MOOREVIEW
Management Consulting Inc.

Co-operative Stormwater Management Initiative (CSMI) Business Case Financial Impact Analysis

Rocky View County

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PO Box 24013 – Calgary, AB – T2Y 0J9
(403) 464 – 8832
mmoore@mooreview.ca

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1.0 Document Overview

This technical memo contains a summary of projected financial impact analysis completed by Mooreview Management Consulting (as sub-contracted by Stack'd Consulting), an independent third party, regarding Rocky View County's (RVC) continued participation in the Co-Operative Stormwater Management Initiative (CSMI). This analysis summarizes the key types of financial impacts to both RVC and its constituents associated with RVC's continued participation within CSMI.

The analysis considers a variety of input not only from RVC, but also those of some stakeholders who are associated and impacted by it. This external input includes perspectives from local developers and the Western Irrigation District (WID). It also draws upon current land-use plans for the communities impacted by CSMI, recent financial performance, and recent historical growth as a baseline to forecast forward-looking financial projections.

This technical memo also leverages and builds upon the previous technical memo issued to Rocky View County titled "Co-operative Stormwater Management Initiative (CSMI) Business Case Analysis"[1] issued in January, 2020 wherein an initial business case analysis of qualitative benefits, costs, and risks was summarized.

2.0 Description of Financial Benefits

During initial business case analysis steps, the following types of potential financial benefits to Rocky View County were identified:

1. **Value from Growth:**
    - This potential financial benefit is identified as a result of CSMI enabling future growth within CSMI-impacted RVC communities. It is understood that the management of stormwater across the east side of RVC has been a continuing issue for several years. To this end, it is acknowledged that the establishment of CSMI has produced an agreement between RVC and other impacted stakeholders (including other CSMI municipal partners, the WID, and the Province of Alberta) that growth can continue within CSMI-impacted areas in accordance with (a); current zero stormwater discharge requirements, and (b); longer-term requirements to support the regional CSMI stormwater management infrastructure. Without such a regional agreement established across these partners to manage regional stormwater issues, it is also acknowledged that future growth within these communities may likely be severely curtailed.
    - The specific value to RVC from this growth can be evaluated as the incremental revenues gained from an increased tax base relative to the projected incremental municipal costs to service this growth.
2. **Decrease in Stormwater Pumping Costs:**
    - Across the past decade, areas on the east side of RVC have experienced substantial, localized flooding during heavy precipitation, resulting in significant accumulation of runoff and flooding due to a lack of a natural drainage outlet.

[1] Stack'd Consulting, "Co-operative Stormwater Management Initiative (CSMI) Business Case Analysis", January 27, 2020

Emergency pumping has been necessary to mitigate damage to residential and industrial private property, which has led to damaging and negative downstream impacts to municipal and irrigation infrastructure. To control localized flooding throughout the region and limit further damage to property and structures, RVC has incurred significant yearly costs. This include charges to RVC from the WID to permit this stormwater releases into the WID canal (which are noted as strongly discouraged by the WID).

- A review of historical pumping costs to RVC and current budgeting has estimated that annual pumping costs of approximately $300,000 on average may be incurred[2].

3. **Decrease in Stormwater Infrastructure Costs:**

    - As a result of the perpetual stormwater management issues within the east side of RVC, RVC's capital expenditures for transportation and associated stormwater management infrastructure have incurred additional costs. This type of financial impact has particularly been experienced within RVC's capital budget within its Transportation Department. The result has been added capital infrastructure expenditure associated with capital projects within the CSMI-impacted zone.
    - A review of Transportation's historical capital projects was considered. It is estimated that annual added capital expenditures of approximately $250,000 on average (vs. a total annual average Transportation capital budget of approximately $9 million) may be incurred to specifically deal with the stormwater management issues within the east side of RVC.

In addition, it was noted that a potential financial benefit of CSMI may be extended to its land development constituents. According to an analysis conducted by MPE Engineering[3], land storage area required for current zero-release practices (without low-impact development (LIDS) practices) is approximately 20% to 30% more than the CSMI strategy for residential and industrial development (or approximately 3.7% to 5.5% for development which currently does incorporate LIDs), respectively. This represents a significant reduction in the area of land required to support stormwater management, as even in the case for land which features LIDs it will decrease this area by approximately 50%.

MPE Engineering LTD, Storage Surface Area Results

Development Type	Freeboard Surface Area (% Development)		
	CSMI	Zero Release with LIDs	Zero Release without LIDS
Industrial	4.2%	9.7%	33.2%
Residential	3.7%	7.4%	21.7%

Table 1: Freeboard Surface Area Comparisons

[2] RVC's average annual pumping costs between 2011-2016 was $351,167 (per its application letter to Alberta Environment and Parks in 2016) and $250,000 is currently budgeted in operating costs per year.
[3] MPE Engineering, "Re: Rocky View County Development Comparison", Letter to RVC, January 10, 2020

This ability for CSMI to increase the amount of usable land across both industrial and residential development can result in the value of "unlocked land value". This can be realized from potential increased market valuation of the land, as it reflects the ability for a much higher land utilization rate within the development. Further, this potential increase in the value of the land can be compared to the projected CSMI levies[4] (listed in the bylaw at $5,992 per acre) which are required from developers within the CSMI-impacted communities to approximate a net financial impact.

3.0 Summary of Project Engagement and Analysis

Given the scope of the targeted financial impact analysis (as described in the previous section), a project analytical plan was developed to not only detail the expected type of financial analysis, but also identify the range of supporting background information and input required. This engagement and review included the following project steps:

1. **Engagement with Area Developers:** Interview discussions were held with various representative land developers currently operating within CSMI-impacted communities within RVC. These discussions focused on understanding their current perspective of CSMI and their attitudes towards both current development (within zero-discharge requirements) and longer-term requirements to support CSMI's regional stormwater infrastructure solutions.
2. **Engagement with the WID:** Input was obtained from the WID to understand their perspective on CSMI and typical charges they incur to RVC and landowners to accommodate undesired stormwater discharges into the Western Headworks Canal.
3. **Engagement with RVC Representatives:** Input from a variety of representatives from within RVC was obtained regarding land use planning, recent growth, historical stormwater pumping activities, historical impact of stormwater to Transportation capital budgets, land assessment and tax rates for the various CSMI-impacted communities, and the net value of industrial, commercial and residential growth to RVC (i.e. typical characteristics of tax revenues relative to municipal servicing costs for each type of land development).
4. **Review of RVC Documents and Studies:** A review of publicly available and provided background materials was performed. This included:
    a. CSMI agreement and capital project phasing and municipal capital pro-share documents;
        - *See Appendix A for the current capital cost breakdown for each of the planned stages and as to be allocated across the CSMI's members*
    b. Current RVC Area Structure Plans (and plans currently under review) for CSMI-impacted communities;
    c. Previous RVC studies and documents focused on (a); land assessment per acre rates and developable land per RVC communities, and (b); the relative value of growth across industrial, commercial, and residential land uses;

[4] Rocky View County, "BYLAW C-8008-2020", Updated January 2020

d. Current tax mill rates;

e. Recent CSMI levies collected; and

f. Current and recent RVC operating and capital budgets.

5. **Financial Impact Analysis:** Based on the inputs received and type of financial impact, a financial projection model was developed to analyze the potential long-term financial benefits from RVC continuing to participate in CSMI. This included a series of iterative adjustments and sensitivity analysis to priority input variables. This analysis was presented and confirmed with internal RVC project team members prior to finalization.

4.0 Key External Input Obtained

During the project, external stakeholder input was obtained from area developers and the WID regarding their views on current stormwater management issues, CSMI, CSMI's impact to their attitudes towards future development opportunities, and other key issues and / or points of feedback as noted. This section highlights some of the more noteworthy input obtained. This includes the following:

i. All external stakeholders agree that current stormwater management issues on the eastern side of Rocky View County present significant development challenges:

- The degree of land required to support stormwater management is viewed as a significant detriment;
- Depending on the development type, this reduced amount of land area can have a direct financial impact (e.g. storage facility, warehousing, and supply chain logistics industries);
  - However, it is noted that these requirements are now considered in the acquisition costs for land in this area.
- Current stormwater issues and risks of localized flooding add risk *(both to the development itself and the developer's reputation)* to development opportunities which has to be factored in.

ii. Any stormwater releases into the WID canal to alleviate current stormwater management issues are viewed as undesirable;

iii. Longer-term, the prospect of a stormwater management solution which CSMI promises is viewed favorably. However, there were current and near-term issues noted with it, including:

- The timeline that CSMI will be developed is questioned – developers do not feel they can reliably plan on when CSMI benefitting infrastructure will be developed;
- The uncertainty on timing on when CSMI infrastructure will be established adds further risk to their development opportunities;
- Short-term, developers still need to abide by zero release protocols and contribute to CSMI levies without receiving any corresponding benefit; and

- Some developers may desire having flexibility to explore alternative site-specific stormwater management solutions instead of the CSMI regional solution.

5.0 Projected Financial Impact Analysis

This section summarizes the key assumptions and financial impact analysis developed for each type potential financial benefit as described in Section 2.

5.1 Key Assumptions

This section lists the key assumptions used to guide the financial impact projections:

i. Future growth per community would effectively be zero should RVC not participate in CSMI (or equivalent regionally approved stormwater management program);

ii. The rate of development across all RVC CSMI-impacted communities will be approximately 367 acres/yr.;

- *This was estimated based on the original CSMI development timeline of 25 years*

iii. Future growth is expected to increase at an annual growth rate of approximately 1.74%[5];

iv. The CSMI infrastructure will be immediately developed in its planned stages upon receipt of sufficient levies (as per the projected development growth rate calculated in items i. and ii. above);

v. Growth by community and type of development will occur as per the following table across near-term (2020-2024), medium-term (2025-2029), and long-term (2030 and beyond) as noted based on input from RVC representatives and review of current land-use planning documentation:

[5] Rocky View County, "County Growth Report & Residential Land Inventory", Policy and Priorities Committee, July 4, 2017

2020-2024 Growth Forecast	Total	Industrial	Commercial	Residential
Janet	**40.00%**	87.5%	12.5%	0.0%
Conrich	**20.00%**	59.4%	16.8%	23.8%
Langdon	**40.00%**	9.2%	30.2%	60.6%
Omni	**0.00%**	48.4%	51.6%	0.0%
Totals:	**100.00%**	**50.56%**	**20.44%**	**29.00%**

2025-2029 Growth Forecast	Total	Industrial	Commercial	Residential
Janet	**40.00%**	87.5%	12.5%	0.0%
Conrich	**25.00%**	59.4%	16.8%	23.8%
Langdon	**30.00%**	9.2%	30.2%	60.6%
Omni	**5.00%**	48.4%	51.6%	0.0%
Totals:	**100.00%**	**55.03%**	**20.84%**	**24.13%**

2030+ Growth Forecast	Total	Industrial	Commercial	Residential
Janet	**30.00%**	87.5%	12.5%	0.0%
Conrich	**30.00%**	59.4%	16.8%	23.8%
Langdon	**20.00%**	9.2%	30.2%	60.6%
Omni	**20.00%**	48.4%	51.6%	0.0%
Totals:	**100.00%**	**55.59%**	**25.15%**	**19.26%**

Table 2: Assumed Growth as a Percentage of Total Across CSMI-Impacted Communities

In addition, it was assumed that the average residential development would feature 4 units per acre[6].

vi. Future cash flows will be impacted by an annual 2% inflation / CPI rate;

vii. RVC's discount rate (for evaluating the value of future cash flows) is 3.5%;

viii. RVC will achieve and maintain a desired 65% vs. 35% split between residential vs. non-residential development (across the County). With this split, the following additional assumptions are made:

- For each dollar of municipal servicing costs required to support residential growth, RVC will obtain $0.60 in tax revenues for each $1.00 in municipal servicing costs incurred (per the 2009 Cost of Services Study[7]); and
- At that level, RVC will need to obtain $1.74 in tax revenues for each $1.00 in municipal servicing costs incurred to support non-residential growth[8].

ix. Current tax mill rates for residential and non-residential properties will continue as current;

[6] Rocky View County, "Area Structure Plan LANGDON", Approved May 2016, Bylaw C-7564-2016
[7] ISL Engineering and Land Services and Nichols Applied Management, "Cost of Services Study: Final Report", 2009
[8] This is noted as a conservatively low estimate, as in 2017 Stack'd Consulting used an estimate of 180% per RVC Administration input in its report "Langdon WWTP Facility Upgrade Financing Alternatives", 20917. Further, the 2009 Cost of Services Study by ISL and Nichols found that light industrial, un-serviced growth typically provided a tax revenue surplus of 280% while serviced commercial growth provided a tax revenue surplus of 585%

x. The average assessment value per type of development within each community is summarized in the table below (based on a review of current assessment values[9] per type of development):

Community	Industrial $/acre	Commercial $/acre	Residential $/unit
Janet	$864,263	$308,040	N/A
Conrich	$1,461,077	$216,856	$738,534
Langdon	$1,585,000	$759,666	$465,458
Omni[10]	$845,054	$1,144,449	N/A

Table 3: Assumed Average Assessment Values per Community by Development Type

5.2 Value of Growth Projections

This section summarizes the financial impact projections for each of Janet, Conrich, Langdon, and Omni based on the assumptions above.

5.2.1 Janet Growth Projections

The base average annual rate of development for Janet for 2020 was projected to be:

- Industrial: 131 acres/yr
- Commercial: 19 acres/yr
- Residential: 0.0 acres/r

Based on projection assumptions per Table 2, these development growth rates were projected to continue across 2020-2029. Longer-term (i.e. 2030 and beyond), this was projected to decrease to 117 acres/yr for industrial and 17 acres/yr for commercial development.

Based on this development, assessed values, tax mill rates, and required cost of servicing, the projected financial impact for 2020 was:

- Incremental Industrial Annual Tax Revenues: $850,667
- Incremental Commercial Annual Tax Revenues: $43,313
- Incremental Municipal Cost of Service: $512,939
- **Incremental Value of Growth (1st year impact): $381,041**

In addition, a 25-year financial forecast of the annual financial impact of growth was performed across 2020 – 2044. A present value calculation across the annual cash flows was found to be approximately **$73.1 million** (or approximately $2.9 million average present value per year across this projection duration).

5.2.2 Conrich Growth Projections

The base average annual rate of development for Conrich for 2020 was projected to be:

- Industrial: 44 acres/yr

[9] Rocky View County, "ASP – AREAS for Joseph.xls", Received September 2020
[10] Omni assessment values estimated based on those itemized for East Balzac

- Commercial: 13 acres/yr
- Residential: 18 acres/r

Based on projection assumptions per Table 2, these development growth rates were projected to continue across 2020-2024. Across 2025-2029, they were projected to be approximately 25% greater than the 2020-2024 development rate. Further, they were projected to increase an additional 25% from 2030 and beyond relative to the 2025-2029 development rate.

Based on this development, assessed values, tax mill rates, and required cost of servicing, the projected financial impact for 2020 was:

- Incremental Industrial Annual Tax Revenues: $488,129
- Incremental Commercial Annual Tax Revenues: $20,491
- Incremental Residential Annual Tax Revenues: $133,386
- Incremental Municipal Cost of Service: $514,142
- **Incremental Value of Growth (1st year impact): $127,865**

In addition, a 25-year financial forecast of the annual financial impact of growth was performed across 2020 – 2044. A present value calculation across the annual cash flows was found to be approximately **$33.8 million** (or approximately $1.4 million average present value per year across this projection duration).

5.2.3 Langdon Growth Projections

The base average annual rate of development for Langdon for 2020 was projected to be:

- Industrial: 14 acres/yr
- Commercial: 45 acres/yr
- Residential: 91 acres/r

Based on projection assumptions per Table 2, these development growth rates were projected to continue across 2020-2024. Across 2025-2029, they were projected to be approximately 25% lower than the 2020-2024 development rate. Further, they were projected to decrease an additional 33% from 2030 and beyond relative to the 2025-2029 development rate.

Based on this development, assessed values, tax mill rates, and required cost of servicing, the projected financial impact for 2020 was:

- Incremental Industrial Annual Tax Revenues: $164,030
- Incremental Commercial Annual Tax Revenues: $258,069
- Incremental Residential Annual Tax Revenues: $428,101
- Incremental Municipal Cost of Service: $955,689
- **Incremental Value of Growth (1st year impact): -$105,490**

In addition, a 25-year financial forecast of the annual financial impact of growth was performed across 2020 – 2044. A present value calculation across the annual cash flows was found to be

approximately **negative $15.7 million** (or approximately -$0.63 million average present value per year across this projection duration).

5.2.4 Omni Growth Projections

Based on projection assumptions per Table 2, it was assumed that Omni would not start any significant development across 2020-2024. Upon 2025, average annual rate of development for Omni was projected to be:

- Industrial: 10 acres/yr
- Commercial: 11 acres/yr
- Residential: 0 acres/r

Based on longer-term development projections, these development rates were projected to increase by approximately 300% for 2030 and beyond as compared to the 2025-2029 development rates.

Based on this development, assessed values, tax mill rates, and required cost of servicing, the projected financial impact for 2025 was:

- Incremental Industrial Annual Tax Revenues: $62,691
- Incremental Commercial Annual Tax Revenues: $90,515
- Incremental Municipal Cost of Service: $87,905
- **Incremental Value of Growth (1st year impact): $65,301**

In addition, a 25-year financial forecast of the annual financial impact of growth was performed across 2020 – 2044. A present value calculation across the annual cash flows was found to be approximately **$21.1 million** (or approximately $0.84 million average present value per year across this projection duration).

5.3 Value of Reduced Pumping Costs

This section summarizes the financial impact projections for reduced pumping costs which are anticipated due to completion of the following stages of the CSMI infrastructure:

- Stage 1-S: 25% reduced pumping vs. current
- Stage 1-N: 25% reduced pumping vs. current
- Stage 3-S: 25% reduced pumping vs. current
- Stage 3-N: 25% reduced pumping vs. current

Based on the projected impact of the CSMI infrastructure, it was assumed that pumping costs are, on average, distributed equally across the north vs. south catchments for the CSMI development. It was further assumed that completion of Stage 1 would achieve a 50% savings in pumping costs, with the remainder achieve via completion of Stage 3.

As above, it is assumed that approximately 25% of the total pumping costs can be reduced via completion of the above-noted stages of CSMI. Based on the current growth rate and collection of CSMI levies, these stages are projected to completed during the following years:

- Stage 1-S: 2020
- Stage 1-N: 2023
- Stage 3-S: 2036
- Stage 3-N: 2045

Based on the scheduled completion dates for each stage and the anticipated reduction in current pumping costs, an annual differential cash flow projection was developed across 2020-2044. From this, a 25-year present value calculation of **$3.7 million** across this projection duration was determined (or approximately $0.15 million average present value per year).

5.4 Value of Reduced Transportation Capital Expenditures

This section summarizes the financial impact projections for reduced Transportation capital expenditures due to reduced stormwater issues which are anticipated due to completion of the following stages of the CSMI infrastructure:

- Stage 1-S: 25% reduced capital expenditure vs. current
- Stage 1-N: 25% reduced capital expenditure vs. current
- Stage 3-S: 25% reduced capital expenditure vs. current
- Stage 3-N: 25% reduced capital expenditure vs. current

It is further assumed that the stages of CSMI would be completed as per the schedule detailed in Section 5.3 (with similar assumptions for how the completion of each Stage would impact total capital expenditure savings). Based on this projected scheduled and anticipated savings, an annual differential cash flow projection was developed across 2020-2044. From this, a 25-year present value calculation of **$3.1 million** across this projection duration was determined (or approximately $0.12 million average present value per year).

5.5 Summary Value of Projected Financial Impacts to RVC

Based on the individual projected financial impacts per the above sections, a summary table is provided below:

Item		25 Yr PV	Avg. 25-Yr PV/Yr
Tax Base vs Servicing Cost Impact:		$ 112,318,832	$ 4,492,753
	Janet	$ 73,130,071	$ 2,925,203
	Conrich	$ 33,817,000	$ 1,352,680
	Langdon	-$ 15,719,530	-$ 628,781
	OMNI	$ 21,091,291	$ 843,652
Pumping Costs		$ 3,736,421	$ 149,457
Transportation Stormwater CAPEX		$ 3,113,933	$ 124,557
Total PV Impact:		**$ 119,169,186**	**$ 4,766,767**

Table 4: Summary of Present Value Financial Impact Projections

As per Table 4, the total financial impact across the 2020-2044 projection duration was calculated to be approximately $119 million (or $4.8 million per year on average). This can be compared to the required CSMI capital expenditure across this same horizon by RVC of approximately $43.7 million (noted to be funded through CSMI levies by land developers). As

such, it can be seen that the projected 25-year present value of financial benefits are approximately 172% more than the capital investment required.

5.6 Impact of Slower CSMI Development Timeline

During development of the financial projections, it was noted that the total CSMI levies obtained across 2017-2019 was approximately $1.54 million (or $0.51 million per year on average). It is noted that this is significantly less than the annual totals estimated to realize the original 25 year CSMI development timeline, and represents an annual total of approximately 86 acres/yr (as opposed to the 367 acres/yr estimated to support the financial analysis in Sections 5.2-5.4, or 77% less CSMI levies).

Sensitivity analysis was performed to project the impact of this slower development rate. At this reduced development rate, CSMI's Stage 3-N would not be completed until 2070. The 25-year present value of the projected net financial benefits to RVC were updated and summarized in Table 5 below:

Item		25 Yr PV	Avg. 25-Yr PV/Yr
Tax Base vs Servicing Cost Impact:		$ 26,234,499	$ 1,049,380
	Janet	$ 17,085,064	$ 683,403
	Conrich	$ 7,900,520	$ 316,021
	Langdon	-$ 3,893,615	-$ 155,745
	OMNI	$ 5,142,529	$ 205,701
Pumping Costs		$ 2,061,111	$ 82,444
Transportation Stormwater CAPEX		$ 1,717,730	$ 68,709
Total PV Impact:		**$ 30,013,340**	**$ 1,200,534**

Table 5: Impact of Slower CSMI Development Timeline

The results of this slower CSMI development timeline show that the 25 year present value of financial benefits gained from increased tax base relative to municipal servicing costs, reduced pumping costs, and reduce Transportation capital expenditures is projected to be approximately $30 million (or approximately $1.2 million per year on average). This is approximately $89.2 million (or 75%) less than the base case analysis presented in Sections 5.2-5.4.

It is further noted that this alternative may also present additional negative impacts to the development community who are pursuing development opportunities in the eastern side of Rocky View County. An extended CSMI development timeline presents a higher level of uncertainty and risk on when current stormwater management issues will be resolved, which adds higher levels of risk to their development opportunities. This higher level of risk and uncertainty may consequently delay or decrease future development rates.

5.7 Potential Impact to Unlocked Value of Land

Additionally, it was noted that CSMI (once established) can enable development to further utilize a greater percentage of its land instead of the requirement to ensure zero stormwater discharges (either by low impact development practices or large stormwater ponds). Based on this, a high-level analysis was performed to estimate the potential value of the land which can be unlocked by CSMI. This was performed using the same current assessment values per type of development across each CSMI-impacted community and a comparison in the amount of unlocked land which CSMI can enable relative to development which incorporates low-impact development practices.

Based on this high-level analysis, the following table is provided:

Community	Development	Total Land (acres)	Total Unlocked Land (acres) vs. Zero Release with LIDs	Current Assessment Value ($/acre)	Assessed Value of Unlocked Land ($)
Janet	Industrial	3500	192.5	$ 864,263	$ 166,370,662
	Commercial	500	27.5	$ 308,040	$ 8,471,103
	Residential	0	0	0	$ -
				Janet Total:	**$ 174,841,766**
Conrich	Industrial	5160	283.8	$ 1,461,077	$ 414,653,630
	Commercial	1459	80.245	$ 216,856	$ 17,401,631
	Residential	2066	76.442	$ 738,534	$ 56,455,038
				Conrich Total:	**$ 488,510,299**
Langdon	Industrial	205	11.275	$ 1,585,000	$ 17,870,875
	Commercial	670	36.85	$ 759,666	$ 27,993,705
	Residential	1346	49.802	$ 465,458	$ 23,180,716
				Langdon Total:	**$ 69,045,296**
Omni	Industrial	620	34.1	$ 845,054	$ 28,816,355
	Commercial	660	36.3	$ 1,144,449	$ 41,543,481
	Residential	0	0	0	
				Omni Total:	**$ 70,359,836**
				CSMI Impact Area Total:	**$ 802,757,196**

Table 6: Summary Value Projection from Unlocked Land

Based on this analysis, it is estimated that, at current assessment values and based on the estimated area of developable land within each community, CSMI can represent an approximate increase in value of $803 million. It is noted that the full capital cost of CSMI to RVC developers is scheduled to be approximately $74.3 million.

It is acknowledged that the high-level analysis summarized in Table 6 does not factor in the time value of money and differences in timing between when developer levies are due versus when the incremental value in land can be achieved (based on completion of the CSMI infrastructure). To better estimate the potential financial impact to developers who operate in these communities, projections on the incremental land value unlocked by CSMI relative to the CSMI off-site levies and CSMI infrastructure construction schedule were developed. Present value calculations were developed based on the following assumptions:

- The incremental value of land unlocked by CSMI can only be achieved upon completion of the CSMI Phase 3 infrastructure;
- The current assessment values per acre of land per community can be used to estimate future market values;

- CSMI infrastructure is developed according to its planned 25-year timeline;
- Land in each community is developed per the schedule in Table 2;
- The incremental value of land assumes the difference between CSMI versus land now developed under zero-release protocols which already incorporate LIDs, and
- An average weighted average cost of capital for developers of 6.04%[11] was used to discount the annual cash flows.

Analysis was performed to calculate the net present value of the unlocked value of land in each community both immediately upon completion of the CSMI Phase 3 infrastructure and upon full CSMI project completion (assumed to be 2045). In addition, analysis was performed to identify the internal rate of return (i.e. the rate of return upon which the future value of the unlocked land relative to the CSMI offsite levy investments) for the developments both for each community and as a weighted average across all communities. The following table summarizes this analysis:

Community	NPV @ Phase 3	NPV @ Full CSMI Completion	IRR @ Full CSMI Completion
Janet	$ 32,973,621	$ 25,052,368	13.21%
Conrich	$ 32,825,322	$ 32,040,186	16.63%
Langdon	$ 16,888,638	$ 6,409,738	9.26%
Omni	$ 13,294,419	$ 12,212,431	20.89%
Sum	**$ 95,981,999**	**$ 75,714,723**	**15.56%**

Table 7: Summary of NPV Analysis of Unlocked Value of Land

Based on this analysis, it is estimated that a total net present value of approximately $96 million can be achieved upon the completion of the CSMI Phase 3 infrastructure. This is reduced to approximately $76 million upon the final completion of the full CSMI infrastructure. The values of internal rate of return at full CSMI completion ranges across the communities from 9.26% - 20.89%, with a total weighted average of 15.56%. This shows a positive return for developers in each community under CSMI development and community build-out scenario.

6.0 Conclusions

Based on the financial impact projection analysis performed, it is anticipated that through continued participation within CSMI RVC and its constituents will realize a positive net financial benefit.

The total projected impact to RVC across 2020 – 2044 based on the itemized assumptions was calculated to be approximately $119 million (or $4.8 million per year on average). Compared to the required CSMI capital expenditure (as funded through CSMI levies) across this same horizon by RVC of approximately $43.7 million, this holds the potential to return 172% more than the capital investment required.

An alternative CSMI development projection was modeled similar to RVC's rate of CSMI levies obtained across 2017-2019, which were approximately 77% less than those estimated in the original CSMI development timeline. The impact of this slower CSMI development timeline

[11] Aswath Damodaran, NYU Stern School of Business, "Cost of Capital by Sector", http://people.stern.nyu.edu/adamodar/New_Home_Page/datafile/wacc.htm, January 5, 2020,

resulted in a 25-year present value of approximately $30 million, or 75% less than that calculated assuming the original 25-year CSMI development timeline.

Additionally, the potential increase in value of the land through unlocking its utilization (through a reduction in total area required to accommodate zero stormwater discharges without CSMI) represents an approximately assessed value of $803 million (relative to the full CSMI off-site levy funding requirements for RVC of $74.3 million). Based on high-level net present value calculations, it was further estimated that developers can realize a positive investment at the point of full CSMI infrastructure completion of approximately $76 million (or equivalently a 15.56% rate of return).

Given these potential gains, it is recommended that RVC continue to participate in the CSMI initiative or equivalent regional stormwater management agreement.

Appendix A: CSMI Capital Pro-Share Plan

Through the CSMI partnership, RVC benefits through cost sharing mechanisms with the other municipalities based on a Municipal Pro Share Contribution that has been outlined in the Master CSMI Agreement. It is important to note that the Municipal Pro Share is subject to change based on the participation of each member municipality involved in the agreement. Costs are to be paid out by each municipality according to the staged development of CMSI infrastructure over a projected 25-year period. In addition to staged development costs, other costs include planning and implementation, development of naturalized retention ponds, Serviceberry and Hartell improvements, Low Impact Development (LID) research, and rural best management practices.

	City of Chestermere	City of Calgary	Rocky View County	Wheatland County	Town of Strathmore	Total
25 Year Absorption (ha)	0	450	3965	364	107	4886
Stage						
1		$ 1.66	$ 9.70		$ 0.20	$ 11.56
2		$ 1.91	$ 15.01		$ 0.72	$ 17.64
3		$ 3.71	$ 18.94			$ 22.65
4		$ 0.51	$ 4.49			$ 5.00
5						$ -
Naturalized Retention Ponds		$ 1.08	$ 9.52	$ 0.87	$ 0.26	$ 11.73
Hartell Improvements		$ 1.03	$ 9.08	$ 0.83		$ 10.95
ServiceBerry Improvements		$ 0.28	$ 2.49	$ 0.23	$ 0.07	$ 3.07
LID Research		$ 0.18	$ 1.62	$ 0.15	$ 0.04	$ 1.99
Rural BMPs		$ 0.33	$ 2.91	$ 0.27	$ 0.08	$ 3.59
Planning & Implementation		$ 0.08	$ 0.55	$ 0.02	$ 0.01	$ 0.66
Total Capital Costs (Millions)		$ 10.77	$ 74.31	$ 2.37	$ 1.38	$ 88.83
% (Area)		9.2%	81.2%	7.4%	2.2%	100.0%
% (Cost)		12.1%	83.7%	2.7%	1.5%	100.0%

Table 8: Projected CSMI Capital Costs

According to these projections, RVC's capital funding portion is projected to be ***approximately $74.3 million*** across 25 years (i.e. 2018-2042).