it.

Brian: The recycling industry is on the rise right now, with both selling prices and demand for recycled materials trending upward. However, some analysts are concerned about the potential for significant short-term price volatility.

Robert: WDI should invest and further develop our recycling services purely to keep up with our competitors. The last time we took a risk was with the organic-waste treatment facility agreement, and it has outperformed expectations. Recycling PET plastics rather than dumping them into a landfill would allow us to reduce our GHG emissions while also reducing the environmental burden of landfills.

Jack: I wonder if investing in the recycling plant would be the right choice as we prepare to sell the business within the next two years, or even the next two months, if SDL's offer is attractive enough.

APPENDIX I (continued)
BOARD MEETING WITH CPA IN ATTENDANCE

Robert: There is one other investment we should consider. A new biodiesel company in our area, Fried Fuels Company (FFC), is looking for a partner who currently collects waste cooking oil from restaurants. The plan is to send the oil to FFC's new facility for conversion into what FFC calls "ecodiesel." FFC wants the partner to loan them $1 million for three years, and to guarantee to collect and deliver a minimum volume of waste cooking oil.

Marlene: Does redirecting waste cooking oil to this ecodiesel operation mean we will no longer incur disposal costs?

Robert: Correct. The waste cooking oil we already collect will be dropped off at this facility instead of having to incur the costs of dumping it in our landfills. Plus, FFC is giving us the opportunity to purchase, at a discounted price, the same volume of ecodiesel fuel that we drop off in waste cooking oil. We could use the ecodiesel to fuel our trucks. What a forward-thinking concept!

Jack: That may be, Robert, but loaning money to a start-up business is risky. As our disposal cost for waste cooking oil is minimal, I am not sure there is any financial benefit from this proposal. Also, ecodiesel is more expensive than the regular diesel fuel we typically use.

Robert: That is true, but alternative vehicle fuels are becoming the industry standard. We have fallen behind our competitors in this respect, and our customers have noticed. Although this arrangement would not allow WDI to replace all the diesel fuel we currently use, it would be a good start. It would be worth evaluating the proposal to quantify the net impact.

Jack: Lots to consider. If the offer from SDL is deemed reasonable, we will need some advice on whether we should sell the business now. Purchasing WDI was a departure from trucking, where my experience is, and I look forward to selling it and being free of the risks involved with this business.

Marlene: Hopefully, CPA's report helps us make well-informed decisions. Otherwise, are we finished for today?

Jack: Yes. Thank you all for your thoughtful contributions.

APPENDIX II
EXCERPT FROM WDI'S FINANCIAL STATEMENTS

Waste Disposal Inc.
Income Statement
(in thousands of Canadian dollars)

	2024 Forecast	2023 Audited
Revenue	$ 96,641	$ 94,720
Direct costs	41,914	40,814
Gross margin	54,727	53,906
Expenses		
Amortization	11,800	12,200
Operating costs	27,440	26,700
Selling and administrative	8,500	8,400
Total expenses	47,740	47,300
Operating income	6,987	6,606
Interest expense	(2,583)	(2,875)
Income before taxes	4,404	3,731
Income taxes	(1,167)	(988)
Net income	$ 3,237	$ 2,743

APPENDIX III
INFORMATION ON THE PURCHASE OFFER
PRESENTED BY SUSTAINABLE DISPOSAL LTD.
(Prepared by Brian Leung)

Offer Details:

- SDL is offering $35 million for 100% of the outstanding shares of WDI.
- The offer expires in two months.
- To confirm that the business is performing as SDL expects, SDL requires a copy of the audited financial statements.
- There are no other conditions.
- SDL plans to retain all of WDI’s employees, honour all of WDI’s existing long-term customer contracts, and uphold WDI’s existing mission and vision statements.

Notes from Discussion with Business Broker

Comparable sales prices for waste management businesses have been established using a multiple of 1.85 to 2.30 times EBITDA. The main differentiating factor between businesses selling at the higher end of the range is the amount of investment in, and income generated from, sustainable operations such as recycling, composting, and alternative energy use. The lower end of the price range includes companies that are more focused on traditional landfill disposal.

The average number of days that waste management businesses are listed for sale before an offer is agreed upon varies from 46 days for businesses attracting sale prices at the higher range to 92 days for businesses valued at the lower range.

Due to the increase in the selling prices of recycled materials, there has been a recent increase in the valuation of waste management businesses that have recycling capacity for a diverse range of materials. Many of these higher-priced businesses have also been monitoring their GHG emissions for many years, and have been quite successful at reducing their GHG emissions.

Buyers also seem to place less value on long-term contracts than in the past. Recent industry growth has occurred due to the rapid rise in demand for sustainable waste management options, and buyers want to try and benefit from this trend.

APPENDIX IV
GHG EMISSIONS REDUCTION INCENTIVE PROGRAM
(Prepared by Robert Manning)

In 2022, WDI set a three-year target to reduce the company's GHG emissions by 30% from the 2022 baseline of 145 million kg of CO2e (carbon dioxide equivalents). This target was registered as part of a federal government incentive program. If the 2025 GHG emission statement demonstrates that WDI has met the target, the company will receive a $500,000 cash incentive.

Based on WDI's existing operations, it is currently forecast to emit 120 million kg of CO2e in 2025, which is only a reduction of 17.2%.

The following factors influence WDI's GHG emissions:

- Waste disposed of in a landfill increases GHG emissions by 2,000 kg of CO2e per tonne of waste dumped.
- PET recycling reduces GHG emissions by 224 kg of CO2e per tonne of plastic recycled.
- Adopting ecodiesel fuel reduces GHG emissions by 13.4 kg of CO2e for each litre of regular diesel fuel replaced.

Additional Notes

Participating in the program requires significant time and effort from WDI's operations staff, as they are required to track many additional metrics for GHG emissions. There are increased training costs, and time requirements beyond the staff's existing jobs. Some staff members have complained about the lack of compensation for the additional workload. In 2025, a new reduction target will need to be set for the next three years, and a plan developed for how to achieve it. As WDI does not have an internal engineer for this, it will need to incur significant consulting fees.

It is expected that there will be several new incentive programs proposed within the next federal budget that require a GHG emission statement in the same format as the one that WDI already produces. Also, with current political pressure to promote sustainable waste disposal practices, more incentives will likely be introduced in future years.

APPENDIX V
MUNICIPALITY OF TRURO CONTRACT BID INFORMATION
(Prepared by Brian Leung)

Truro requires a contractor to perform waste management services for the municipality. The municipality has set a maximum bid price of $900,000 per year. This is a 10-year contract, with an option for a 10-year renewal term. The contract involves the collection, transfer, and disposal of household, commercial, and construction waste. In total, 7,050 tonnes of waste will need to be transported and dumped in a landfill per year.

WDI's bid price should allow for a 25% profit margin. This will provide WDI with a 10% return on the upfront investment in the capital equipment that will need to be purchased in order to fulfill the contract.

Truro has provided the expected annual weight of each type of waste that will be collected. WDI estimates its contract costs based on the following average costs per tonne of waste collected:

		Cost per Tonne		
	Annual Weight Collected (tonnes)	**Labour**	**Tipping & Landfill**	**Collection & Transfer**
Household	3,300	$76	$28	$31
Commercial	2,580	$27	$35	$18
Construction	1,170	$28	$42	$17
Total annual waste	7,050			

If WDI wins the bid, Truro will provide the use of its excess landfill capacity at competitive rates, even for waste collected from other WDI contracts. As these landfills are much closer to WDI's northern operations, the logistics team has determined that their use will save WDI approximately 25,000 kilometres of trucking mileage annually. The current cost for trucking is $5.20 per kilometre. These efficiency savings are also forecast to reduce WDI's GHG emissions by 125,000 kg of CO_2e per year.

As the municipality has found the excess landfill capacity more difficult to manage due to increased regulations, Truro is also offering the contractor the right of first refusal to purchase one of their landfill sites after the first year of the contract.

APPENDIX VI
PET PLASTICS RECYCLING PLANT PURCHASE

(Prepared by Lucy Tong)

The PET recycling plant can be purchased for $2.4 million, and includes the assets, operations, and current employment contracts of all staff.

The plant is modern and well maintained, and is not scheduled for any technological updates within the next five years. The plant has a dedicated team who are well compensated and have a depth of experience in the field.

Currently, the plant processes 42,000 tonnes of recycling per year, which is its maximum capacity. Much of this PET plastic is collected from one-time contracts rather than long-term service contracts. However, there is the possibility for the purchaser of the plant to forgo these one-time contracts, and instead pursue long-term contracts. This would help secure the plant's future supply of PET plastic for recycling.

Revenue is forecast to grow between 4% and 12% annually. Costs have been rising steadily by 4% annually.

The plant's financial performance for 2024 is expected to be as follows *(in thousands of Canadian dollars):*

Revenue	$ 987
Direct costs	780
Gross margin (21%)	207
Overhead	39
Net income	$ 168

APPENDIX VII
FRIED FUELS COMPANY COLLABORATION PROPOSAL
(Prepared by Robert Manning)

FFC is a new business aimed at redirecting restaurants' waste cooking oil away from landfills. FFC's plan is to convert the waste cooking oil into an ecodiesel fuel that can be used in vehicles that currently use regular diesel fuel. FFC's ecodiesel can be used interchangeably with regular diesel fuel, with no need to incur any vehicle conversion costs.

FFC will require WDI to collect 736,000 L of waste cooking oil per year. In return, WDI will be able to purchase 736,000 L of ecodiesel fuel at a discounted price of $1.38/L (the price is fixed for the duration of the collaboration). To ensure that it can meet its other contract obligations, FFC cannot guarantee any excess ecodiesel for purchase above this volume. However, FFC plans to increase capacity in two years, at which time more ecodiesel would be available to WDI at the same discounted price. This ecodiesel would replace an equal volume of regular diesel fuel that WDI currently uses.

WDI's current cost to dispose of waste cooking oil in its landfills is $0.12/L of oil dumped.

To secure the collaboration, WDI would provide FFC with a three-year, $1 million loan with interest of $100,000 per year. FFC requires the funds to upgrade its plant's technology. If the upgrade is successful, FFC will be able to accept a wider variety of waste oils to recycle into various products that it can sell to industries currently reliant on fossil fuels. WDI will also have access to any new products developed by FFC within the contract period, at a discount.

The logistics of dropping waste cooking oil off at FFC instead of the landfill are more complex, and will require WDI's truck drivers to be properly trained in unloading the oil into FFC's storage vats. After it is converted, the ecodiesel purchased from FFC will need to be stored onsite at WDI's facilities. WDI's current onsite diesel storage tanks can be used to store ecodiesel, so there will be no additional storage costs.

APPENDIX H

DAY 1 (WDI VERSION 3) – SEPTEMBER 7, 2022
MARKING GUIDE AND SAMPLE CANDIDATE RESPONSE

MARKING GUIDE
WASTE DISPOSAL INCORPORATED (WDI)
VERSION 3

Summative Assessment #1 – Situational Analysis

For Summative Assessment #1, the candidate must be assessed for reasonableness of attempt:

Yes – The candidate used a reasonable situational analysis when analyzing the major issues facing WDI.

Unsure – The candidate attempted to use a reasonable situational analysis when analyzing the major issues facing WDI.

No – The candidate clearly did not use a reasonable situational analysis when analyzing the major issues facing WDI.

Based on the 2020 Competency Map:

Technical Competencies
2.3.2 Evaluates the entity's internal and external environment and its impact on strategy development

Enabling Competencies
1.4.1 Performs work carefully, thoroughly and competently in accordance with relevant technical and professional standards
2.1.1 Applies knowledge of the organization's competitive environment and strategic direction when performing assigned work
2.1.3 Identifies the strategic impact of internal decisions and external influences on project plans and initiatives
6.1.1 Identifies and articulates issues within areas of work responsibility
6.2.1 Maintains an objective and questioning mindset to avoid biased analyses

A competent candidate will complete an appropriate situational analysis and will draw upon their situational analysis when analyzing the major issues facing WDI (evaluating purchase offer from SDL, pursuing GHG emissions reduction incentive, bidding on Truro contract, purchasing PET plastics recycling plant, and the collaboration with FFC to produce ecodiesel). When analyzing the major issues, a competent candidate will consider the option to sell WDI now or later.

Current Situation

A major change has occurred since Capstone 1, given that Laura is no longer involved in WDI. Jack Kingsley now holds 100% of the shares of WDI, Laura has also left WDI's Board of Directors, and Kingsley has stepped in to fill her role of CEO. Jack intends to direct the company toward its sale, which he specifies should take place within two years. Until then, if any investments are made, they should generate an ROI of at least 10% in the first year. Any investments made should also align with Kingsley's plan to sell the business within two years.

Despite the risk of building the organic-waste facility and the challenges around the volatile selling prices of recycled materials, WDI has performed better than expected since Capstone 1. The company's profit margin has improved and WDI has $5 million in available cash to invest. The success of these sustainability-focused options has mostly been driven by the public's increased demand for recycled materials and WDI's customers' interest in organic-waste treatment. As the company's clients were satisfied with the addition of the organic-waste treatment facility as an environmentally-friendly waste disposal option to add on to their existing waste management services, WDI was able to retain many of its existing customer contracts.

The board still considers WDI's long-term customer relationships and traditional waste management service contracts to be the company's most valuable asset but have become more interested in sustainability-focused elements of the business, given the success of the organic-waste treatment facility. Buyers of waste management companies are putting less emphasis on the importance of long-term contracts and more emphasis on whether a company has made investments in sustainable waste management practices. Overall, there are some options for the board to consider in preparing WDI for a sale within two years, that either align with its traditional core waste management services, or that involve investing in some new sustainability-focused opportunities. However, there is also a current offer to consider, to sell 100% of WDI's outstanding shares, which is available for the next two months.

Mission/Vision

WDI's mission, vision, and core values, approved by the board in 2014, are as follows.

Vision statement: *To be a premier waste disposal company while meeting the needs of our customers, employees, local communities, and the environment.*

Mission statement: *We are waste disposal experts providing collection, disposal, and recycling services to our customers, using environmentally responsible and sustainable methods and leading-edge technologies.*

<u>Core values (no change from Capstone 1):</u>

- Operate safely and in compliance with all safety regulations
- Act with integrity and honesty in an ethical manner

- Treat employees with respect and ensure that they are adequately trained and fairly compensated
- Provide customers with effective and efficient service
- Stay up-to-date with waste disposal technologies and educate customers on waste disposal alternatives
- Promote sustainable practices within the company

New Objectives

WDI continues to offer the services of collection, transfers, landfill sites, and recycling to its customers. In the past three years, it has added organic-waste treatment as a service. Due to the success of the organic-waste treatment facility, and the rebound in the selling price of recycled materials, the revenues and profit margins of WDI have increased.

The board's current objectives for 2024 and 2025 are to:
- prepare to sell the shares of WDI within the next two years for a price that maximizes Kingsley's return, with the understanding that market value reflects a reasonable price.
- only invest in strategic options that provide an immediate, first-year ROI of 10%.

Available Cash Flow /Financing

WDI's financial results have improved due to WDI's investment in its organic-waste treatment facility and the rebound in the selling prices of recycled material. WDI currently has $5 million in available cash to invest, if any of the strategic options presented are deemed appropriate.

Candidates are NOT expected to recap WDI's KSFs or provide a detailed SWOT analysis. However, candidates must draw upon these various factors in their analysis of the strategic alternatives presented within the simulation.

Key Success Factors (KSFs) (from Capstone 1)

Key success factors in the overall industry include: managing fuel, disposal, and regulatory compliance costs; having long-term customer contracts to maximize capacity usage; complying with all levels of government regulations; designing collection routes to be faster and cheaper; having good customer relationships; and ensuring that contracts are renewed and new contracts are obtained.

Key success factors in the recycling segment include: having a large local customer base; having strong local support for recycling; being vertically integrated with collection; complying with all levels of government regulations; and investing in up-to-date technology, to continually improve efficiencies and reduce labour input costs.

In the waste collection and disposal industry, operational success is based on being a low-cost provider (since waste management companies compete on price) and using up-to-date technology, fuels, and processes that reduce greenhouse gas (GHG) emissions.

SWOT Analysis

Strengths:

- The board's tone in their meeting is unified in their direction, now that Laura has left. There are no longer any indications of governance issues within WDI. Without Laura and Jack clashing in terms of their own personal visions for WDI, Kingsley has 100% control to direct WDI. Since the board is made up of three Kingsley representatives and Brian, who is employed as WDI's CFO, the dialogue reflects alignment with Jack's plan to sell, as he ultimately has full control of the decisions.
- Despite the initial investment risk, WDI's profit margins and performance have improved due to the investment in the organic-waste treatment facility. The facility has performed above the company's original expectations.
- The price of recycled materials is currently rising and WDI is now able to recycle all collected OCC and glass and sell it at a profit. This has contributed to the higher profit margins over the past two years.
- WDI currently has $5 million in cash available to invest in strategic options, which is enough cash to pursue all the options available, if desired.
- WDI was able to maintain its long-term contracts with existing customers as they were happy with the addition of the organic-waste treatment plant and the continued operations of their OCC and paper recycling plant, as these increased the sustainability-focused services offered by WDI.

Weaknesses:

- WDI declined the option of converting its fleet vehicles to biogas, as the upfront cost of the conversion was too high. The fleet still relies exclusively on regular diesel fuel. This leaves WDI susceptible to the rising cost of regular diesel fuel, and is contributing to its relatively high GHG emissions. This is especially important when considering Kingsley's objective of selling WDI within a two-year timeframe because companies that have emphasized investments in sustainable practices are able to fetch a higher selling price relative to the waste management companies that have not done so.
- Recently, a potential new customer turned down WDI's services because too much waste would be directed to landfills and the company's GHG emissions were higher than desirable. This is a weakness, as WDI offers less sustainable options relative to its competitors, which may lead to its customers looking elsewhere for waste management services.
- Overall, WDI has opted out of several of the investment options that would have increased its sustainable practices and helped to reduce its overall GHG emissions. Because of this, WDI continues to have higher GHG emissions relative to the industry average. In addition, the company is not on track to meet the three-year emissions reduction goal set by the board in 2022. As a result, the company does not currently qualify for the GHG reduction incentive for 2025.

- Customers are beginning to question WDI about its sustainability efforts, as they are trying to reach their own emissions reduction goals. This could indicate a weakening of WDI's customer relationships, which is a key success factor in the industry.
- WDI's operations are still heavily reliant on landfill disposal, which is a weakness due to the rising costs of operating landfills and pressure from customers to offer more sustainable options. There are indications, as mentioned in Capstone, that customers may not renew their contracts if additional sustainable services, such as recycling and organic-waste treatment, are not available.

Opportunities:

- In recent years, there has been rapid growth in the recycling industry. This is due to the increasing demand for recycled materials as customers place more value on products that are environmentally friendly. The prices of recycled materials are rapidly rising; however, some analysts have warned about the potential for significant short-term volatility. While there is an opportunity to invest in recycling, there is a risk due to the potential volatility of selling prices.
- Along with their bid, Truro is offering the winning contractor the opportunity to use their excess landfill capacity at competitive rates, and the potential to purchase a landfill after the first year of the contract, which would help secure landfill capacity for WDI in the future as it becomes scarcer.
- There is growing awareness and societal demand for a higher commitment to sustainability in the industry. This is an opportunity to pursue more sustainable options and take advantage of this demand.
- In 2022, WDI began to produce annual GHG emissions statements, and set an emissions reduction target to be achieved by 2025. If it meets the target, WDI could qualify for a $500,000 incentive. More of these incentives are expected to become available in the future, using the same GHG emissions statements.
- Alternative vehicle fuels such as biodiesel are becoming an industry standard for replacing regular diesel fuel. Since biodiesel produced by FFC, which FFC has called "ecodiesel," comes from waste cooking oils, the price is stable, which could be beneficial in cutting WDI's costs in the long run, as could the GHG emissions reduction associated with the switch from regular diesel to biodiesel fuel.

Threats:

- Some analysts have forecast short-term volatility in the prices of recycled materials. This threatens the company's profitability and increases the risk of its current recycling plants, and any other recycling options it may pursue.
- Regular diesel fuel prices are rising rapidly due to increased taxes and pressure on the supply chain. This is forecasted to continue, which threatens to increase the expenses of WDI, since its entire vehicle fleet operates on regular diesel fuel.

- The costs to operate landfills continue to rise, due to stricter regulations around the use of less sustainable waste management methods. It has also become more difficult for companies within the industry to secure landfill space, given the public opposition. WDI still has many waste management contracts that primarily dump waste in landfills, so capacity could become an issue as they begin to fill up.
- Most of WDI’s competitors are implementing programs to reduce GHG emissions in order to satisfy their customers’ demands and to become eligible for the growing number of incentives available. WDI’s customers are beginning to question its sustainability efforts as it is not making the same effort as its competitors, which may lead to WDI losing some of these customers’ business to other, more sustainably-focused competitors.

Conclusion

Kingsley has the objective of selling WDI within the next two years, and any investments need to be aligned with that goal and produce a first-year return of at least 10% on investment, to ensure that WDI continues to generate short-term profits. WDI has been successful in maintaining its core operations and services, but has seen even more success since the introduction of the organic-waste treatment facility. WDI is somewhat behind its competitors in terms of sustainability, which has become a major factor in the industry in recent years and is a definite threat to WDI’s future, and may limit the selling price that Kingsley can achieve for the sale of WDI.

Summative Assessment #2 – Analyzes the Major Issues

For Summative Assessment #2, the candidate must be assessed for reasonableness of attempt:

Yes – The candidate sufficiently completed a reasonable assessment of the major issues facing WDI.

Unsure – The candidate attempted to complete a reasonable assessment of the major issues facing WDI.

No – The candidate clearly did not complete a reasonable assessment of the major issues facing WDI.

Technical Competencies
2.3.3 Evaluates strategic alternatives

Enabling Competencies
1.1.3 Exhibits ethical behavior by complying with laws and regulations, organizational policies, societal norms and personal ideals
6.1.2 Uses qualitative and quantitative techniques to clarify the nature of problems
6.1.3 Demonstrates skepticism, objectivity, due care and persistence when identifying issues
6.2.3 Questions the relevance and tests the quality of information and assumptions in own analyses
6.2.4 Completes thorough quantitative and qualitative analyses to identify and evaluate potentially viable alternatives

This summative assessment is based on Assessment Opportunities #2 to #6.

Assessment Opportunity #2 (Strategic Alternative #1 – Accept SDL's offer and sell WDI?)

A competent candidate will complete both a quantitative and qualitative assessment of SDL's offer to purchase WDI.

Quantitative: Candidates should complete an EBITDA multiplier valuation of WDI and evaluate SDL's offer price to comparable sales that have taken place within the industry.

Qualitative: Candidates should discuss the advantages and disadvantages of the purchase offer, and discuss whether it is reasonable compared to the market value of comparative sales.

Conclusion: Candidates should offer a conclusion that incorporates and logically follows from their quantitative and qualitative analyses.

Sustainable Disposal Limited (SDL) is a high-performing company that specializes in purchasing underperforming, traditional waste management companies and investing in them, to increase their sustainable services options.

Quantitative Analysis

The offer price for 100% of the shares of WDI is $35 million, and the offer expires in two months. Comparable industry sales recently have seen companies sell for 1.85 to 2.3 times EBITDA, with the higher range of the sale prices going to companies with a greater emphasis on sustainable waste management practices and alternative energy use.

WASTE DISPOSAL INC.
INCOME STATEMENT
(in thousands of Canadian dollars)

		Forecast 2024	Audited 2023	
Revenue		$ 96,641	$ 94,720	
Direct costs		41,914	40,814	
Gross margin		54,727	53,906	
Expenses				
Amortization		11,800	12,200	A
Operating costs		27,440	26,700	
Selling and administrative		8,500	8,400	
Total expenses		47,740	47,300	
Operating income		6,987	6,606	
Interest expense		(2,583)	(2,875)	B
Income before taxes		4,404	3,731	
Income taxes		(1,167)	(988)	C
Net income		$ 3,237	$ 2,743	D
EBITDA		18,787	18,806	= D - C - B + A
Lower-range multiplier	1.85 (E)	34,755	34,791	= EBITDA × E
Higher-range multiplier	2.30 (F)	43,210	43,254	= EBITDA × F

SDL's offer of $35 million is at the low end of market value. While Jack recognized that the market will limit the price received, there is a significant range within the market value, as shown in the above analysis. Given that Jack does not consider WDI to be underperforming, he would likely be disappointed to have to accept a valuation for WDI at the low end of value relative to the industry. As Jack's objective is to maximize the selling price of WDI, he would likely question how the selling price could be increased to the higher end of market value.

However, given WDI's comparatively low investment in sustainable options as well as relatively high GHG emissions when compared to the industry, it is more likely that the market value of WDI would be at the low end of comparable sales. If Kingsley declined this offer and decided to make some strategic investments that emphasized sustainability, and helped WDI meet its GHG emissions reduction target, there is the possibility that future offers would increase to the higher end of this range, providing a significantly higher return on the sale of WDI for Kingsley.

Qualitative Analysis

Objectives:

- As Kingsley's main objective is to choose options that will prepare WDI to be sold within two years, the SDL offer aligns with that objective very well. However, Jack would like to maximize his selling price, and sitting at the lower range of market value leaves room to obtain a higher price if the right investments were made.
- The objective of investing in options that provide a 10% ROI is not relevant, as there is no investment taking place within this option.

Advantages:

- The buyer has a great reputation and a lot of capital. They are familiar with WDI's business and are aware of the interest in selling. As such, their offer is likely well informed.
- SDL requires a copy of the audited financial statements. WDI's financial statements already undergo an audit, so this condition of the offer should not pose any challenges.
- The offer is reasonable, based on current operations, has minimal conditions, and SDL is ready to purchase the business as is. This is a low-risk option that aligns with market value (although at the low end of market value). Therefore, Kingsley could achieve a reasonable return on its investment with WDI now, without the need to take on any further risk by making additional investments within the company.
- The offer is only available for two months, so there is a risk that another offer like this may not come up in the future, as this seems like an easy sale with few conditions.
- Overall, if Kingsley decides to sell WDI to SDL, the mission and vision of WDI will be the responsibility of SDL, so this factor is not overly relevant from Kingsley's perspective. However, SDL has a strong reputation, is focused on sustainable practices, and plans to uphold WDI's mission and vision. Therefore, if the sale is made to SDL, it appears that WDI will be in a position to continue to carry out the company's mission and vision.
- However, if Kingsley decides to forgo SDL's offer, it will be important for WDI to adhere to the company's stated mission and vision, as this will help ensure that the company remains an effective waste management company, and by extension, ensure that WDI retains its value for a future sale.

Disadvantages:

- The companies that Kingsley purchases typically peak after five to seven years; therefore, selling now may be premature as it is possible that WDI has yet to reach its full potential.
- The offer is on the low end of the market value, which means that WDI is giving up the potential for meeting Jack's objective of maximizing the sale price. There is a reasonable case to turn down the offer and take on some additional investment risk, given that, if successful, these investments would likely lead to a higher selling price in the future.

- The offer's price is at the low range of value when considering the information provided by the business broker, as well as the fact that SDL typically focuses on purchasing underperforming companies. This indicates that WDI may be underperforming relative to the industry and there is potential for it to perform better, and therefore receive a higher selling price.

Justification to sell WDI now:

- There is a risk of the prices of recycled materials falling in the short term, as per some analysts' predictions of volatility. Since recycling has been a contributor to the last two years of success for WDI, this may reduce its EBITDA and potentially influence future offers for purchase if SDL's current offer is refused.
- WDI's current focus on landfill operations as a business means that, if it turns down this offer and continues to operate as it is, future offers may remain at this level. In order to increase the value of WDI, investments in sustainable alternatives and projects must be made. Kingsley could forgo this potentially complicated process by selling the company now.
- SDL has experience in purchasing underperforming waste management businesses and modernizing them. Their experience, along with the low offer price, indicates that WDI is considered an out-of-date waste management company. Will Kingsley be able to change the operations enough in order to increase any future purchase offers?
- Companies that are at the lower price range spend an average of 92 days on the market, which is much longer than companies at the higher end of the price range, which only spend 46 days on the market. If this offer is accepted, Kingsley can sell immediately, but this may not be the case if it waits to sell later and is still at the lower end of market value.
- Recent buyers have not been placing as much value on long term, traditional waste management contracts, which is still the core of WDI's business. Instead, recent buyers have emphasized the importance of sustained business practices. Therefore, if WDI does not modernize its operations, any future offers from potential buyers may decrease.

Justification to sell WDI later:

- There is a strong demand for sustainable opportunities going forward, so there is the potential for WDI to make some investment in this area and for Kingsley to obtain a higher purchase offer within the next two years as a result. Companies with sustainable investments demand a higher price and spend only 46 days on the market before selling, indicating that they are more attractive to buyers.
- There has been a recent and rapid rise in the prices of recycled materials, which has drawn buyers to try and capitalize on this by purchasing companies that are already invested in recycling. WDI has the opportunity to invest in a PET recycling plant, which will diversify its recycling services, and could therefore potentially command a higher selling price.
- Higher-priced businesses have been monitoring their GHG emissions for many years and have been quite successful at reducing their GHG emissions. If WDI can reduce its GHG emissions, it may be able to command a better price in the future.

Integration:

- If WDI invests in the PET recycling plant and the ecodiesel collaboration, and successfully reduces its GHG emissions enough to qualify for the incentive by choosing not to bid on the contract with Truro, Kingsley has the best chance of demanding a higher purchase offer within the next two years. Pursuing any of these options would very likely increase the chance of a higher purchase offer. However, this will take some extra investment and commitment by Kingsley that may or may not be worth the risk, as these investment options have a lower-than-10% ROI individually, except the GHG emissions reduction incentive, which makes up for this lack of ROI overall.

Conclusion/Recommendation

SDL's offer to purchase WDI is reasonable based on the market value, as it falls within the range of the calculated value of the company. However, being at the low end of the range indicates that SDL sees WDI as a lower-performing waste management company that lacks investment in sustainable options, despite the organic-waste treatment and the OCC and paper-recycling program. Jack recognizes that market value would be reasonable, which this offer does provide. However, there is an opportunity to maximize the return achieved from the company's sale by investing in some more sustainable options, and waiting to sell at a later date to a different buyer.

There are two directions that Kingsley could take. Kingsley could reduce their risk, accept the current offer for market price, and sell WDI now; however, there are indications that they could attract a higher price for WDI with a few changes. If the offer is turned down and WDI instead focuses on investing in sustainable options and reducing GHG emissions, Kingsley would likely be able to command a higher sale price from future offers. However, there is risk involved in this option, as the industry must continue its trend of favouring sustainable operations, and this will require additional investment into WDI.

Assessment Opportunity #3 (Strategic Alternative #2 – GHG emissions reduction target and incentive)

A competent candidate will complete both a quantitative and qualitative assessment of the company's eligibility to receive a GHG emissions reduction incentive, based on the forecasted GHG reduction and any changes to the forecast, due to the strategic options pursued.

Quantitative: Candidates should determine that the forecasted GHG emissions reduction is below the 2025 target of 30%, and calculate the adjusted forecasted reduction, based on the strategic options they pursue.

Qualitative: Candidates should discuss the reasons why, or why not, WDI is eligible for the incentive, and consider whether the GHG emissions statements are worth producing in future years.

Conclusion: Candidates should offer a conclusion that incorporates and logically follows from their quantitative and qualitative analyses.

In 2022, the board set a GHG emissions reduction objective for 2025. Currently, the forecasted reduction for 2025 is lower than the targeted 30% reduction (i.e., targeted to go from 145,000,000 kg to 101,500,000 kg of CO2e. Currently, at 120,000,000 kg of CO2e based on 2025 forecast; therefore, need to reduce by an additional 18,500,000 kg of CO2e.). However, WDI's GHG emissions will be affected by any strategic decisions implemented in the next year. Therefore, WDI needs to understand if it will be eligible for the incentive, and decide whether to continue to produce the statements required, to be eligible for GHG reduction incentives in the future.

Quantitative Analysis

The rate of reduction or increase for each of the available strategic investments is provided in the appendices, along with the driver for each option. The bid with Truro would increase WDI's GHG emissions, whereas the PET recycling plant and the ecodiesel collaboration options would both reduce WDI's overall GHG emissions. The only way for WDI to qualify for the incentive is to forgo the Truro landfill bid and invest in the recycling plant and the ecodiesel collaboration.

2022 baseline	145,000,000	CO2e
Required reduction	30%	
Reduction required	43,500,000	CO2e
Target 2025 emissions	**101,500,000**	CO2e

GHG emissions reduction if:

A) All alternatives pursued

Strategic Option	Factor	Per-unit Affect (kg of CO2e)	Number of Units (litres or tonnes)	Total Affect (2025)
Truro contract	Landfill waste	2,000	7,050	14,100,000
Truro contract	Reduced mileage	0	0	-125,000
PET recycling plant	Plastic recycled	-224	42,000	-9,408,000
Ecodiesel	Fuel reduction	-13.4	736,000	-9,862,400
				-5,295,400

Expected emissions (2025)	120,000,000	
Reduction from investment	-5,295,400	
Final 2025 emissions	114,704,600	**Target Not Met**

B) Truro bid not pursued

Strategic Option	Factor	Per-unit Affect (kg of CO2e)	Number of Units (litres or tonnes)	Total Affect (2025)
PET recycling plant	Plastic recycled	-224	42,000	-9,408,000
Ecodiesel	Fuel reduction	-13.4	736,000	-9,862,400
				-19,270,400

Expected emissions (2025)	120,000,000	
Reduction from investment	-19,270,400	
Final 2025 emissions	100,729,600	**Target Met**

The potential incentive that WDI could receive is $500,000, which is a significant amount of income for WDI. Since there is no calculated upfront investment for this option, it satisfies the objective of a 10% ROI. The $500,000 contributed from this incentive can be applied to the PET recycling plant and ecodiesel ROI calculations to increase their ROI when combined, as those two options fall short of providing a 10% ROI independently.

Qualitative Analysis

Objectives:

- Since there is no upfront investment required, this more than satisfies the 10% ROI objective.
- If WDI is not sold, pursuing this GHG reduction will likely contribute to a higher sale price within the next two years. This is in keeping with Kingsley's objective of selling WDI for the maximum amount possible.

Advantages:

- The $500,000 incentive will provide enough profit to make up for the slightly lower-than-target ROI for each of the recycling plant and ecodiesel collaboration investments.
- Pursuing the GHG emissions reduction will likely help increase any future purchase offers made for WDI, as it will be seen as a company investing in sustainable options.
- Pursuing the GHG emissions reduction will put WDI more in line with its competitors in terms of GHG emissions, which will satisfy its customers, who have been questioning WDI's dedication to sustainable operations.
- WDI's mission and vision statements state that it uses environmentally-responsible methods. By meeting its GHG emissions reduction target, it would be in alignment with the company's stated mission and vision.
- Focusing on the reduction of GHG emissions is a KSF of the industry; therefore, whether WDI sells now or later, the continued pursuit of lowered emissions is likely to increase the value and success of the company.
- Pursuing the GHG emissions reduction will increase WDI's commitment to sustainability in the eyes of its customers, which will help WDI maintain its existing customers and stay competitive in the industry.
- There are indications that more incentives will become available in the next budget and in future years. To qualify for these incentives, WDI will be able to use the same process for generating GHG statements that it already uses (given that it is expected that the new incentives will utilize the same GHG statement format as the one that the company already uses). Therefore, to apply for these new potential incentives, WDI will not have to incur the initial cost of generating a GHG statement because the company already does so.
- If new incentives become available and WDI qualifies for them, this should increase the potential selling price of WDI, given the importance that recent buyers have placed on sustainable business practices and reduced GHG emissions. This is in alignment with Kingsley's objective of selling WDI for the maximum amount.

Disadvantages:

- The current incentive is only achievable if both sustainable options are chosen. This requires additional investment, and commitment from Kingsley to make these specific changes to WDI's operations, and to not bid on the Truro contract, which could be a big opportunity for WDI's core waste management services.
- The incentives are not achievable if the service contract with Truro is chosen, which means that WDI will not be able to pursue the low-risk option of the contract that is made up of the familiar, core services it knows it can deliver, and give up the future benefits of more landfill capacity offered in that contract.
- The production of the statements requires extra workload, to track and record GHG emissions for the company, which reduces efficiency and goes against the KSF of the industry.
- Turning down the bid for the Truro contract is a departure from WDI's core operations. Providing general waste management services is known to WDI, and it is likely to benefit from the income from this contract without any risk in volatility of prices, since it is a fixed contract. WDI will also miss out on the opportunity to purchase future landfill capacity.

- Generating the GHG emissions statement requires time, effort, and extra costs—if WDI does not qualify for the incentive, these costs have been incurred for no benefit. If WDI continues to pursue the reduced emissions target without success, the company will continue to sink resources into an ineffective project.
- Some of WDI's staff members have complained about the additional, uncompensated workload that they have been expected to take on relative to the GHG emissions statements. If WDI continues with this program, or expands it, the company's employees could become even more disgruntled. Therefore, WDI may need to hire additional team members in order to avoid employee unrest.
- Setting targets based on planned emissions and investments is a risk. If planned investments and changes are not made, there is a risk that the targets set will be difficult to reach.

Conclusion/Recommendation

Unless Kingsley decides to forgo the risk of further investment and accepts SDL's offer and sells, it is recommended that WDI pursue the GHG reduction target and qualify for the incentive. The incentive amount of $500,000 is a significant contribution toward the income of WDI, and makes up for the lower ROI contributed by the two sustainable options, when compared to Kingsley's objective of 10%. Through WDI's commitment to meet its GHG emissions reduction target, Kingsley will increase the chance of receiving a higher sale price for WDI once the investments have been implemented. In addition, if the company decides to continue to produce its annual GHG emissions statement, WDI will also be better able to take advantage of any further emissions reduction incentive programs that the government may introduce.

Assessment Opportunity #4 (Strategic Alternative #3 – Truro contract bid)

A competent candidate will complete both a quantitative and qualitative assessment of the option to bid on the municipality of Truro's long-term contract for its waste management.

Quantitative: Considering the budget provided by Truro and potential fuel savings from the efficiencies offered by the contract, candidates should calculate and provide a recommendation for the best bid price to offer for the contract.

Qualitative: Candidates should discuss the implications of pursuing the bid for WDI, and analyze how the bid could affect Kingsley's overall strategy of selling WDI.

Conclusion: Candidates should offer a conclusion that incorporates and logically follows from their quantitative and qualitative analyses.

The municipality of Truro has asked WDI to bid on a ten-year contract for the municipality's waste management requirements. Truro has set a maximum bid price for the contract ($900,000 per year), and WDI has a standard process that will help determine the bid price that will deliver the company's desired 25% gross margin. There are some efficiencies to be gained from the contract, and future benefits that could help resolve the scarce availability of landfill capacity.

Quantitative Analysis

The cost of providing the services for this contract can be calculated by using the rates provided for each process per tonne of each type of waste collected. The total contract cost is estimated to be $753,690, which results in a bid price of $1,004,920 when the required 25% gross margin is added to the costs. This is just over $100,000 more than Truro's maximum bid price of $900,000. However, due to the $130,000 in savings from trucking efficiencies, it would be reasonable to bid $874,920 on the contract, coming in below Truro's maximum bid price.

Target GM % of contract: 25%
Trucking cost per km: $5.20
Km of trucking saved per year: 25,000 km

		Cost per Tonne			Calculated Cost			
	Weight	Labour	Tipping & Landfill	Collection Transfer	Labour	Tipping & Landfill	Collection Transfer	Total
Household	3,300	$76	$28	$31	$250,800	$92,400	$102,300	$445,500
Commercial	2,580	$27	$35	$18	$69,660	$90,300	$46,440	$206,400
Construction	1,170	$28	$42	$17	$32,760	$49,140	$19,890	$101,790
	7,050						Total contract cost	$753,690
							Cost portion of bid price (1-25% GM target)	75%
							Suggested bid price @ 25% GM	$1,004,920
							Savings from trucking efficiencies (25,000 km × $5.20)	130,000
							Revised suggested bid price	$874,920

It must be considered that fuel prices are rising rapidly. As fuel prices rise, the potential fuel savings, given the efficiencies in using the closer landfill, will also rise. Therefore, this contract may become more lucrative over the long term due to these gains in efficiency.

Qualitative Analysis

Advantages:

- This contract will potentially serve as a negotiation point for the current sale offer that WDI has received from SDL if the contract is awarded within one month, as it will increase the EBITDA of the company and add value.
- If the bid is won by WDI, it will generate a 25% gross margin while still falling within the maximum bid price set by Truro (if the savings from the fuel efficiencies are factored in). As stated in the appendix provided by Brian, this will ensure a 10% ROI, to meet Kingsley's objective.
- This is a low-risk contract that can immediately secure the required return on investment and gross margin, as obtained from WDI's previous core contracts.

- This option allows for added efficiencies through shortening the transport distances, which is a KSF of the industry.
- This bid aligns with the core operations of the company that have made it successful historically.
- Fuel prices are rising quickly, which means that the potential savings from the efficiencies will likely grow in future years. However, this increasing benefit will likely not be a factor for WDI as Jack plans to sell the company within two years.
- WDI's suppliers should have no problem supplying the capital equipment necessary within the short time frame in order to satisfy the contract.
- The old contractor's reputation in the area was tarnished due to a lack of compliance with dumping regulations. There is a chance that some of their private customers in Truro will also be looking for a new contractor, and WDI's presence in the area may lead to them gaining some of these other contracts as well.
- Truro is offering the use of their excess landfill capacity to the successful bidder. Moreover, Truro may potentially offer a landfill for sale after the first year. Given the increasing scarcity of landfill capacity, this is a significant opportunity for WDI to maintain landfill capacity for contracts in the future.
- Using Truro's excess landfill capacity will allow WDI to gain some route efficiencies and reduce its trucking costs for some of its other contracts. This will reduce WDI's costs and also offer a reduction to the company's GHG emissions.

Disadvantages:

- If Kingsley decides not to sell WDI to SDL, this contract is not likely to increase any future offers for purchase; current buyers do not place as much value on long-term contracts as they do on new, sustainable investments, and this contract, with its high GHG emissions, is not considered a sustainable investment.
- Unless the efficiencies gained through the use of Truro's excess landfill capacity for other contracts are considered, WDI is not able to maintain the desired 25% gross margin and stay under Truro's maximum bid price using the costing process alone. This is not a highly profitable contract.
- Pursuing this option will increase the amount of waste that WDI is contributing to landfills and will not contribute to any sustainability efforts that WDI's customers are demanding.
- Although this aligns with the mission to provide waste management services, it does not include the vision toward incorporating sustainable practices into the business.
- Pursuing this contract increases the overall GHG emissions of the company, which will go against the target to reduce GHG emissions, and jeopardize WDI's eligibility for the incentive in 2025.
- The bid is barely within budget and may not be accepted by Truro if a competitor bids lower, which has often been the case in recent years.

Conclusion/Recommendation

If Kingsley decides to sell WDI to SDL, bidding on this contract may allow for negotiating a slightly higher purchase price. Otherwise, if Kingsley opts to wait for a higher offer in the future, it is recommended to not pursue this option, as it jeopardizes the ability to meet WDI's GHG emissions reduction target and therefore qualify for the incentive. Meeting WDI's GHG emissions reduction target would be a major factor in receiving a higher sale price for WDI in the future, as buyers are more interested in sustainably-focused pursuits than in adding another long-term, landfill-based waste management contract.

Assessment Opportunity #5 (Strategic Alternative #4 – PET plastic recycling plant purchase)

A competent candidate will complete both a quantitative and qualitative assessment of whether WDI should purchase a fully operational PET plastic recycling plant.

Quantitative: Candidates should complete a sensitivity analysis of the first year of operations, and calculate the ROI on the original investment of $2.4 million.

Qualitative: Candidates should discuss the implications of purchasing the PET plastic recycling plant, and how it could impact WDI's GHG reduction target and potential sale of WDI.

Conclusion: Candidates should offer a conclusion that incorporates and logically follows from their quantitative and qualitative analyses.

The PET plastic recycling plant is offered for sale as a fully operational recycling plant that has strong operations and good financial performance per the current seller, who is a friend of Brian's. However, due to volatile prices of recycled materials, there is a large variance in revenue possible in the first year of operations, whereas the costs of the project have a more stable increase.

Quantitative Analysis

The PET plastic recycling plant is offered for sale for $2.4 million. Jack is interested in knowing the first year ROI. Given that the future revenue growth of the project varies widely, a sensitivity analysis is appropriate.

	Current – 2024	Investment	Revenue Increase Year 1	
(in $000s)			4%	12%
Revenue	$987	$2,400	$1,026	$1,105
Direct costs	780		811	811
Gross margin (21%)	207		215	294
Overhead	39		41	41
Net income	$168		$174	$253
		ROI	7.25%	10.54%

Overall, this option is risky due to the volatility of the revenue. Only the highest end of possible growth will meet the board's 10% ROI target. In addition, as Lucy provided the financial figures as well as the revenue growth forecast, WDI needs to validate that this information is accurate and reasonable. As an example, if the plant is currently operating at full capacity, then the forecasted 4% to 12% annual increase in revenue would appear to be attributable to a forecasted increase in the price for recycled PET plastics. Is this realistic and/or accurate?

Qualitative Analysis

<u>Advantages:</u>

- Pursuing this option does not align with the current offer to sell WDI, but adding this significant investment to the company will likely help attract a higher selling price in the future.
- This option will also assist in meeting WDI's GHG reduction target, which will help boost the project's ROI, given that WDI would become eligible for the $500,000 incentive. Reduced GHG emissions will also likely contribute to a higher selling price for WDI in the future by demonstrating the company's ability to meet these targets—this is in keeping with Kingsley's objectives.
- This purchase adds a sustainable investment in PET plastic recycling. The rising prices of recycled materials have made buyers interested in businesses with recycling services in place, so this investment could contribute to a higher selling price in the future for WDI.
- Plant staff are an experienced team and are currently increasing the efficiency of the operations, which is a KSF of the industry.
- Investing in more recycling will align with WDI's vision to introduce sustainable waste management services.
- The plant is modern and efficient, which is a KSF of the industry and aligns with WDI's mission to have up-to-date technology.
- This project also aligns with the current pressures that the public has expressed regarding more environmentally-friendly waste disposal practices.
- The plant is modern and should not need updating within the next five years, which means that WDI will not have to invest more capital into the facility prior to selling the company.

- This plant is operational and does not require any short-term changes or maintenance in order to be profitable from day one of the purchase; there is no time lag between the investment and beginning of operations.
- The recycling industry is on the rise right now, with both selling price and demand for recycled materials trending upward. If this trend continues, there is an opportunity for good profits from this plant.
- Adding recycling services will reduce GHG emissions for WDI, and will also help customers who use the service to reduce their emissions as well. This will help satisfy their requests.

Disadvantages:

- Short-term volatility has the potential to decrease the first-year ROI to well below the 10% target and decrease the project's short-term return—this investment is a risk for WDI. Unless the revenue increases by 11% or more in the first year, the investment will not meet the target of 10% ROI.
- Lucy provided WDI with the information in Appendix VI. Given that she is the current owner of the PET recycling plant, she has a vested interest in making the plant look as attractive as possible, and therefore, the information provided may contain biases. For this reason, WDI needs to verify that the information provided is accurate. For example, is the plant as well maintained as Lucy asserts?
- After investing in this option, if the selling price of recycled materials drop, it may also decrease the number of buyers looking to purchase waste management companies invested in recycling. If these prices do not continue to rise at a high rate, there is a risk that investing in this option may not meet Kingsley's targeted ROI, and may not contribute to a higher purchase offer for WDI in the future.
- According to Lucy's notes, the plant is currently at its maximum capacity. Therefore, WDI will not have the ability to offer these new services to its existing client base if it does not forgo the current system of one-time contacts that Lucy has employed. Given that the plant is at maximum capacity, there is no room to grow the operations of the facility.
- It would take WDI extra time, money, and effort to obtain long-term contracts for the plant if the company decides to forgo the current system of current one-time contracts. These added costs have not yet been quantified, and could be significant.
- As Lucy stated, all the PET plastic that is currently collected comes from one-time contracts rather than long-term service contracts; therefore, because there are currently no long-term contracts, WDI would have less certainty that the plant will continue to process the same amount of material in future years.

Conclusion/Recommendation

If Kingsley opts to sell WDI to SDL, pursuing this option will not be necessary or beneficial, as the sale to SDL would likely take place before the plant could be purchased. However, if Kingsley opts to forgo SDL's offer, this option will allow WDI to invest in sustainable practices that will decrease its GHG emissions, help it meet its reduction targets in order to become eligible for the incentive, and increase its investment in recycled materials, which will likely help draw a larger purchase offer in the future. Overall, this is a risky offer, as demonstrated in the sensitivity analysis, as it depends on the prices of recycling remaining high enough to deliver a short-term return that meets Kingsley's objective.

Assessment Opportunity #6 (Strategic Alternative #5 – Collaboration with ecodiesel plant)

A competent candidate will complete both a quantitative and qualitative assessment of the proposed collaboration with FFC, who operates an ecodiesel conversion plant.

Quantitative: Candidates should complete an analysis of the net costs/savings afforded by the collaboration with FFC, and by purchasing FFC's new ecodiesel product instead of the regular diesel fuel that is currently used to operate WDI's trucks.

Qualitative: Candidates should discuss the advantages and disadvantages of the collaboration and how it could influence Kingsley's objective to sell WDI in the near future.

Conclusion: Candidates should offer a conclusion that incorporates and logically follows from their quantitative and qualitative analyses.

Fried Fuel Company (FFC) is a new biodiesel company that converts the used cooking oil collected from restaurants into a new fuel called ecodiesel, which can be used to replace regular diesel fuel. FFC is proposing a collaboration with WDI, where WDI will provide a short-term loan and will guarantee delivery of a minimum volume of waste cooking oil for conversion to ecodiesel. In return, WDI will receive $100,000 interest annually and will be able to purchase a volume of ecodiesel at a locked-in, discounted rate.

Quantitative Analysis

WDI will be required to provide FFC with a three-year, $1 million loan that pays simple interest of $100,000 per year. WDI will also enjoy some cost savings from this contract due to the diversion of the waste cooking oil from WDI's landfills, and because WDI will no longer have to purchase as much regular diesel fuel, for which the price is supposed to continue to increase in the future.

	Litres	Cost/litre	Total Cost
Savings from oil diversion	736,000	$ (0.12)	$ (88,320)
Savings from diesel fuel	736,000	$ (1.25)	$ (920,000)
Cost to purchase ecodiesel	736,000	$ 1.38	$ 1,015,680
			$ 7,360

Annual interest	$ 100,000
Annual cost of contract	(7,360)
Net return on investment	$ 92,640
Loan principal	$ 1,000,000
ROI %	9%

There is a resulting cost to the collaboration of $7,360, which, after factoring in the ROI of 10% on the loan, reduces the ROI of the collaboration to just below the 10% minimum that Kingsley has set as a current objective.

Qualitative Analysis

Advantages:

- If Kingsley forgoes SDL's offer, this option could attract buyers, given WDI's investment in alternative fuels, which is a more sustainable option relative to using diesel fuel. Therefore, by investing in this project, Kingsley may be able to attract a higher selling price for WDI in the future.
- Redirecting waste cooking oil that would otherwise be dumped in a landfill increases WDI's commitment to sustainability, frees up valuable landfill capacity, and offers another way to reduce GHG emissions for the company.
- Fuel prices are rising quickly whereas the cost of ecodiesel is fixed, as per the contract details with FFC. This means that the net cost of the collaboration may quickly change to be net savings if regular diesel prices continue to rise.
- Pursuing this option will align with the mission of WDI to pursue new technology and sustainable methods.
- This will also align with the KSF to provide new services to existing customers, and increase its customers' satisfaction by introducing this sustainable disposal of their waste cooking oils.
- There is the opportunity to convert what used to be waste collected in landfills to a product required by WDI for its operations. This aligns with WDI's mission to use up-to-date technology, and will also satisfy its customers' requests for more sustainable operations.
- As a partner, WDI would have discounted pricing on future products in development. Although this may not be a factor in the short term for WDI, this opportunity may be a draw for potential buyers who are interested in WDI's future opportunities as a partner in sustainable initiatives.

- This option provides an excellent reduction in GHG emissions, which will help WDI meet its reduction target, and achieve eligibility for the incentive in 2025.

Disadvantages:

- This collaboration will return an ROI of 9%, which is slightly below the objective required by Kingsley.
- Lending capital to a new start-up is a risky venture, and it is possible that the interest payments or principal repayments are not paid if FFC does not succeed.
- As a new start-up, it is possible that FFC and the ecodiesel plant will not be able to deliver the volume of ecodiesel promised, or will not be able to manage their capacity, which would negatively impact WDI's forecasts.
- Kingsley's target ROI is not reached, as the actual purchase of ecodiesel will be at a net cost to WDI. There is a risk that this option may not meet Jack's objectives of a 10% ROI in the first year, even though the rising cost of regular diesel may make this a more desirable option over time.

Conclusion/Recommendation

If Kingsley opts to sell WDI to SDL, this collaboration will likely not be worth pursuing, as the sale is taking place too quickly. If Kingsley opts to keep WDI for now, pursuing this option will help the company reduce its GHG emissions enough to meet the target and therefore qualify for the associated incentive. This outcome would help to make up for the lower-than-targeted 10% ROI. In addition, if current market trends continue, this investment in alternative fuel technology will also likely help to attract a higher purchase price from a potential purchaser in the future.

Summative Assessment #3 – Conclude and Advise

For Summative Assessment #3, the candidate must be assessed for reasonableness of attempt:

Yes – The candidate provided reasonable conclusions for each major issue.

Unsure – The candidate attempted to provide reasonable conclusions for each major issue.

No – The candidate clearly did not provide reasonable conclusions for each major issue.

Enabling Competencies
6.3.1 Uses evidence and judgment to recommend and justify solutions or conclusions
6.3.2 Articulates limitations to recommendations
6.3.3 Applies decision criteria to choose among viable alternatives
6.3.4 Ensures that decision criteria do not conflict with professional ethics and values

A competent candidate will provide a logical conclusion that is consistent with their analyses and integrated with an overall recommendation as to whether Kingsley should accept SDL's current offer to purchase WDI or take the risk of investing in additional projects, which could translate into a higher selling price for WDI in the future.

The candidate should provide logical conclusions and make a recommendation on the strategic direction WDI should take. The candidate's analysis should integrate the analysis for all four major strategic investment options into an ultimate decision of whether to sell WDI to SDL under the current offer. The recommendations should be strategic in nature and display good professional judgment and logic, recognizing the interconnected influence of each option. Suggesting that further information is required is acceptable where justified and consistent with the analysis.

Candidates should ultimately make a recommendation as to whether Kingsley should sell WDI to the current buyer, SDL, given the potential for a higher return in the future but knowing that the current offer appears reasonable. The analysis of the individual issues should be integrated with this ultimate decision and should consider the following:

- *Does the alternative align with the sale timeline for WDI?*
- *Will the alternative align with the market requirements and contribute to a potentially higher selling price for WDI?*
- *Does the alternative satisfy the current objectives outlined by the board, either alone or in combination with the GHG emissions reduction incentive?*
- *What is the level of risk of the alternative and is it reasonable, considering the potential reward of a higher sale price in the future?*

There are no financial constraints to pursuing any of the strategic alternatives, but there is a constraint offered by the GHG emissions reduction target, which can only be achieved by pursuing both the PET plastic recycling plant and the ecodiesel collaboration options. Recognizing that this is the case and discussing how their individual alternative recommendations influence the GHG emissions target is an important integration point in the simulation.

There are a variety of recommendations that a competent candidate could provide. There is no one correct answer. The key is that candidates are consistent and consider within their overall recommendation whether to sell WDI immediately or wait for a future offer.

Strategic Alternatives

The current offer to sell seems to be an attractive alternative, as the ultimate goal of Kingsley is to sell WDI. However, as the current offer price from SDL is at the lower end of the potential price range, it will likely be disappointing for Jack, given that he would have liked to maximize the return received from Kingsley's investment in WDI. However, the current offer is low risk and allows Kingsley to lock in a reasonable price for WDI without taking on any of the risks involved with the strategic options presented in the simulation. Also, there is the option to prepare a bid on the Truro contract, which may open up negotiations with SDL's current offer, given that WDI would be adding to its EBITDA immediately. But if Kingsley is willing to take on some risk, there are some market indications that further investment within more sustainable operations will help WDI to command a higher sale price in the future. Therefore, it may be worth considering some of the other alternatives available.

The GHG emissions reduction incentive is an option that WDI decided to pursue in 2022, and it set a three-year target that cannot be changed. However, the board is now realizing that WDI is not forecasted to meet the reduction target without changes. There are significant time requirements, and labour costs, that have already been invested in order to produce the GHG emissions statements, so it is disappointing to not meet the target even though these are now sunk costs. However, our analysis shows that the target can still be reached if the two sustainable alternatives (PET recycling and FFC's collaboration) are pursued, and the Truro bid is not. Given the significant amount of the incentive, it can help to compensate for any shortcomings in the financial risks of the two sustainable alternatives. This will be a good option if Kingsley is going to wait to sell WDI, as it potentially could increase the attractiveness to buyers in the future, particularly if WDI chooses to continue with the program. Participating in this program continues to be administratively difficult and takes a lot of time. However, it is likely that more incentives will be introduced in the future that will use the same GHG statements. If Kingsley is planning to sell WDI within two years, meeting these targets may provide a significant increase in the eventual sales price for WDI, as well as the income from the current incentive.

The bid for the contract with Truro is a large contract that is in line with WDI's existing core waste management services. The company is comfortable offering these services, has a reliable bidding process in place to determine the costs and appropriate price, and will easily increase its client base by taking on this bid. The bid will also provide some important strategic elements by increasing WDI's transportation efficiency on several other contracts and reducing costs overall, as well as providing access to increasingly scarce landfill capacity, and right of first refusal to purchase the landfill after the first year, securing landfill capacity for the future. This contract will be awarded within one month, which means that it could be received prior to selling WDI to SDL, which could give Kingsley a negotiation point on SDL's proposed purchase price. However, if Kingsley is opting to keep WDI for the next two years, this contract will eliminate WDI's chance of meeting its GHG emissions reduction target, which carries an opportunity cost of the $500,000 incentive. And although it will provide a 10% ROI in the short term, there are indications that adding this contract will not increase the purchase price of WDI in the future. While this option is predictable and holds the lowest risk, there is not much potential reward in pursuing this option for the next two years, as most of the strategic benefits fall in the availability of landfill capacity in the long term, which does not seem to be a driver for higher sales prices for similar businesses.

Purchasing the PET plastic recycling plant is an attractive option if Kingsley opts to forgo SDL's current offer. Although the operations look strong, the volatility of the recycled materials prices makes this a risky option that may not meet Kingsley's short-term objective of a 10% ROI. Despite the volatility in revenue, the plant itself is a modern and efficient operation, with good staff and no need to invest more capital in the short term. Investing in this alternative will be a major contributor toward WDI's GHG emissions reduction, which will help the company to qualify for the incentive. In addition, this option will increase the investment in recycling, and hopefully attract buyers willing to pay a higher price for WDI within the next two years.

Finally, the collaboration with the ecodiesel plant is an alternative to consider if WDI will not be sold under the current offer from SDL. Although risky, as it requires a private loan to the new start-up, this collaboration will provide WDI with access to the ecodiesel produced in FFC's plant from waste cooking oil, for use in WDI's fleet of vehicles rather than regular diesel fuel. Although, at the outset of the contract, the ecodiesel will be purchased at an overall increased cost to WDI over purchasing regular diesel fuel, the rising cost of diesel fuel will likely decrease this disparity in the near future. This collaboration will also help WDI to meet its GHG emissions reduction target, and therefore qualify for the incentive. This will provide additional income, to make up for any increased costs within the next two years. Investing in alternative fuels is also a particular draw for higher sales prices for waste management companies, so despite the risk, choosing this alternative will hopefully pay off when Kingsley sells WDI in the next two years.

If WDI is sold immediately, the course of action should include a bid on the Truro contract, and the board should try to negotiate with SDL to increase their price based on this additional long-term contract and increase in EBITDA, to maximize WDI's sale price.

If WDI is not sold immediately, the board should elect to turn down the Truro bid and invest in the PET plastic recycling plant and the collaboration with FFC for the ecodiesel conversion. Both options, together, will allow WDI to meet its GHG reductions target and receive the $500,000 incentive, which will provide a financial cushion for the risks involved in investing in these two sustainable options. Once these investments are established, Kingsley can offer WDI for sale, as the market will likely see WDI as a company invested in more sustainable options and ready to capitalize on the industry trends toward recycling, alternative fuels, and more sustainable waste management options.

Summative Assessment #4 – Communication Hurdle

For Summative Assessment #4, the candidate must be assessed for reasonableness of attempt:

Yes – The candidate adequately communicated their response.

No – The candidate clearly did not adequately communicate their response.

Insufficient communication in a candidate's response would generally include some of the following:

- *The reader needs to re-read sections several times to gain an understanding.*
- *It is not clear what point the candidate is trying to make.*
- *The quantitative analysis does not make sense because of a lack of labelling or illogical ordering.*
- *There is an excessive amount of spelling and grammatical errors.*
- *Unprofessional language is used.*

Summative Assessment #5 – Overall Assessment

For Summative Assessment #5, the candidate must be assessed in one of the following, based on their overall performance:

Clear Pass – Overall, the candidate provided an adequate response, clearly meeting the minimum standards for each of the summative assessments above.

Marginal Pass – Overall, the candidate provided an adequate response, with some errors or areas of omission, but the underlying key concepts were there.

Marginal Fail – Overall, the candidate provided an attempt at a response, one that contained several errors or where the analysis was incomplete.

Clear Fail – Overall, the candidate did not provide an adequate response; the response was deficient in multiple areas.

To be assessed a Pass, the candidate is expected to perform adequately in all the summative assessments and demonstrate that, overall, they addressed the issues of all the shareholders.

Markers considered the following in making their overall assessment:

1. Did the candidate step back and see the bigger picture, and then address the broader issues identified?
2. Did the candidate prioritize the issues by discussing the major and minor issues in appropriate depth?
3. Did the candidate use both quantitative and qualitative information to support their discussions and conclusions?
4. Did the candidate use the appropriate tools to perform quantitative analysis?
5. Did the candidate use sufficient case facts (current case and Capstone 1 case) about the external and internal environment to support their discussions?
6. Did the candidate communicate their ideas clearly, integrating and synthesizing the information?

SAMPLE RESPONSE – WDI VERSION 3

Below is an actual passing candidate response.

MEMORANDUM

TO:	Waste Disposal Inc. (WDI) Board of Directors (Board)
FROM:	Consultant and Stineman Consulting Inc. (SCG)
DATE:	November 2024
REGARDING:	Strategic Assessment Update and Analysis of Options

INTRODUCTION

This memo provides an update to the strategic assessment, and assesses the options available to the Board.

STRATEGIC ASSESSMENT UPDATE

VISION (UNCHANGED)

'To be a premier waste management company while meeting the needs of our customers, employees, local communities, and the environment'

MISSION (UNCHANGED)

' We are waste disposal experts providing collection, disposal, and recycling services to our customers using environmentally responsible and sustainable methods, and leading-edge technologies'

CORE VALUES (UNCHANGED)

1. Operate safely and in compliance with all safety regulations
2. Act with integrity and honesty in an ethical manner
3. Treat employees with respect and ensure they are adequately trained and fairly compensated
4. Provide customers with effective and efficient services
5. Stay up to date with waste disposal technologies and educate customers on waste disposal alternatives
6. Promote sustainable practices within the company

KEY SUCCESS FACTORS (UNCHANGED)

1. Effectively managing fuel, disposal and regulatory compliance costs
2. Increase efficiencies

3. Offering competitive pricing
4. having facilities close to large populated regions or commercial customers to reduce fuel costs
5. Designing effective and efficient collection routes
6. Specialising in one type of waste disposal or providing a variety of services
7. Vertically integrating to reduce costs by using their own facilities rather than paying higher third party fees
8. Increasing automation to reduce reliance on labour
9. investing in up to date technology to improve efficiencies and reduce labour costs
10. Achieving strong local and government support for waste management programs
11. Focus on reduction of GHG emissions and other environmental initiatives
12. Increase the tonnes of recycled materials by type

<u>EXTERNAL - OPPORTUNITIES</u>

There is a strong customer demand for diversion of organic waste from landfills, to reduce GHG emissions. WDI could improve capability to divert organic waste or capture biogas to meet the needs of these customers.

Due to increases in demand, selling prices of recycled materials have increased. WDI could increase the volume of recycled materials by type and improve margins.

The government, seeing customers shifting needs to sustainability, has started offering grants to companies that can successfully reduce GHG emissions. The number of grants will increase, and WDI could increase revenues by participation and success in the programs

Companies that are not adapting to the need to divert, or are not adopting new technologies to recycle, are losing customers. WDI could leverage new recycling and organics operations to lure new business

Recycling is on the rise with both selling prices and demand increasing. WDI could increase volumes of recycling and capture more revenue at higher prices

Customers are viewing sustainability with an eye for emerging segments and capabilities to recycle previously recyclable materials. WDI could enter new segments to capture business that requires these capabilities

Alternative fuel sources that are more environmentally sustainable is an emerging trend, and WDI could reduce operating costs by converting fleets to utilising alternative fuels

Meeting GHG target to achieve the grant would improve the reputation of WDI with customers who have committed themselves to sustainable practices

EXTERNAL - THREATS

Due to a tax increase on diesel, operators who have fleet trucks that run on diesel are seeing high fuel costs, which are going to continue to increase rapidly. WDI could invest in alternative fuels that have more predictable costs.

Due to increasing regulations, the cost to operate landfills continues to rise. Since contracts are locked in and long term, as costs increase profits decrease.

Due to public opposition it is becoming difficult for companies to secure landfill space. As capacity in existing landfills decreases, companies will be left with high costs to purchase new land

There is a concern that there may be price volatility in the future for recycled materials. This is due to companies entering the market and increasing supply. This limits the forecasts that can be made for recycling division revenues

Large competitors enjoy operational efficiencies and can bid contracts at lower prices. WDI may not be able to compete on price.

INTERNAL - STRENGTHS

WDI has the capability to process organic waste, and has been able to capture high returns due to the value addition to contracts and helped WDI retain customers that value environmentally responsible business practices

WDI puts customer service at the core of the business, which has allowed them to have high contract renewals

The Board, upon seeing the success of the organics facility, is more receptive to investments in sustainable alternatives. This openness may allow WDI to take advantage of emerging trends that can increase value

WDI was able to reopen recycling facilities and OCC and glass are now currently processed and sold. Having operating recycling facilities has value in contract bidding

WDI values employees, and average service is 12 years. This leads to lower training and hiring costs, and reduced incidents

INTERNAL - WEAKNESSES

Due to the increased demand for diversion, and societal demand for higher commitment to sustainability, WDI lost a potential new customer as too much waste would be directed to landfills. If WDI cannot accommodate shifting trends they will lose more contract bids.

WDI fleet operates on diesel, and the price of diesel is high and will to rise rapidly, increasing operating costs.

WDI recently lost a contract bid due to waste amount going to landfills. WDI can find new segments to divert waste and meet this emerging diversion criteria

WDI is expected not to meet the GHG target they set, in order to win a government grant. This is because some practices that WDI had in mind when they set the target were not actually completed. The result is WDI's GHG emissions are higher than the industry average.

WDI leadership is not buying into the GHG program due to costs, and issues related to reporting. This is a criteria customers are looking closely at, and WDI could buy in and meet customers expectations.

WDI landfills are under capacity pressure, and as landfills are harder to purchase, managing that capacity is important to long term success.

STAKEHOLDERS

Soon after the last assessment Laura sold her shares in WDI to Kingsley. Kingsley is now the 100% owner of WDI.

Jack is now the CEO of WDI, and has a strong preference to sell the company and be free of the risks involved with this type of business, as his speciality has been in trucking.

The Board has the perspective that WDI's strong customer relationships and traditional waste management service contracts are the most valuable part of the business, while the environment suggests that value perspectives have changed (see objectives and overall assessment)

OBJECTIVES

The goals and objectives have changed:

- Any new investments must provide a first-year return of 10%
- Should align with the plan to sell WDI in the next 2 years; meaning add value to WDI, or meet criteria of what a purchaser would be looking for. According to the business broker, criteria that increase value are:
    - Income generated from sustainable practices such as recycling, composting, and alternative energy use
    - Recycling capacity for a diverse range of materials
    - Less value placed on long-term customer contracts
- Improve the reputation of WDI with customers that have committed themselves to sustainable practices

OVERALL ASSESSMENT

From a strategic perspective, the vision, mission, and values have not changed, but the overall goals of WDI have changed. The goals are more directed to creating value to prep for a potential purchaser, in an effort to maximise value. The perspectives of customers have also changed, putting more value on sustainability, and diversion.

FINANCIAL

See Exhibit 1

WDI has $5 million of cash on hand for investment

WDI operating margin is currently 7% and is stable.

A high Interest/EBIt means that WDI is managing the covenants with the line of credit (cannot be lower than 1.8). The current number is 37, which means WDI could have room to increase debt load.

STRATEGIC ALTERNAIVE ANALYSIS

1. SUSTAINABLE DISPOSAL LTD. (SDL) OFFER TO PURCHASE

SDL has made an offer to purchase 100% of the shares of WDI for $35 million. This section analyses the reasonableness of that offer.

Quantitative

See Exhibit 2

The offer to purchase WDI using the valuation multiple shows the value of WDI on the low end is 34.8 million, while on the high end the value is 43.2 million.

Qualitative

PROS of selling to SDL:

SDL has a great reputation, lots of capital, and is familiar with the industry and WDI's operations. This would align with providing good customer service, which is a strength of WDI, as customers would be in good hands.

SDL is known for purchasing companies and modernising operations to emphasise sustainability. This would meet the needs of customers who are pressuring companies to adopt sustainable practices.

The terms are not overly extensive. WDI would send audited financial statements, which they already compile. This is an easy sale, and WDI could be sold quickly and investors paid off fast.

SDL will honour contracts and uphold the mission and vision, as well as keep employees. This is in line with the Vision and Mission, as well as treating employees respectfully.

CONS of selling to SDL:

The offer to purchase WDI expires in 2 months. This is a short amount of time for WDI to determine the value of the company and assess the reasonableness of the offer.

The offer is on the lower end of the analysis, which suggests the outside view of WDI is that the industry perceives WDI as being focused on traditional disposal business. WDI has not done well to show the industry organics and recycling, and could increase the value by industry engagement or taking on new sustainable practices.

WDI is also not capturing a premium for monitoring and reducing GHG emissions. WDI could meet the GHG target, which would increase value.

Not in line with providing good customer service, as WDI truly cannot guarantee the level of service SDL will provide.

Conclusion

WDI has two months to agree to the terms of the contract.

The amount proposed is consistent with the low end valuation, and sheds light on the perception of WDI.

SDL would continue to service customers, and would keep WDI staff.

Essentially, WDI has two months and could go back to SDL and negotiate based on what they can accomplish in 2 months. It is recommended that WDI decline the offer at the low value, make the most of two months to achieve a higher valuation, and negotiate in two months, if they can achieve sustainable practices.

This would achieve the goals of Kingsley to sell the company and move on, if an agreement could be made to maximise value.

2. MUNICIPALITY OF TRURO (TRURO) CONTRACT BIDDING PRICE

This section proposes a price to bid for the TRURO contract, and whether there is a fit with WDI.

Quantitative

See Exhibit 3

WDI could save 130K of costs in the contract, and with that built into the price, could price at 812K, which is less than the required max of 900K. This would achieve first year 10% requirement on investment.

Qualitative

PROS of entering into contract:

WDI is used to dealing with short deadlines, which Truro would see as good customer service, if they can meet obligations within tight time constraints.

Truro is a large municipality, and a contract of this size could increase the value of WDI to potential buyers, as well as increase profits while operating.

WDI landfills are approaching capacity. Truro is offering capacity to WDI, which they would have access to right away. This would relieve pressure on WDI landfills.

Contract aligns well with operational efficiencies that already exist, and aligns with Vision, mission and values to provide services that are effective and efficient

Is a long term contract, 10 years with a 10 year renewal. This with size of contract, will increase value.

Trucking efficiencies would decrease GHG by 125 KG of CO2 per year. This would help achieve GHG target and win grant

CONS of entering into contract:Ec

There is an open bid for a 10 year contract, which means large competitors are able to bid at low price, and WDI may not be able to match efficiencies and bid as low.

If WDI signs the contract and cannot secure the capital equipment, WDI may lose reputation with the customers because they cannot service them, or have to pay 3rd parties higher fees until equipment can be secured.

Increasing amounts to landfills which would increase GHG emissions at 200 Kgs of CO2 per tonne. This would work against the target to reduce GHG and continue to leave WDI behind the industry.

Taking on more landfill work will be perceived by the industry as sticking to core business, which may negatively affect the valuation to a proposed buyer.

<u>Conclusion</u>

WDI can offer a reasonable price of 812K and still achieve a net margin of 25%. This also allows WDI to save on trucking costs, and enjoy GHG emissions reductions of 125K associated. However, there would be a 14 million (7050 * 2000) kg increase of GHG emissions due to landfill dumping.

Therefore, WDI should offer a higher price than the minimum here, and if they do not win the contract, then it does not hurt WDI. If they win the contract, then they enjoy even higher margins.

The downside is that if the contract is won, it may negatively impact valuation, as it would be tied to core business, which buyers are not valuing well in the market.

3. <u>PET PLASTICS RECYCLING PLANT PURCHASE</u>

This section analyses whether the cost of 2.4 million to acquire the assets and operations of the PET plant is reasonable and will create profits.

<u>Quantitative</u>

See Exhibit 4

The NPV under both assumptions about revenue growth is negative. The operation is also at capacity, so there is a question as to how revenue could grow under capacity, given that prices of recycled materials would be the only source for growth. The first year operations would not achieve 10% required on investment.

<u>Qualitative</u>

PROS for purchasing PET plant:

WDI could begin purchasing PET plastics right away. This would avoid WDI having to wait until a plant is built, which would not align with the goal for successful immediate operations. Under this scenario there are profits in year 1.

Selling price and demand for recyclables is trending upward, which means WdI could improve overall operating margins by taking on the facility.

By engaging in this project, WDI would be entering into a new emerging segment, and would allow WDI to keep up with competitors, who are invested in the recycling industry.

Recycling PET would reduce GHG emissions through diversion by 9.4 million KG of CO2 (42000*224). This would help WDI achieve its reduced GHG target to win the grant.

Aligns with vision and mission to provide recycling services to customers.

CONS for purchasing PET plant:

Prices of recycled commodities are volatile. WDI could increase risk by taking on this project if oversupply leads to a decrease in PET plastics pricing.

Revenues are largely from one-time contracts. WDI would have to expend additional resources to convert the revenues for the facility into their own operational style of long term contracts.

The plant is operating at capacity, which WDI could not use to provide PET plastics recycling to existing customers, without cannibalising existing business.

Conclusion

The project contributes to GHG reduction considerably, and is a good strategic fit as it would provide entrance into a new recycling segment, and increase tonnes of recycled material by type.

The project does not achieve sufficient first year returns or returns throughout the 5 years, under both low and high revenue forecasts to achieve the required rate of return.

This would not have a great impact on valuation, as it would be a poor performer that would bring WDI financial projections downward.

Therefore, it is recommended that WDI forego this opportunity.

4. FRIED FUELS (FFC) COMPANY COLLABORATION PROPOSAL

This section evaluates the proposal of FFC to partner with WDI. WDI would provide raw material cooking oil for FFC to develop an alternative fuel, for which WDI would have access to the final material.

Quantitative

See Exhibit 5

Since WDI would still have to process oil at the landfill, the cost of using regular diesel is 1 million, while the cost if converted to ecodiesel would be 927K. At 100K per year interest, this does meet the criteria of 10% returns on investment.

Qualitative

PROS of converting to Ecodiesel:

FFC is willing to take the investment as a loan, which suggests that FFC is confident that they will be able to create a viable product.

Contract price is fixed for ecodiesel, while the price of diesel is rising and volatile. WDI could secure predictable costs for fuel and not be subject to market swings in price.

FFC plans to increase capacity in two years, and although right now WDI could not fuel it's entire fleet, in the future it could, which is a financial benefit to WDI

Diversion decreases GHG emissions, as cooking oils would not be dumped in landfills. This would help WDI achieve the target GHG emissions and capture the grant.

CONS of converting to Ecodiesel:

This is essentially a research cost, as FFC has not yet formulated the ecodiesel. Therefore, there is a risk that FFC will not be able to complete the fuel, and WDI may not recover additional benefits of the fuel.

Logistics are difficult to manage and will result in higher costs, due to training, for unloading the oils at FFC facilities. This increases unforeseen costs

Is outside of WDI's core business, and does not currently align with Vision, Mission statements. Would need to add if executed.

Conclusion

This project does provide sufficient immediate returns of 10%, and would allow WDI to reduce GHG emissions, although it would not be immediate. Since WDI could achieve improved GHG emissions in the future, when there are more grants, it is recommended WDI execute this proposal.

This would also be perceived by the market as GHG participation, and may result in a higher valuation.

5. GHG EMISISIONS REDUCTION PROGRAM

There is concern WDI will not meet the target emissions by 2025. It is November 2024 currently and WDI is at 17.2%. This section analyses whether WDI should participate at all in the programs.

Quantitative

The target for WDI was 30% emissions reduction from a baseline of 145 million kgs. This would be a total emissions of 101,500,000 kgs of emissions allowable.

See Exhibit 6

If the returns of Ecodiesel had been immediate, WDI would have met the target.

<u>Qualitative</u>

PROS or program participation

Is perceived by the market as participation in GHG initiatives with the government, where support is a KSF. This would increase the valuation.

WDI will not hit the current year target and miss out on 500K

There are new incentives proposed by the government in the next cycle, increasing the benefits of participation.

This would increase relationship with the government, a KSF of the industry, that could be leveraged into reputation growth.

CONS of program participation

Non participation would result in hurting reputation with customers that are committed to sustainability

Upgrades that could have helped achieve the targets were not complete, but can still be made when the next grant cycle comes around, which would achieve lower GHG and higher reputation.

Requires extensive reporting and tracking and employees are complaining about the extra work and lack of compensation. This hurts employee relations, which has always been strength of WDI.

WDI does not have an engineer, and would have third party costs to plan the next cycle, increasing costs of participation.

Conclusion

Participation has costs, and is an issue with staff that are not compensated for the extra work. However, these programs are driving value for proposed buyers, which is a key objective for Kingsley.

Therefore, since there are more grants in the next cycle, it is recommended that WDI continue participation. WDI could also hire an engineer on staff for this project, as well as compensate employees for the extra work.

OVERALL CONCLUSION

It has been recommended that WDI:

- Forego the investment in the recycling plant

- Execute the fried fuels proposal

- Bid high on the Truro bid

- Continue on with GHG emissions reduction participation

It is recommended to continue with GHG participation and Friend Fuels because these will be perceived to add value to the company, and position it better to receive a higher amount in the market for sale.

Then, once these have been executed, to approach SDL for another offer to purchase that is more in line with the current position of WDI, which would be higher due to the GHG participation and sustainability buy in of the company. This should lead to a higher valuation, and an offer more in line with the high multiple of the SDL analyses.

The goals are increase value, improve sustainability, achieve 10% return, and these recommendations contribute to all of these.

Exhibit 1: Financial Assessment of WDI

Purpose: To provde an analisys of the financial health of WDI

Operating Margin

Year	Notes	2024	2023	
Revenue	1	96,641	94,720	A
Operating Margin	1	6,987	6,606	B
Operating Margin		7.2%	7.0%	B/A

Conclusion: Operating Margin for WDI is 7%

Interest/EBIT

Operating Income	1	96,641	94,720	A
Interest	1	2,583	2,875	B
Interest/EBIT		37.4	32.9	A/B

*EBIT is equivalent to operating income

Conclustion: Earnings over interest suggest WDI is managing debt well

Notes:

1 As provided in the financial statements

Exhibit 2: SDL offer to purchase

Purpose: To analyze the offer to purchase WDI for reasonableness

EBITDA Multiple Valuation:

Year	Notes	2024	2023
Operating Income	1	6,987	6,606
Amortazation	2	11,800	12,200
EBITDA		18,787	18,806
Average of 2 years		18,797	

	Low	High
EBITDA AVERAGE	18,797	18,797
Multiple	1.85	2.3
Valuation Amount	34,774	43,232

Conclusion: The offer to purchase WDI for $35 million is reasonable under both the low and high multiple

Notes:
1 As provided in the excerpts
Is equivalent to EBIT; operating income is assumed to be normalized
2 Add back amortization to get to EBITDA
3 *ignoring tax implications

Exhibit 3: Truro price analysis

Purpose: To use cost plus 25% to determine the price to offer the city of Truro

Cost analysis:

Type	Notes	Household	Commercial	Construction	Totals
Volume in tonnes	1	3,300	2,580	1,170	7,050
Costing per tonne	2	135	80	87	
Total costs		445,500	206,400	101,790	753,690
Markup of 25%		111,375	51,600	25,448	188,423
Revenues with markup		556,875	258,000	127,238	942,113
Savings on trucks	3				- 130,000
adjusted price with kms savings					812,113

Conclusion: With the savings from the milage, WDI could offer a price of 812K, and still achieve total overall margin of 25%, and not exceed the maximum bid price of 900K

Notes:
1 As provided in the excerpts
2 Costing details per tonne

Type	Labour	Landfill	Collection	Total per tonne
Household	76	28	31	135
Commercial	27	35	18	80
Construction	28	42	17	87

3 Truck savings

Kms saved	25,000
cost per km	5.2
Cost savings	130,000

Exhibit 4: PET plastics plant purchase

Purpose: To determine if acquiring the PET plastics plant would generate appropriate returns.

Discounted cash flow analysis

		Notes	0	1	2	3	4	5
Low	Year	Notes	0	1	2	3	4	5
	Cost of aquisition	1	-2,400					
	Revenue	3		987	1,026	1,068	1,110	1,155
	Direct Costs	4		780	811	844	877	912
	Overhead	1		39	39	39	39	39
	Income berfore tax		-2,400	168	176	185	194	203
	Tax at 26.5%		636	-45	-47	-49	-51	-54
	After tax income		-1,764	123	130	136	142	149
	PV at 10%		-1,764	112	107	102	97	93
	NPV		-1,253					
	First year return			5%				

		Notes	0	1	2	3	4	5
High	Year	Notes	0	1	2	3	4	5
	Cost of aquisition	1	-2,400					
	Revenue	3		987	1,105	1,238	1,387	1,553
	Direct Costs	4		780	811	844	877	912
	Overhead	1		39	39	39	39	39
	Income berfore tax		-2,400	168	255	355	470	602
	Tax at 26.5%		636	-45	-68	-94	-125	-159
	After tax income		-1,764	123	188	261	346	442
	PV at 10%		-1,764	112	155	196	236	275
	NPV		-790					
	First year return			5%				

Conclusion: The NPV of the project under both low revenue increaes and high revenue increase assumptions is negative

Notes:

1 As provided in the excerpts
2 Note that plant is operating at capacity
3 Annual revenue growth at 4%
4 Annual cost growth at 4%
5 Revenues at growth rate of 12%

Exhibit 5: Fried Fuels Porposal Analysis

Purpose: To determine the relative savings of engaging in the fuel proposal

Costing Analysis

	Notes	Amount
Liters of Ecodiesel WDI would have access to	1	736,000
Price quoted to WDI	1	1.38
Cost of fuel		1,015,680
Savings from diverting fuel from landfill at 12 cents per liter	2	- 88,320
Overall relevant cost of ecodiesel		927,360
Price of diesel in the market	1	1.25
Cost of equivalent amount of diesel		920,000
Cost of processing oil at landfill		88,320
Total cost of using regular diesl		1,008,320

Conclusion: The cost of converting to ecodiesel is 927K, while not converting is 1 million.

Notes:
1 As provided in excerpts
2 Represents savings from not having to process oil at landfill

Exhibt 6: GHG emissions analysis

Purpose: To determine extent of GHG emissions reduction

Baseline	145000
target reduction	43500
baseline if target met	101500
Truro reduction due to trucking	-125
Truro increase due to landfills	200
Ecodiesel at 13.4 kg per liter	- 9,862
Adjsuted actuals	91,713

Conclusion: If WDI engaged in the fuel proposal and won the Truro bid, they would achieve the GHG target

APPENDIX I

RESULTS BY SUMMATIVE ASSESSMENT OPPORTUNITY FOR DAY 1 VERSION 1, VERSION 2, AND VERSION 3

Results by Summative Assessment Opportunity

Marking Results – Waste Disposal Inc. Version 1

Indicator	Papers	Did not meet standard[1]	Marginal[1]	Yes, met standard
Situational Analysis	7004	0.17	1.04	98.79
Analysis	7004	2.27	25.46	72.27
Conclude and Advise	7004	0.46	6.57	92.98
Communication	7004	0.00	0.14	99.86

Marking Results – Waste Disposal Inc. Version 2

Indicator	Papers	Did not meet standard[1]	Marginal[1]	Yes, met standard
Situational Analysis	280	0.00	0.71	99.29
Analysis	280	5.36	45.71	48.93
Conclude and Advise	280	5.71	50.00	49.29
Communication	280	0.00	0.00	100.00

Marking Results – Waste Disposal Inc. Version 3

Indicator	Papers	Did not meet standard[1]	Marginal[1]	Yes, met standard
Situational Analysis	994	0.50	3.52	95.98
Analysis	994	5.33	61.77	32.90
Conclude and Advise	994	3.52	31.99	64.49
Communication	994	0.20	0.00	99.80

[1]Clearly failing papers (i.e., did not meet the standard) were marked twice. All marginally failing or marginally passing papers were marked a second time to determine which ones met the passing standard. A selection of papers that were close to the margin were also looked at by third marker. The clear pass papers were marked only once, however, they were audited.

The BOE ensures that Version 2 and Version 3 difficulties are equated with Version 1. Any differences in the above statistics are attributable to the mix of candidates writing, which varies with each version.

APPENDIX J

BOARD OF EXAMINERS' COMMENTS ON DAY 1 SIMULATIONS
VERSION 1, VERSION 2 AND VERSION 3

BOARD OF EXAMINERS' COMMENTS ON DAY 1

Paper/Simulation: Day 1 – Linked Case, WDI Version 1 (on May 2021 CFE)

Estimated time to complete: 240 minutes

Simulation difficulty: Average

Competency Map coverage: N/A; Enabling Skills

Examiners' comments by Summative Assessment Opportunity (SO)

SO#1 (Situational Analysis)

Candidates were expected to highlight the factors, both internal and external to WDI, that would influence the strategic decisions presented in the simulation. There were two prominent issues relevant to WDI's internal environment that candidates were expected to identify: the governance issues surrounding Jack's and Laura's differing objectives; and the existing cash constraint worsening, given Jack's demand for large dividends. In the simulation, there is conflict between Jack and Laura (as well as other members of WDI's board) concerning how best to use the company's limited cash resources. Jack wants to earn a quick return on his investment and is focused on selling his shares of WDI for the maximum amount possible whereas Laura wants to retain as much capital in WDI as possible, for reinvestment in projects that support the company's stated mission, vision, and core values. WDI also set a new objective that any assets with a return on assets (ROA) of less than 5% should potentially be sold. Candidates were expected to link the issues they identified in their SO#2 analysis and discuss the investment(s) that best align with both Jack's and Laura's preferences. Candidates were also expected to identify the limited cash available for investment, and discuss how their recommendations on the SO#2 alternatives would impact that constraint.

In their situational analysis, strong candidates identified both entity-level issues noted above. For example, as part of their SWOT analysis, strong candidates listed the conflicting shareholder objectives as a weakness and identified rising interest rates as a threat to WDI, given the high probability that WDI would need further debt financing if any of the strategic alternatives were accepted. In their SO#2 discussion, strong candidates then provided an in-depth analysis that considered how each of these elements would affect the strength of the various strategic alternatives.

In their situational analysis, weak candidates often simply relisted the basic information about WDI that was presented in Capstone or the simulation, without providing an explanation of how those items would affect their decision-making process. In their SO#2 analysis, weak candidates tended to make links back to their situational analysis that were more superficial and less applicable to the decisions that needed to be made. Weak candidates often missed the significance of the governance and cash constraint issues, and when these issues were identified, they were not highlighted as two of the main considerations that would need to be analyzed before making a recommendation on how to best proceed with the options in SO#2.

SO#2 (Analysis of the Issues)

There were five major issues that candidates were expected to analyze from a strategic perspective. Candidates were expected to provide an in-depth, qualitative discussion of each of the major issues while also showing an acceptable level of numeracy skills by analyzing the quantitative data provided in the case in a way that helped support the recommendations made.

Candidates were also expected to link their discussion in SO#2 to the differing objectives of Jack and Laura, and discuss whether each option would be likely to satisfy those objectives. In addition, given that WDI had a cash constraint that was going to be made worse by the large dividend payment demanded by Jack, candidates were also expected to link their SO#2 discussions to how WDI could best deploy its limited investment dollars (given that, after the dividends that Jack demanded were paid, the company only had the resources to invest in one of the strategic options available).

<u>AO#2: Purchase organic-waste processing facility from TNC?</u>

Candidates were expected to evaluate whether WDI should purchase an organic-waste processing facility from TNC. Qualitatively, candidates were to recognize that this project had a significant amount of risk associated with it, given that Giselle Laflamme, the facility owner who was highly involved in the project, was set to retire, and because a significant number of contracts were going to expire in the near term. Quantitatively, candidates were to provide a sensitivity analysis for the expected ROA for the project, which considered both the initial equipment upgrade cost and facility's potential usage rate (candidates were provided with the possible figures for both of these important inputs to use in their calculation as, based on the case facts provided, the actual final figure was unknown).

Strong candidates recognized that this strategic option would likely begin to produce a return much faster than the other investment options because the facility was already built and operating. It was important to point out that this aligned with Jack's objective to earn a more immediate return on any investments made. Strong candidates also identified and discussed the risks associated with Giselle retiring, and how the loss of any major contract could negatively affect the results of the project. They went on to discuss how these risks could potentially be mitigated (e.g., by negotiating for Giselle to stay for a specified time, to ensure a successful transition and increase the chance of re-signing the contracts due to expire). Strong candidates provided several ROA calculations that included the two main fluctuating variables: the initial cost of the equipment upgrade; and the expected revenue of the project, based on the capacity of the facility that was utilized.

Weak candidates did not identify the more immediate return and rarely discussed how this investment alternative could address Jack's and Laura's conflicting objectives. Weak candidates tended to identify the potential six-month closure of the facility, required to upgrade the facility's equipment, as a major disadvantage of this option relative to the other investment options that were available. Because the analysis was not consistent with the case facts (that both the Flexi-P and battery recycling proposals would require more time before generating a profit), this type of discussion had little value. Weaker candidates also tended to blend their quantitative discussion points (e.g., the uncertainty around the initial equipment upgrade cost) into their qualitative discussion, believing they were adding depth to their qualitative analysis by doing so. As a result, the analysis of these candidates tended to miss some of the important qualitative advantages and disadvantages that were relevant to this alternative.

<u>AO#3: Sell New Brunswick division?</u>

Candidates were asked to evaluate whether WDI should sell the company's New Brunswick division. Quantitatively, candidates were expected to recognize that the large influx of cash that would result from the asset's sale would eliminate the cash constraint, while also enabling WDI to invest in other, potentially more lucrative, projects. However, candidates were also expected to recognize that the sale of this division would lower WDI's overall ROA (a violation of the company's stated objectives), and to discuss how selling this division would result in a significant drop in revenue and change the very nature of the business, given that this division represented approximately half of the company's overall operations. Qualitatively, candidates were expected to recognize that selling did not align with WDI's mission and vision, and that the main reason to sell the division was to obtain the cash for other investments and to pay dividends. Candidates could have made a strong integration point if they realized that selling the New Brunswick division would alleviate the company's truck driver issue that was occurring in that province.

Strong candidates understood the magnitude that this decision would have on WDI's future direction and therefore discussed this strategic option in depth. Strong candidates balanced their discussion of how valuable the proceeds of the sale would be to WDI (given the cash constraint) with the major drawback of losing roughly half of the company's revenue. Strong candidates attempted to value the New Brunswick division in order to evaluate whether the offer price was fair. Strong candidates also identified and discussed how the sale of this division would result in a drop to the company's overall ROA metric (which would have violated the company's stated objective). Strong candidates also recognized that selling this division would alleviate the truck driver issue that had materialized in New Brunswick ever since WDI had outsourced the collection function to Kingsley.

Weak candidates typically identified that WDI would be selling a large portion of its business if the New Brunswick division was sold; however, they often treated this element of their analysis with the same weight as the less important considerations, failing to highlight the importance of the magnitude of the sale to WDI's future direction. Weak candidates made recommendations that were not applicable to the case facts provided, for example, discussing how WDI should only sell the collection centres and transfer stations, even though the case specifically stated that this was not possible.

Disappointingly, although most candidates identified how this sale would help alleviate WDI's cash concerns, few candidates discussed how the proceeds from this sale could potentially be used to buy out Kingsley (and therefore alleviate the many governance issues that were being caused by Jack Kingsley, who controls WDI through Kingsley).

AO#4: Enter agreement with MDL and build Flexi-P facility?

Candidates were expected to assess whether WDI should enter into an agreement with MDL, whereby WDI would be required to build a new recycling facility that had the capability of producing a new material, Flexi-P. Candidates were expected to recognize the inherent risk involved in producing a new product such as Flexi-P, and to recognize that this investment might be rejected by Jack, given that it would take at least two years to build the new facility and because this project did not align with WDI's traditional waste management services. Quantitatively, candidates were to provide an NPV analysis of the project that considered the plant's capacity (which was projected to be at 100% toward the end of the asset's 10-year life).

Strong candidates recognized and discussed the risk inherent to this investment, i.e., that Flexi-P was a new and unproven product. Strong candidates tied this risk to Jack's preference for investing in projects that were within WDI's traditional waste management services. Strong candidates also commented on the length of time between the project's initial investment and when the company could expect to earn a return, and how that time lag may lead to Jack rejecting the project, while countering with a discussion of how this option could help WDI take advantage of the growth in the volume of PET plastics recycling that was expected to occur over the next several years. Most candidates provided an NPV calculation for the project, but only strong candidates recognized the capacity constraint that was expected to occur toward the later years of the project.

Weak candidates tended to highlight the fact that the Flexi-P plant would be obsolete within 10 years as a main reason for forgoing the option, ignoring the fact that the project met many of the company's stated objectives. Weak candidates also tended to miss that this option conflicts with Jack's objectives, i.e., a longer time horizon and a move away from traditional waste management. Rather than focusing on the most important decision factors of this project, weak candidates routinely made more superficial links back to their situational analysis. For example, weak candidates would make a link between this option and the key success factor of having up-to-date technology rather than discussing the more pertinent links, such as how Jack may reject the option because it did not align with WDI's traditional core competency. Weak candidates rarely discussed or incorporated the capacity constraint into their calculations. Weak candidates also struggled to provide an accurate NPV analysis.

AO#5: Invest in battery recycling plant?

Candidates were expected to analyze whether WDI should partner with REI in order to build a facility capable of recycling batteries. Qualitatively, candidates were expected to recognize the risks associated with the legislation around battery disposal (the law requiring battery recycling had yet to pass) and that, although Laura has a personal relationship with REI's owners, the proposed structure of the agreement (with four directors) might lead to inefficiencies in the decision-making process. There was no required calculation associated with this AO; however, candidates were expected to assess how this investment aligned with WDI's objectives, such as ROA, and with Jack's stated goals.

Strong candidates made good links between the risk of this investment and Jack's preference for only making investments within WDI's traditional waste management business, and highlighted the time lag between the investment and the date that WDI expected to start earning a return. Strong candidates also periodically recommended putting this investment off until future years, when WDI hopefully had more cash resources and when the legislation around battery recycling had become clearer. Strong candidates recognized that having a four-person board could lead to ineffective decision making, and recommended that an additional, independent board member be brought on to avoid a voting stalemate. Strong candidates also highlighted the risk and increased regulation associated with hazardous waste recycling, and the fact that WDI had no experience in that area, all good links back to Capstone.

Weak candidates were more likely to focus their qualitative analysis on the environmental risks associated with the project rather than on the legislation risk. Although the environmental risk was a valid point, it was less critical to the decision, given that WDI could itself control for the environmental risk whereas the company was at the mercy of the legislators relative to whether the battery recycling law would eventually pass. Weak candidates also tended to focus on the governance structure, highlighting the four-person board as a major drawback of the option without suggesting a way to mitigate the issue, such as through changing the proposal to a five-person board.

Quantitatively, most candidates discussed the investment's projected ROA and then compared it to either WDI's objective, the industry average, or both. Weak candidates were less likely to make these links and would sometimes state that more information was needed before any quantitative analysis could be made.

<u>AO#6: Governance issues</u>

Candidates were expected to address the differing objectives of Jack, who, through Kingsley, is WDI's majority shareholder, and Laura, WDI's founder and CEO. The negative effect that Jack's personal objectives were having on WDI was made apparent throughout the case (Jack's demand for dividends, his strict investment objectives, and the trucking issue), and candidates were expected to identify and discuss at least one of these issues and how it was affecting WDI from a strategic level.

Candidates were also awarded if they discussed how WDI was controlled by Jack, through Kingsley, and that each investment option would have to align with Jack's objectives before it was approved—it was surprising how few candidates addressed this aspect of the simulation.

Strong candidates provided a separate and fulsome discussion that detailed how the conflict between Jack and Laura was negatively affecting WDI, and how WDI might solve the issue. They went beyond a discussion of the trucking issue at an operational level, and discussed how the trucking issue might affect Jack's and Laura's already deteriorating relationship, and provided advice on how to handle the issue in order to prevent the situation from escalating. Throughout their discussions of the strategic options (AO#2 to AO#5), strong candidates linked their analysis to both Jack's and Laura's objectives, in an effort to find the alternative(s) that might suit both parties.

Weak candidates often did not provide a separate discussion pertaining to the governance issue, and instead made more tenuous links to this issue in their analyses of AO#2 to AO#5. Therefore, weak candidates generally did not provide an in-depth discussion pertaining to the governance issue. Weak candidates tended to focus on the operational elements of the trucking issue rather than on the conflict between Jack and Laura, and how that was affecting WDI's ability to make strong strategic decisions.

<u>Overall</u>

Most candidates did a good job of analyzing the advantages and disadvantages of the strategic and operational issues that were directly presented in the case. In this summative assessment opportunity, there were three main factors that differentiated strong candidates from weak candidates. First, strong candidates identified and provided an in-depth discussion on the most important decision factors for each issue. Weak candidates tended to list case facts, often failing to explain why those elements were important and how they affected the decision-making process. Second, strong candidates were able to use their quantitative analyses to help support their recommendations by linking their calculations to the stated objectives of WDI (e.g., ROA). On the other hand, weak candidates' quantitative analyses were often unstructured and unclear, and therefore challenging to follow. They often failed to perform the correct calculation to assess the decision, missing the need to focus on the ROA. They often struggled to explain how the results of their quantitative analyses would ultimately affect the decision at hand. Third, strong candidates routinely linked their analysis of each alternative to the two prevalent entity-level issues presented in the case, the governance conflict and the cash constraint. Strong candidates discussed how these two issues affected the viability of each alternative, whereas weak candidates either missed making these links altogether or provided a superficial discussion, listing them as pros or cons, sometimes in contradictory ways from option to option, failing to adequately highlight the importance of these items.

SO#3 (Conclude and Advise)

For each of the strategic options available to WDI, candidates were expected to provide a conclusion or recommendation that was consistent with their analysis. Candidates should have identified WDI's cash constraint and integrated it into their analysis of the different issues and their overall recommendations. Candidates should have also integrated the governance issue into their analyses by discussing how their recommendations would align with either Jack's or Laura's preferences, and draw those elements into their overall recommendations. To demonstrate competence, candidates were expected to address at least one of the two significant entity-level issues in sufficient depth. Candidates who addressed both issues, but in less depth, were also considered competent.

Strong candidates typically discussed both entity-level issues in sufficient depth and sometimes provided a "cash availability" summary to support their recommendations. Strong candidates also sometimes prioritized the strategic alternatives, explaining why one should be invested in before the other. Given the simulation's uncertainty around cash availability and what projects Jack would agree to, this was a valuable aspect of the conclusion.

Weak candidates tended to perform an issue-by-issue analysis without stepping back to consider the broader perspective, and without integrating the key entity-level issues into their conclusions. Their conclusions were often internally inconsistent. For example, weak candidates tended to recommend that WDI forgo the TNC composting facility opportunity because the facility required an expensive upgrade that would require it to be temporarily shut down. These candidates would later go on to recommend either the Flexi-P or battery recycling options, even though those options required a similar upfront investment but would take far longer to start earning revenue. In another example of recommendations that were not internally consistent, weak candidates would sometimes mention the cash constraint in their situational analysis or in the analysis of the strategic alternatives, but would then lose sight of the constraint and recommend spending more than was available when considering the dividend payout that was required. Few weak candidates discussed how their recommendations aligned with the conflicting objectives of Laura and Jack.

SO#4 (Communication)

Most candidates approached their response in a coherent and organized fashion. Only a few candidates struggled to effectively communicate their ideas, using poor sentence structure, confusing syntax, and an unorganized response approach.

SO#5 (Overall Assessment)

Overall, candidates were expected to meet the minimum acceptable standards in each of the four summative opportunities (SO#1 to SO#4) in order to obtain a "Pass" on the Day 1 linked case. Candidates also had to demonstrate a minimum level of numeracy skill. For each major issue, an in-depth analysis was expected before candidates proceeded to a reasonable conclusion that was consistent with the analysis performed. Candidates were also expected to address in reasonable depth some combination of both the governance conflict and the cash constraint. The board also sought evidence that candidates incorporated the important elements of Capstone 1, as well as the main elements of this simulation's situational analysis, into their analysis of the major issues.

APPENDIX E
BOARD OF EXAMINERS’ COMMENTS ON DAY 1
(WDI VERSION 2)

Paper/Simulation: Day 1 **–** Linked Simulation V1, WDI Version 2 (on Sept 2021 CFE)

Estimated time to complete: 240 minutes

Simulation difficulty: Average

Competency Map coverage: N/A; Enabling Skills

Examiners’ comments by Summative Assessment Opportunity (SO)

SO#1 (Situational Analysis)

Candidates were expected to highlight the factors, both internal and external to WDI, that influence the strategic decisions presented in the simulation. Candidates were informed that Jack Kingsley was no longer involved in WDI after he sold all of Kingsley’s shares back to WDI. Given this major change, WDI’s Board of Directors set the primary objective of securing the long-term success of the company. Candidates were also informed that WDI expanded its operations to include consulting services, a venture that has so far proven to be successful. In addition, WDI has a serious cash constraint that inhibits its ability to make certain strategic investments, and candidates were expected to identify and discuss this constraint as part of their analysis. Externally, WDI is contending with a highly competitive environment, in which large industry competitors continue to expand horizontally by purchasing smaller, locally-owned waste management companies. Another important industry trend pertains to the specialty and niche services that have emerged, such as hazardous waste disposal, recycling of plastics and metals, and consulting services. Significant changes since Capstone 1, such as the increased regulation of landfills, are also relevant for setting WDI’s overall strategic direction. Candidates were rewarded when they made relevant links between their situational analysis and their analysis of the strategic alternatives in SO#2 and recommendations in SO#3.

A majority of candidates provided an adequate discussion of WDI’s situation at the beginning of their response. Candidates typically included an updated SWOT analysis that highlighted the changes in the company’s situation that had occurred since Capstone 1, and identified the board’s main objectives, to be considered in relation to the strategic options presented in the simulation. Most candidates identified WDI’s limited cash availability in their situational analysis, and discussed how WDI’s limited access to further debt financing would inhibit the company’s ability to make strategic investments. However, few candidates discussed the differences emerging between the traditional aspects of the industry (such as collection, transfer, landfills, and recycling of OCC and paper) and the new niche services being offered. Although this was undirected, as part of their discussion of how to secure its long-term success (WDI’s primary objective for 2023), candidates were expected to identify that there were two possible directions that WDI could take: staying with the traditional business; or moving toward offering more new services and entering niche markets.

Strong candidates provided a situational analysis that both identified and discussed the relevant situational aspects present in the simulation, such as the various industry growth rates, expected 10% increase in landfill tipping fees, and tightening industry regulations. Strong candidates went beyond simply listing the simulation's situational facts by describing how they affect the viability of the strategic alternatives available to WDI. Strong candidates also discussed WDI's limited cash resources in their situational analysis in greater depth, and linked this constraint to their discussion of each investment option. Strong candidates typically provided ways for WDI to mitigate the cash constraint by taking advantage of the potential incentives presented in the case. For example, they typically discussed how the potential for government grants would likely make the NSU collaboration and electronic-waste recycling facility projects more affordable; given WDI's limited investment capital, this discussion was especially important.

Weak candidates tended to simply list information related to the company's revised mission and vision statements and the various changes that had occurred within the industry, without identifying or discussing which of those items would have the most influence on their decision-making process. In their situational analysis, and their analysis of the strategic alternatives available to WDI, weak candidates were also less likely to highlight the significance of WDI's cash constraint. Weak candidates also linked their analysis of the issues back to their situational analysis in a more superficial way, for example, always linking their analysis of the major issues back to the company's mission and vision, stating for each option that it was attractive because it met WDI's stated mission and vision statements. Because each of the strategic investments that were available met the company's mission and vision, this point was less valuable.

SO#2 (Analysis of the Issues)

Candidates were expected to analyze four strategic alternatives, both qualitatively and quantitatively. Candidates were also expected to identify and discuss the governance issue resulting from the leachate contamination.

<u>AO#2: Sell or upgrade the Nova Scotia landfills for biogas recapture?</u>

Candidates were expected to evaluate whether WDI should sell its Nova Scotia landfills or upgrade them in order to recapture biogas. Qualitatively, candidates were expected to identify and discuss the increased regulation surrounding landfills (such as the reduction in the allowable landfill capacity), as well as the increased risk of a leachate contamination due to the increasing age of the landfills. Candidates were also expected to recognize that WDI had a competitive advantage because its landfills have excess capacity. Quantitatively, candidates were expected to calculate the net present value of the biogas upgrade, and to compare that figure to the USWM offer to purchase. Candidates could also question the inputs to this calculation, for example, whether the life of the landfills would be shortened due to capacity restrictions or whether their performance would improve due to the increase in tipping fees.

Most candidates identified and discussed this strategic alternative to the required amount of depth, using sufficient case facts. Most often discussed were how selling the landfills would alleviate WDI of the future obligation tied to maintaining and eventually closing the landfills, which is a large future obligation that could increase over time, and the significant drawback of WDI still needing to fulfil its existing contracts if the company sold the landfills, which would need to be outsourced. Quantitatively, most candidates attempted to calculate the net present value of the Nova Scotia landfill operations; however, few went on to compare that figure with USWM's offer price, and even fewer provided a discussion of the increased costs that could materialize if WDI sold the landfills (given that WDI would be forced to outsource that function to another waste management company).

Qualitatively, strong candidates recognized that WDI's Nova Scotia landfill operations represent a significant aspect of WDI's core business, and discussed how selling the landfills would likely make WDI less able to compete with the industry's large competitors, who are focused on gaining efficiencies through horizontal expansion. Strong candidates also made the link between the potential for the landfills' performance to increase, given the trend of increasing landfill tipping fees. Strong candidates also integrated the case facts better, for example, explaining that selling these landfills could be hindered by the leachate contamination that had occurred at one of the Nova Scotia landfills. Weak candidates tended to miss linking their qualitative discussion of this strategic alternative with the broader information presented in the simulation (such as the increased regulation surrounding landfills and the increasing tipping fees), and tended to focus their analysis on the less relevant aspects of this decision, for example, highlighting Laura's hesitancy to sell to USWM (because one of the landfills was one of the first properties her father had purchased) as a reason not to sell the landfills.

Quantitatively, strong candidates provided an accurate net present value calculation and then compared that figure to USWM's offer price for the landfills. Strong candidates also discussed how the sale of the landfills would provide WDI with cash to invest in other projects (a point that was particularly important, given WDI's cash constraint). Weak candidates struggled to provide an accurate net present value calculation, which made it more difficult to compare the value of the landfills to USWM's offer price. Weak candidates often recommended upgrading the landfills for biogas recapture without discussing how WDI might struggle to do so, given its lack of available cash.

<u>AO#3: Collaborate with NSU to research new, less toxic, material?</u>

Candidates were expected to discuss whether WDI should attempt to expand the company's consulting services through a research collaboration with Nova Scotia University (NSU). If successful, the research program would generate a new material that was less toxic upon disposal. Candidates were expected to discuss how WDI required more information about the collaboration before a decision could be made. Given the lack of information provided, there was no calculation required for this strategic alternative.

Most candidates recognized that WDI needed to obtain more information about the prospective collaboration with NSU before a recommendation could be made. Most candidates discussed the risk associated with research, and how WDI would only receive a return if NSU was able to generate a new and useful product. Most candidates also discussed the potential for this collaboration to help improve WDI's reputation, which has been affected by the decision to close its recycling plants.

Qualitatively, strong candidates recognized that working with NSU would allow WDI to enter a niche market without having to create an internal team of researchers, and linked this information to the fact that this area of the waste management industry was currently less competitive than the traditional areas of the industry. Strong candidates recognized that diversifying WDI's operations away from the traditional areas of the industry could help WDI secure its long-term success. Weak candidates tended to simply restate the case facts presented in the board dialogue without stating what implication those facts had on the investment decision. Weak candidates also tended to recommend that WDI pursue the collaboration with NSU even though they had identified that there was not enough information to analyze the project completely, and they did not discuss how this option fit into the strategic decision of whether to stay with the traditional business.

Although there were no calculations, strong candidates identified and discussed how this strategic option did not require a large upfront investment, and how NSU also planned to apply for government grants. Strong candidates linked this discussion to WDI's constrained cash position, stating that the NSU collaboration could be a way for WDI to expand its services despite the company's lack of investment capital. Weak candidates routinely failed to discuss the upfront investment required for this investment, and therefore missed the opportunity to make an important link to the company's cash position.

AO#4: Acquire Pendleson Incorporated?

Candidates were asked to evaluate whether WDI should acquire Pendleson Incorporated (PI) by purchasing all of PI's outstanding shares. Qualitatively, candidates were expected to discuss how the combination of the two companies would likely lead to synergies (for example, PI's recycling plants were upgraded, so combining the two companies could allow WDI to offer recycling services again). Candidates were also expected to recognize that WDI's excess landfill capacity would be used up faster because of the acquisition, given that PI's landfills were close to their capacity limit. Quantitatively, candidates were expected to estimate the value of PI and to compare that figure to the asking price for PI. Candidates could also discuss how the acquisition would affect WDI's share structure, given that Jim would become a shareholder of WDI.

Most candidates identified and discussed a few qualitative considerations for this strategic investment option. Most commonly discussed was how the combination of the two companies would likely lead to operational synergies and cost savings. Most candidates also made the important link to WDI's cash constraint and noted that the company might not be in a position to acquire PI. Quantitatively, most candidates attempted to value PI, and compared that figure to the asking price; however, few candidates incorporated in their valuation the $1 million in annual after-tax savings in administration expenses that WDI expected would result from the acquisition. As a result, most candidates concluded that the value of the PI acquisition was below the asking price, and therefore recommended not making the acquisition.

Qualitatively, strong candidates highlighted the potential synergies that could result from the acquisition. For example, strong candidates discussed the importance of PI's upgraded recycling facilities, and how gaining access to those facilities would allow WDI to once again offer recycling services. Strong candidates also discussed how acquiring PI could allow WDI to expand its consulting services to include PI's current customers. Strong candidates astutely recognized how many of PI's contracts were set to expire in the near term, and how that increased the risk of the investment (given that it is questionable whether WDI will be able to renew all the contracts in light of the increase in competition within the industry). Weak candidates tended to focus their analysis on the apparent strengths of the proposal, for example, stating that PI's business met the mission and vision of WDI, without adequately addressing the risks involved in the investment. As all the strategic investments available to WDI met the company's mission and vision statements, the link to WDI's mission and vision was not considered valuable. Weak candidates also tended to miss the fact that PI's business has been in decline over the past three years, and that many of PI's contracts were set to expire in the near term.

Quantitatively, strong candidates calculated the value of PI and compared that figure to the asking price, and went on to explain how the valuation would be negatively affected if PI's expiring contracts were unable to be renewed. Strong candidates also discussed how the current structure of the acquisition would likely put WDI in breach of its bank covenants, and suggested that WDI attempt to renegotiate with Jim before agreeing to the acquisition. Although weak candidates often performed a valuation calculation for PI, they routinely failed to discuss the results of their calculation in a useful way, such as by comparing PI's valuation to the asking price. Weak candidates also failed to identify and discuss the $10 million initial cash outflow, and how WDI did not currently have the resources to make this payment.

<u>AO#5: Build electronic waste facility?</u>

Candidates were asked to assess whether WDI should proceed with building an electronic-waste recycling facility in the Town of Devyn (The Town). Qualitatively, candidates were expected to identify and discuss the significant risk factors inherent in the project, such as the risks associated with handling hazardous waste and the fact that WDI has no experience in this area. Candidates were also expected to recognize that this area of the industry is less competitive, and therefore represents a good opportunity for WDI to diversify its revenue stream away from the traditional, more competitive areas of the industry. Quantitatively, candidates were expected to provide an initial assessment of the facility's profitability, for example, by providing a payback period calculation. Candidates could also challenge the projection provided by The Town by questioning whether all the relevant costs associated with the project had been included in the projection.

Most candidates discussed the incentives that The Town was offering if WDI agreed to build the facility (such as a guaranteed amount of waste material in the first year and a reduction on property taxes for up to five years). Most candidates also made the link between this project and WDI's vision of meeting the needs of local communities, and mission of using leading-edge technologies. Quantitatively, most candidates calculated a payback period; however, few candidates questioned the validity of The Town's projection by discussing the possibility that some costs associated with the project had been left out (such as increased compliance and certification costs).

Qualitatively, strong candidates did a good job of recognizing and discussing the significant risks associated with the facility. Strong candidates also recognized the complexities associated with the project, such as the need to hire specialized staff, and how that complexity increases the time and resources required, to ensure the project's success. Strong candidates discussed how hazardous waste disposal was a specialty area of the waste management industry, which meant that WDI would face less competition relative to its traditional operations. Weak candidates struggled to identify the significant risks associated with the project; they tended to focus their analysis on the advantages of the investment, such as the project's adherence to the company's mission and vision statement and the project's potential profitability, without acknowledging the significant risks inherent to building a hazardous waste facility.

Quantitatively, strong candidates calculated a payback period for the three different "pounds processed annually" scenarios presented in the case. Strong candidates also qualified the results of their calculations, questioning whether the information provided by The Town was biased and therefore inaccurate. Strong candidates also recognized that WDI lacked the $12 million needed in order to build the plant, and discussed ways of alleviating this constraint (such as through obtaining a government grant, which Brian mentioned might be possible). Weak candidates recognized that the facility was projected to be profitable but did not question the accuracy of the information provided by The Town, and instead took the figures at face value. In addition, weak candidates failed to make the link between WDI's limited cash and the $12 million initial investment required before WDI could proceed with building the facility.

<u>AO#6: How to respond to the leachate contamination?</u>

Candidates were expected to discuss how WDI should approach the leachate contamination, from both an ethical and governance standpoint. First, given that leachate had contaminated the ground water surrounding one of WDI's Nova Scotia landfills, the company had a duty to investigate the severity of the spill. Next, if the spill was found to be more severe than Peter had originally assessed, such as if the leachate had contaminated the surrounding area through water runoff, the company had an ethical duty to clean up the spill and also report their findings to the general public. Lastly, candidates were expected to discuss the breach of protocol that occurred when Peter failed to report the spill to the rest of the board, and how WDI could ensure that future breaches did not occur.

Most candidates identified and discussed both the ethical and governance aspects of this problem, addressing the need for WDI to investigate the extent of the contamination, and WDI's responsibility to clean it up. Most candidates also identified the breach of protocol by Peter. However, only the strong candidates recommended practical ways for WDI to ensure that a breach of protocol did not happen again in the future. Weak candidates typically recommended firing Peter without first investigating the extent of the spill. Strong candidates also routinely made the link between the leachate contamination and WDI's ability to sell the landfill to USWM (AO#2). Weak candidates rarely made this link.

Overall

The focus of SO#2 was on the candidate's ability to integrate the crucial elements of the company's broader situation (such as WDI's cash constraint) within their qualitative and quantitative analyses of each AO, and to consider how each strategic alternative would affect the company's overall strategic direction.

Most candidates addressed each of the strategic alternatives available to WDI from both a qualitative and quantitative perspective. Most also discussed the leachate contamination that was recently discovered, and provided enough discussion of the company's limited cash position and how the constraint would affect the company's ability to invest in the available strategic options. However, most candidates failed to provide an in-depth discussion of how each strategic alternative fit into the possibility of either offering the traditional aspects of the industry (such as collection, transfer, landfills, and recycling of OCC and paper) or moving towards the recently emerging niche services. For example, the acquisition of PI would nearly double WDI's size, which would result in cost efficiencies and the ability for WDI to expand its recycling services. This horizontal expansion would help WDI secure its long-term success in the traditional areas of the industry. On the other hand, the sale of the Nova Scotia landfills and an investment in the electronic-waste recycling facility would weaken WDI's position in the traditional areas of the industry but result in a diversification of the company's revenues in a growing niche market.

Strong candidates provided a well-balanced qualitative discussion of both the advantages and disadvantages of each strategic option, which included numerous links back to the company's situational analysis (SO#1). One of the main differentiating factors between strong and weak candidates was the ability to identify and discuss in depth the most relevant decision factors (such as the operational synergies that would result from the acquisition of PI). Weak candidates tended to list a variety of case facts as pros and cons, and provided more superficial links back to their situational analysis, for example, stating that the decision links to a key success factor without elaborating, or tying each discussion back to the same point, for example, stating that the option aligned or did not align with the mission or vision.

Most candidates attempted to analyze each strategic option from a quantitative perspective. One of the main differentiating factors between strong and weak candidates was the level of scrutiny applied to the quantitative data that was provided in the simulation. For example, for the electronic-waste recycling facility, strong candidates recognized that the data provided by The Town could be biased. Weak candidates tended to take the data at face value and not question whether the information was accurate. Weak candidates also struggled to effectively discuss the relevance of their quantitative analyses, and how they contributed to the candidate's recommendations to pursue, or not pursue, certain strategic alternatives.

SO#3 (Conclude and Advise)

For each of the strategic options available to WDI, candidates were expected to provide recommendations that were consistent with their analyses. Candidates were also expected to discuss how the company's constrained cash position would restrict WDI's ability to make all of the strategic investments available, and to provide an overall conclusion that incorporated the company's primary objective of securing WDI's long-term success.

Candidates could demonstrate competence within SO#3 by providing an overall conclusion that either acknowledged the company's cash constraint with an accompanying discussion on how WDI could address the shortfall, or by suggesting ways to secure the company's long-term success, such as by recommending that WDI either focus on the traditional areas of the industry or on the new niche services of the industry.

Most candidates demonstrated competence within SO#3 by acknowledging and discussing the company's cash constraint. Far fewer candidates discussed the company's primary objective of securing its long-term success in a way that provided WDI with a clear recommendation on where to focus the company's growth (whether on the traditional areas of the industry or on the emerging, specialty opportunities, such as consulting and/or hazardous waste disposal). Most candidates provided recommendations for each of the strategic alternatives they discussed.

Strong candidates provided useful advice to WDI's board, which acknowledged the company's cash shortfall and provided advice on how that shortfall could be managed. For example, strong candidates routinely acknowledged that, although a project like the electronic-waste recycling facility looked promising, the company would likely not be able to afford the investment without some kind of additional financing (such as through acquiring government grants). Weak candidates tended to provide recommendations that would have been impossible for WDI to act on. For example, many weak candidates suggested upgrading the landfills while also acquiring PI. Given WDI's limited access to investment capital, this recommendation was impossible to pursue.

SO#4 (Communication)

Most candidates approached their response in a coherent and organized fashion. Only a few candidates struggled to effectively communicate their ideas. These candidates tended to use poor sentence structure, confusing syntax, and an unorganized response approach.

SO#5 (Overall Assessment)

Overall, candidates were expected to meet the minimum acceptable standards in each of the four summative assessment opportunities in order to obtain a "Pass" on the Day 1 linked case. Candidates also had to demonstrate a minimum level of numeracy skill.

For each major issue, candidates were expected to perform a sufficient level of analysis, and then to provide a recommendation that was consistent with their analyses, and that acknowledged the company's cash constraint with a discussion of how to potentially alleviate the shortfall, or addressed the broader choice in strategic direction. The board sought evidence that candidates incorporated the important elements of Capstone 1, as well as the main elements of this simulation's situational analysis, into their analysis of the major issues.

BOARD OF EXAMINERS' COMMENTS ON DAY 1 (WDI VERSION 3)

Paper/Simulation: Day 1 – Linked Simulation, WDI V3 (on September 2022 CFE)

Estimated time to complete: 240 minutes

Simulation difficulty: Average

Competency Map coverage: N/A; Enabling Skills

Examiners' comments by Summative Assessment Opportunity (SO)

SO#1 (Situational Analysis)

Candidates were expected to highlight the factors, both internal and external to WDI, that could have influenced the strategic decisions presented in the simulation. Since Capstone 1, a major change had taken place at WDI: Laura Simmons left the company and sold all her shares to Jack Kingsley, who now owned 100% of WDI's common shares. Candidates were also informed that WDI partnered with the municipalities and built an organic-waste treatment facility, and that WDI had begun to produce an annual greenhouse gas (GHG) emission statement in an attempt to receive a new government incentive related to the reduction of GHG emissions. Given the increased demand for sustainability-focused waste management options, the organic-waste treatment facility investment had generated a higher-than-expected profit margin. However, WDI did not expect to achieve the GHG emissions reduction target that the company set in 2022, and therefore, WDI did not expect to receive the government rebate if no changes were made to the company's current rate of GHG emissions. Despite being behind on the company's emission reduction target, WDI's board was still hopeful that the target could be achieved; therefore, candidates were expected to link their analysis within SO#2 to whether each strategic option would either help or hinder WDI's ability to reduce the company's GHG emissions. Externally, WDI had the opportunity to sell WDI to SDL in the near term, or to take a chance and hope to receive a higher offer. To potentially improve the company's performance, and therefore increase the value of WDI to a possible buyer, WDI had several opportunities to consider: the continued pursuit of GHG emissions reduction incentives; the Truro waste management contract; the acquisition of the Halifax-based PET recycling plant; and the proposed collaboration with FFC to pursue the ecodiesel project. Both WDI's customers, and prospective buyers of WDI, emphasized the importance of sustainability and environmentally-responsible business practices, and therefore, candidates were expected to link their analysis of each investment opportunity in SO#2 to how they would impact WDI's sustainability efforts. Internally, WDI's board wanted to achieve a first-year return of at least 10% for any investments that were made. Any investments made should also align with Jack's intention to sell the company within the two-year time frame. WDI did not have a cash constraint, and in theory, was financially able to proceed with every investment. Candidates were rewarded when they made relevant links between their situational analysis and their analysis of the strategic alternatives in SO#2, and recommendations in SO#3.

Most candidates provided a good summary of WDI's internal and external situation at the beginning of their response. Candidates typically included an updated SWOT analysis that highlighted the changes in the company's situation that had occurred since Capstone 1, and identified the board's main objectives to be considered in relation to the strategic options presented in the simulation. Most candidates also recognized the main strategic question of the simulation: whether to sell the business now or forgo SDL's offer and try to increase the value of WDI within the next two years. Despite recognizing this, some candidates failed to link their analysis of the investment options in SO#2 to this core strategic question.

Strong candidates provided a situational analysis that both identified and discussed the implications of the situational aspects presented in the simulation, with a better focus on the major considerations, such as the opportunity to sell the company now and avoid the risks associated with making further investments. Strong candidates also recognized the importance of reducing the company's emissions, not only because of the $500,000 government incentive, but also because of the impact that it could have on WDI's value to prospective buyers of the company. Strong candidates also routinely linked their analysis and discussion of each strategic option back to the company's stated objectives and to key industry trends, such as the increased importance of sustainability-focused operations.

Weak candidates tended to simply list WDI's mission, vision, and key success factors from Capstone 1, without highlighting which of those aspects would play an emphasized role in their analysis, based on the information provided in the simulation. Other weak candidates simply listed case facts related to the various changes that had occurred within the industry, without identifying or discussing which of those items would have the most influence on their decision-making process. Weak candidates also struggled to link their analysis of the strategic options to the most relevant situational elements presented in the simulation, and instead attempted to link their discussions to less relevant and more generic aspects of WDI's business and industry, such as discussing how the potential sale of WDI to SDL would violate the company's mission and vision (even though SDL planned to uphold WDI's existing mission and vision statements).

SO#2 (Analysis of the Issues)

Candidates were expected to analyze five strategic alternatives, both qualitatively and quantitatively. Candidates were also expected to identify and discuss WDI's overall strategic direction, and how each potential investment would affect that direction, in light of Jack's plan to sell WDI within the next two years.

AO#2: Accept SDL's offer and sell WDI now?

Candidates were asked to assess SDL's offer to purchase 100% of WDI's outstanding shares, and to provide a recommendation on whether to sell the business now. Jack, who had become WDI's sole owner since Laura's departure, stated his intention to sell WDI within a two-year time frame, and also stated that he was eager to sell the business, given that the waste management business was not his area of expertise. Qualitatively, candidates were expected to recognize that, although Jack and the board viewed WDI's strong customer relationships and traditional waste management service contracts as the most valuable part of the business, the potential buyers of waste management companies were placing less value on long-term contracts and more value on waste management companies that emphasized environmentally-friendly and sustainable practices. Quantitatively, candidates were to compare SDL's $35 million offer with WDI's implied value, which could have been quantified from the provided range of EBITDA multipliers and WDI's 2024 income statement. Candidates could have added value to their quantitative analysis by discussing the potential reasons for SDL's offer being at the lower end of the range, relative to the comparable sales prices for other waste management companies.

Most candidates identified and discussed several qualitative considerations in relation to SDL's current offer. Most recognized that SDL seemed to be a good fit to purchase WDI, given SDL's plan to retain all of WDI's employees, honour all of WDI's existing long-term customer contracts, and uphold WDI's existing mission and vision statements. Although most candidates analyzed SDL's current offer, few candidates commented on the risks associated with turning down the offer, such as the potential short-term price volatility for recycled materials (which could have led to a significant drop in WDI's earnings). A significant advantage of SDL's offer was that it provided the opportunity for Jack to divest from WDI immediately, and be free of the risks associated with operating a waste management company. If the offer was turned down, there was the risk that WDI would not receive a similarly attractive offer, despite WDI's best efforts to increase the value of the company—few candidates recognized and discussed this risk.

Qualitatively, strong candidates recognized that SDL's offer seemed fair, given WDI's apparent lack of focus on sustainable waste management operations. These candidates recognized and discussed how waste management companies such as WDI, that relied more on traditional landfill disposal than on sustainability-focused operations (such as recycling and alternative energy use), were the companies being sold at the low end of the EBITDA multiplier range. These candidates recognized the potential to increase the value of WDI to a prospective buyer by investing in sustainability-focused projects, such as PET plastics recycling. Weak candidates tended to focus their discussion on less pertinent aspects of SDL's offer, such as SDL's requirement to obtain a copy of WDI's audited financial statements (this was less important because it was customary for WDI to have the company's financial statements audited).

Quantitatively, strong candidates calculated a range of potential valuations for WDI, using the EBITDA multiplier information provided. These candidates recognized that SDL's $35 million offer fell within the range of comparable sales, and therefore, it appeared that SDL's offer was reasonable. Weak candidates struggled to perform a reasonable calculation that first determined WDI's EBITDA, and then applied that figure to the EBITDA multiplier range that was provided. Weak candidates also often recommended turning down SDL's offer, given that it was at the low end of the range for comparable sales. These candidates did not recognize that SDL's offer was reasonable, given WDI's current lack of focus on sustainable waste management practices.

AO#3: Greenhouse gas emission reduction target

Candidates were expected to analyze whether it was still possible for WDI to achieve the company's GHG emission reduction target, and whether WDI should commit to future incentive programs. Qualitatively, as both WDI's clients and potential buyers of the company emphasized the importance of reduced emissions, candidates were expected to recognize the significant benefit to WDI of an effective emissions reduction incentive program. Candidates were also expected to recognize that reduced emissions would likely become even more important in the future, given that the industry was trending in that direction. Quantitatively, candidates were expected to analyze whether WDI could still reduce the company's emissions to the targeted 30% by 2025. To accomplish this, candidates were expected to identify that some of the other strategic proposals presented in the simulation (such as the opportunity to purchase the PET plastic recycling plant) would affect WDI's ability to reach the company's emission reduction target.

Most candidates recognized that this opportunity aligned well with WDI's mission statement, which included the importance of using environmentally responsible and sustainable methods, and with one of the company's core values, which was to promote sustainable practices within the company. However, fewer candidates recognized the broader link between reducing emissions and potentially increasing the company's value to prospective buyers, given that many of the higher-priced waste management businesses recently sold had successfully been able to reduce their GHG emissions. Quantitatively, most candidates attempted to assess whether WDI would still be able to meet the company's 2025 GHG emissions reduction target.

Qualitatively, strong candidates recognized both the short-term and long-term importance of the GHG emissions reduction incentive program. These candidates recognized the value that prospective buyers of WDI gave to sustainable waste management practices, and the fact that the $500,000 cash incentive represented a significant award for WDI. Strong candidates also recognized the opportunity to participate in future government programs for emission reductions, and that, because these new programs would require a GHG emission statement in the same format as the one that WDI already produced, the company could leverage its existing system to potentially receive future government incentives. Weak candidates tended to focus their discussion on the logistical elements of this decision, such as the cost to hire an engineer and the fact that some of WDI's staff members had complained about the additional workload. Although these aspects of the decision were valid, WDI would have easily been able to address these concerns while still taking advantage of the incentive programs. Weak candidates often failed to discuss the broader implications of this decision, such as the fact that WDI's current rate of GHG emissions was higher than the industry, and that this posed a threat to WDI because the reduction of emissions had become highly important to many of WDI's customers.

Quantitatively, strong candidates considered the impact of their other recommendations on WDI's ability to achieve the GHG emissions target by 2025. Three of the other proposals presented in the simulation—the Truro waste management contract, the PET plastics recycling plant purchase, and the ecodiesel collaboration—would have impacted WDI's total GHG emissions, and candidates could have provided a revised emissions projection based on their recommendations for these proposals. Weak candidates often failed to provide a revised calculation, and instead simply included a comment about whether each option would increase or decrease emissions.

<u>AO#4: Truro waste management contract</u>

Candidates were expected to analyze whether WDI should pursue the open bid for a ten-year waste management contract with the municipality of Truro, Nova Scotia. Qualitatively, candidates were expected to recognize that, although this proposal aligned with WDI's current business, it would also likely impact the selling price of WDI because the proposed contract with Truro centered on landfill disposal, which was one of the attributes that had caused waste management companies to be sold at the lower end of the value range. Quantitatively, candidates were expected to quantify the bid price that would allow WDI to achieve an annual 10% return on investment, and to compare that calculation to Truro's maximum bid price of $900,000 per year, to assess whether WDI should pursue the contract.

Most candidates recognized the significant advantage of having access to Truro's landfill sites, and how that would result in increased efficiency and therefore reduced GHG emissions. However, many candidates went on to conclude that accepting the Truro waste management contract would reduce WDI's overall GHG emissions. These candidates did not recognize that, although WDI's emissions would be reduced as a result of the decreased trucking mileage, the contract would increase WDI's overall GHG emissions, given the amount of additional waste that would be dumped into landfills. Quantitatively, most candidates attempted to calculate a bid price that would provide WDI with a first-year return on investment of at least 10%; however, fewer candidates incorporated the cost savings that would result from the saved trucking mileage (25,000 kilometers) into their analysis, and therefore concluded that WDI would not be able to submit a competitive bid.

Qualitatively, strong candidates linked their analysis of whether to pursue the Truro contract with the board's broader objectives of preparing WDI for its eventual sale, and the potential to receive the GHG emissions reduction incentive. These candidates discussed the trade-off between increasing WDI's EBITDA while also increasing the company's GHG emissions. Weak candidates often discussed the risk that WDI's reputation could be tarnished if WDI was unable to comply with dumping regulations, even though there was no indication that WDI was deficient in this area. Other weak candidates highlighted the risk that, as the contract was set to begin in one month, WDI may not be able to prepare itself in time to properly service the contract, even though WDI's board expressed that this would not be an issue.

Quantitatively, strong candidates provided a simple cost analysis, which incorporated the cost savings that would result from the reduction in trucking mileage, and then compared that figure to Truro's maximum bid price of $900,000. Weak candidates often quantified the costs of the contract successfully but then failed to incorporate WDI's desired 25% profit margin on top of the contract's cost. Weak candidates also often failed to compare the results of the calculation to Truro's maximum allowable bid price of $900,000 per year.

<u>AO#5: Purchase the PET plastic recycling plant?</u>

Candidates were expected to analyze whether WDI should acquire the Halifax-based PET plastic recycling plant from Brian's friend Lucy. Qualitatively, candidates were expected to recognize that adding this service to WDI's current operations would align well with both WDI's mission/vision and the trends within the industry. Candidates could have also discussed whether this investment would be a good choice when considering Jack's objective of selling WDI in the near term. Quantitatively, candidates were expected to provide an earnings projection that included a sensitivity analysis for the potential range of revenue growth that was provided. This result could have then been compared to the board's objective of achieving a first-year return of 10% for any investments made.

Most candidates recognized how well this acquisition would fit with WDI's current operations, especially because many of WDI's competitors already offered PET recycling services, whereas WDI did not. Most candidates also recognized the advantage that the PET recycling plant was apparently well maintained and was not scheduled for any technology updates within the next five years. However, fewer candidates linked their analysis of this proposal with Jack's plan to sell WDI within the next two years. Quantitatively, most candidates attempted to project the plant's future financial performance, but few recognized the need to verify the information provided, given that they were compiled by Lucy, the plant's current owner.

Qualitatively, strong candidates assessed the viability of this investment both independently and in conjunction with the company's two main entity-level objectives: the GHG emissions reduction target, and the intention to sell the business within two years. These candidates recognized that the PET plant would help WDI reduce its emissions and quantified that amount, based on the information provided. Strong candidates also recognized that the addition of the PET recycling plant to WDI's assets may lead to an increase in the company's value to prospective buyers, given the preference that buyers had for companies with a wide breadth of sustainability-focused waste management options. Weak candidates tended to analyze this option in isolation, without making the broader links to the two key entity-level issues described above. In addition, weak candidates often highlighted the plant's current staff as a potential risk, given that these workers would need to be joined with WDI's current workforce. Although merging two workforces together would be a challenge, there was nothing in the simulation to indicate that this would be a major concern, so this qualitative discussion point had less value.

Quantitatively, strong candidates provided a basic earnings projection that included a sensitivity analysis for the forecasted range of potential revenue growth. These candidates then compared the results of their analysis to WDI's 10% first-year return objective. Strong candidates also tended to discuss the uncertainty surrounding the projection, given the potential for significant short-term price volatility for recycled materials. Weak candidates attempted to project the plant's future earnings but often failed to provide a sensitivity analysis. Other weak candidates based their analysis on the average between the projected 4% and 12% revenue growth, without an explanation as to why that was a valid approach. This approach had less value, given the material difference between the plant's performance at 4% revenue growth when compared to 12% revenue growth. WDI's board should have been informed that this investment option had a significant degree of uncertainty relative to its ability to provide WDI with its desired first-year return of 10%.

AO#6: Collaborate with FFC for the ecodiesel project?

Candidates were expected to analyze FFC's proposal, which would require WDI to loan them $1 million in exchange for access to FFC's alternative vehicle fuel, ecodiesel. Qualitatively, alternative fuels were becoming the industry standard, and WDI had fallen behind in this respect; therefore, candidates were expected to comment on how this proposal might help WDI improve its reputation as a company that valued and invested in sustainability. Candidates could have also discussed the inherent risk of loaning money to a start-up business. Quantitatively, candidates were expected to provide a profitability projection that included both the costs and benefits associated with the proposal, and conclude on whether it would be realistic to achieve the board's first-year objective of 10% return.

Most candidates recognized the fit between this proposal and WDI's mission and vision statements, which both emphasized WDI's commitment to the environment and sustainable waste management practices; however, only some candidates linked that advantage to a potential increase in WDI's value to prospective buyers, given the preference that buyers had for companies that had invested in alternative energy use. Most candidates also discussed the risks involved in lending money to a start-up business. Quantitatively, most candidates attempted to assess whether the option would provide WDI with a first-year return of 10%; however, many candidates struggled to provide a complete analysis, often excluding certain significant elements, such as the costs and cost savings associated with using ecodiesel, and the interest that WDI would earn from the three-year loan to FFC.

Qualitatively, strong candidates acknowledged the risks involved in loaning money to a start-up business, while also highlighting the significant upside potential that this proposal offered to WDI. These candidates recognized that, although the current price of ecodiesel was higher than the price of regular diesel fuel, the price of regular diesel fuel was forecast to increase rapidly. Therefore, WDI could use FFC's ecodiesel as a hedge against rising fuel prices, given that ecodiesel would be offered to WDI at a fixed price. In addition, strong candidates recognized FFC's potential to create other new alternative fuel products, that WDI would have privileged access to, if WDI proceeded with the collaboration. Weak candidates tended to focus their analysis on the operational aspects of the proposal (such as the complexity involved in unloading the waste oil into FFC's storage tanks) rather than on how the collaboration would impact the broader strategic elements of WDI's business.

Quantitatively, strong candidates typically provided a calculation that assessed the projected profitability of the proposal; however, it was also typical for strong candidates to miss certain quantitative aspects within their calculation (such as the existing difference in cost between regular diesel fuel and ecodiesel fuel, or the 10% interest that WDI would have earned from loaning FFC the $1 million). Weak candidates struggled to provide a valuable quantitative analysis, usually because their calculations contained too many errors or because they misinterpreted the structure of the arrangement (for example, some weak candidates incorrectly assumed that WDI would loan FFC $1 million for each of the proposal contract's three years).

Overall

The focus of SO#2 was on the candidate's ability to recognize the increased importance of sustainability that had occurred within the industry (industry regulators, WDI's customers, and potential buyers of the company had all emphasized the importance of sustainable waste management methods), and to incorporate the implications of that shift in their analysis of each strategic option that was available to the company. Candidates were also expected to assess the relative strength of each strategic option, in conjunction with the broader entity-level objectives of preparing WDI for its near-term sale, and achieving the necessary reduction in the company's GHG emissions so that WDI would qualify for the $500,000 government incentive.

Most candidates addressed all of the strategic options available to WDI and did a good job of recognizing the increasing importance that sustainability-focused waste management practices had taken on within the industry.

Within SO#2, there were three main differentiating factors between strong and weak candidates. First, strong candidates routinely provided the implications (the "so what?") of each case fact that they included within their analysis, whereas weak candidates tended to simply list the case facts they thought were relevant to each AO without explaining the importance of those case facts and what impact they would have on WDI's ability to meet its objectives. Second, strong candidates demonstrated the requisite amount of numeracy skills within their quantitative analyses by providing straightforward calculations that tied into the board's 10% first-year return objective. Weak candidates often struggled to use a quantitative assessment tool that allowed them to translate their calculation into something that tied back to the board's objectives. Weak candidates also tended to provide overly complicated calculations that were confusing to read and interpret. Finally, strong candidates tended to integrate the effect that moving forward with each AO would have on WDI's value to prospective buyers and WDI's ability to achieve the GHG emissions reduction target by 2025. Weak candidates struggled to link their analysis of each AO back to these broader, entity-level objectives.

SO#3 (Conclude and Advise)

Candidates were expected to conclude on each issue analyzed, and to provide an overall integrative conclusion that discussed whether WDI should either sell the business now to SDL or forgo SDL's offer in order to make certain investments that would likely increase WDI's value to prospective buyers. These conclusions and recommendations were expected to be consistent with the candidate's analyses.

Almost all candidates provided issue-by-issue conclusions. What differentiated the strong candidates from the weak candidates in SO#3 was the candidate's overall conclusion. Strong candidates had the ability to provide useful advice to WDI's board on how best to proceed with SDL's offer, and whether it made more strategic sense to turn down that offer in order to make investments that would make WDI more valuable to prospective buyers. Strong candidates acknowledged the risks associated with turning down SDL's offer, but also recognized the potential to invest in sustainability-focused projects and how that would likely increase WDI's value. Strong candidates also tended to comment on whether WDI should continue to pursue the GHG emissions reduction incentive, given the recommendations they had made for the other investment options. Weak candidates tended to provide an overall recommendation that simply restated the recommendations they had made for each AO. These candidates failed to recognize how their individual recommendations would have affected the company at a broader level.

SO#4 (Communication)

Most candidates approached their response in a coherent and organized fashion. Only a few candidates struggled to effectively communicate their ideas. These candidates tended to use poor sentence structure, confusing syntax, and an unorganized response approach.

SO#5 (Overall Assessment)

Overall, candidates were expected to meet the minimum acceptable standards in each of the four summative opportunities in order to obtain a "Pass" on the Day 1 linked case. Candidates also had to demonstrate a minimum level of numeracy skills.

For each major issue, candidates were expected to provide a sufficient level of analysis, and then to provide a recommendation that was consistent with their analyses. Candidates were also expected to provide a reasonable discussion of whether it would be best for WDI to sell the business to SDL now or, given the investment options available to WDI, whether WDI should forgo SDL's offer in order to attempt to increase the value of the company to prospective buyers. The board sought evidence that candidates incorporated the important elements of Capstone 1, as well as the main elements of this simulation's situational analysis, into their analysis of the major issues.

APPENDIX K

CPA COMMON FINAL EXAMINATION REFERENCE SCHEDULE

CPA COMMON FINAL EXAMINATION REFERENCE SCHEDULE

1. PRESENT VALUE OF TAX SHIELD FOR AMORTIZABLE ASSETS

Present value of total tax shield from CCA for a new asset acquired after November 20, 2018

$$= \frac{CdT}{(d+k)}\left(\frac{1+1.5k}{1+k}\right)$$

Notation for above formula:
C = net initial investment
T = corporate tax rate
k = discount rate or time value of money
d = maximum rate of capital cost allowance

2. SELECTED PRESCRIBED AUTOMOBILE AMOUNTS

	2021	**2022**
Maximum depreciable cost — Class 10.1	\$30,000 + sales tax	\$34,000 + sales tax
Maximum depreciable cost — Class 54	\$55,000 + sales tax	\$59,000 + sales tax
Maximum monthly deductible lease cost	\$800 + sales tax	\$900 + sales tax
Maximum monthly deductible interest cost	\$300	\$300
Operating cost benefit — employee	27¢ per km of personal use	29¢ per km of personal use
Non-taxable automobile allowance rates		
— first 5,000 kilometres	59¢ per km	61¢ per km
— balance	53¢ per km	55¢ per km

3. INDIVIDUAL FEDERAL INCOME TAX RATES

For 2021

If taxable income is between			Tax on base amount	Tax on excess
\$0	and	\$49,020	\$0	15%
\$49,021	and	\$98,040	\$7,353	20.5%
\$98,041	and	\$151,978	\$17,402	26%
\$151,979	and	\$216,511	\$31,426	29%
\$216,512	and	any amount	\$50,141	33%

For 2022

If taxable income is between			Tax on base amount	Tax on excess
\$0	and	\$50,197	\$0	15%
\$50,198	and	\$100,392	\$7,530	20.5%
\$100,393	and	\$155,625	\$17,820	26%
\$155,626	and	\$221,708	\$32,180	29%
\$221,709	and	any amount	\$51,344	33%

4. SELECTED INDEXED AMOUNTS FOR PURPOSES OF COMPUTING INCOME TAX

Personal tax credits are a maximum of 15% of the following amounts:

	2021	**2022**
Basic personal amount, and spouse, common-law partner, or eligible dependant amount for individuals whose net income for the year is greater than or equal to the amount at which the 33% tax bracket begins	$12,421	$12,719
Basic personal amount, and spouse, common-law partner, or eligible dependant amount for individuals whose net income for the year is less than or equal to the amount at which the 29% tax bracket begins	13,808	14,398
Age amount if 65 or over in the year	7,713	7,898
Net income threshold for age amount	38,893	39,826
Canada employment amount	1,257	1,287
Disability amount	8,662	8,870
Canada caregiver amount for children under age 18, and addition to spouse, common-law partner, or eligible dependant amount with respect to the Canada caregiver amount	2,295	2,350
Canada caregiver amount for other infirm dependants age 18 or older (maximum amount)	7,348	7,525
Net income threshold for Canada caregiver amount	17,256	17,670
Adoption expense credit limit	16,729	17,131

Other indexed amounts are as follows:

	2021	**2022**
Medical expense tax credit — 3% of net income ceiling	$2,421	$2,479
Old age security repayment threshold	79,845	81,761
Annual TFSA dollar limit	6,000	6,000
RRSP dollar limit	27,830	29,210
Lifetime capital gains exemption on qualified small business corporation shares	892,218	913,630

5. PRESCRIBED INTEREST RATES (base rates)

Year	Jan. 1 – Mar. 31	Apr. 1 – June 30	July 1 – Sep. 30	Oct. 1 – Dec. 31
2022	1	1	2	
2021	1	1	1	1
2020	2	2	1	1

This is the rate used for taxable benefits for employees and shareholders, low-interest loans, and other related-party transactions. The rate is 4 percentage points higher for late or deficient income tax payments and unremitted withholdings. The rate is 2 percentage points higher for tax refunds to taxpayers, with the exception of corporations, for which the base rate is used.

6. MAXIMUM CAPITAL COST ALLOWANCE RATES FOR SELECTED CLASSES

Class 1…………………………	4%	for all buildings except those below
Class 1…………………………	6%	for buildings acquired for first use after March 18, 2007 and ≥ 90% of the square footage is used for non-residential activities
Class 1…………………………	10%	for buildings acquired for first use after March 18, 2007 and ≥ 90% of the square footage is used for manufacturing and processing activities
Class 8…………………………	20%	
Class 10………………………	30%	
Class 10.1…………………….	30%	
Class 12……………………….	100%	
Class 13………………………	n/a	Straight line over original lease period plus one renewal period (minimum 5 years and maximum 40 years)
Class 14………………………	n/a	Straight line over length of life of property
Class 14.1…………………….	5%	For property acquired after December 31, 2016
Class 17………………………	8%	
Class 29………………………	50%	Straight-line
Class 43………………………	30%	
Class 44………………………	25%	
Class 45………………………	45%	
Class 50………………………	55%	
Class 53………………………	50%	
Class 54………………………	30%	

The CPA certification program prepares future CPAs to meet the challenges that await them. For more information on the qualification process, the common final examination (CFE), and the specific education requirements for your jurisdiction, contact your provincial/regional CPA body.

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