

Town of Stony Plain

Cemetery Master Plan

URBAN
SYSTEMS



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Executive Summary

The Town of Stony Plain does not currently have a municipal cemetery and examining the need for one was identified as a priority in the Town's Strategic Plan. A Cemetery Needs Assessment and Business Plan was completed in 2016, and Council decided that the Town would pursue the acquisition and operation of a municipal cemetery. Recently, a site for the cemetery has been acquired.

This report provides a Master Plan for Stony Plain's future cemetery and outlines projected interment needs, a site analysis, cemetery concept plan, business plan, and implementation plan. This is the first step in the process of establishing the cemetery on the acquired site.

The land originally identified for the cemetery project was a 31 ha parcel jointly owned by the Town and Parkland County. A decision was made to subdivide the parcel into two lots, with the 11.2 ha south portion to be owned by the Town for the cemetery.

In 2019, the Town received funding from the Province of Alberta through the Municipal Sustainability Initiative (MSI) for the capital development of Phase 1 of the cemetery. Urban Systems was contracted to prepare the Master Plan and detailed design. The cemetery planning process solicited community input through a survey and open house workshop.

The cemetery needs from 2016 were updated based on slower population growth and new cemetery trends. The planning process included analysis of the environment, stormwater, and servicing. Two concept plan options were presented to Town staff from multiple departments and refined into a preferred concept plan.

The following are the cemetery objectives based on the site analysis and community input:

- Design the cemetery as an appealing, attractive, and spiritual place
- Retain and follow the natural topography of the site where possible
- Use universal design principles (accessible to all)
- Protect and enhance the natural environment
- Provide a variety of interment options to address multiple cultures and faiths and a range of costs
- Provide opportunities for contemplation, walking, sitting, and gathering
- Design the site with consideration for future servicing and maintenance needs

The preferred concept plan features a full range of interment services based on community interest, a hilltop viewpoint, loop roads, trails, screening of the neighbouring residence, a maintenance yard, and space for a future building.

The Class C cost estimate for capital development of Phase 1, with contingency, is around \$2 million, with an additional \$1.2 million identified for potential optional features.

Future revenues are estimated based on Low and Medium population growth scenarios, and fees similar to comparable communities (average) or Edmonton (high). Costs are projected for the Town to operate the cemetery. This requires two full-time maintenance staff and the purchase of dedicated machinery plus various other staff and expenses.

Cemetery revenues are less than estimated in the 2016 Needs Assessment, primarily due to significantly lower population growth forecasts. Cemetery operations and maintenance costs are substantially higher due to staff and equipment needs determined by Town staff, particularly the need for two FTEs from the outset and dedicated equipment for the cemetery. This results in the need for a significant subsidy from the Town to cover annual operations and maintenance costs.

In scenario 1, low population growth and average fees, an initial Town subsidy of 75% of operating costs will steadily decrease to 54% in over 30 years. In scenario 2, low population growth and high fees, an initial subsidy of 53% will decrease to 14%. In scenario 3, medium population growth and high fees, an initial subsidy of 54% will decrease over 30 years to 5%.

There may be ways to reduce maintenance costs, and thereby the subsidy, through different approaches to maintenance by Town staff and/or by involving a contractor for a portion of the maintenance. There are two options worthy of exploration. One is the use of Town parks crews for ongoing maintenance of the cemetery site. This would require a review of staff work descriptions and union considerations. The other option is the use of a contractor for interments.

Software will be needed to track cemetery finances and interments. A preliminary analysis of software suggests that the Town would likely be served best by adapting existing software to serve cemetery management needs.

The key next steps include confirming cemetery fees, exploring opportunities for maintenance by a contractor, setting up Town services, and preparing a Cemetery Bylaw. To advance construction, approvals from the Province and detailed design are the next stages.

1.0 Introduction

1.1 Project Overview

The Town of Stony Plain does not currently have a municipal cemetery and examining the need for one was identified as a priority in the Town's Strategic Plan. A Cemetery Needs Assessment and Business Plan was completed in 2016, and Council decided that the Town would pursue the acquisition and operation of a municipal cemetery. Recently, a site for the cemetery has been selected.

This report provides a Master Plan for the future cemetery and outlines projected interment needs, a site analysis, cemetery concept plan, business plan, and implementation plan. This is the first step in the process of establishing the cemetery on the acquired site. Once the master plan is approved by Council, the next implementation steps will include detailed design and establishing the administration framework, policies, staff, equipment, software, and procedures for operating a municipal cemetery.

1.2 Planning Process

Prior to engaging Urban Systems to complete a Master Plan, the Town hired Thurber Engineering to conduct a hydrogeological assessment to investigate the suitability of the site for a cemetery. Thurber confirmed that the site meets the Alberta Health Services (AHS) site selection requirements for cemetery development. The Town has received provisional approval from the Province as required in the Alberta Cemetery Act Regulation.

The land originally identified for the cemetery project was a 31 hectare (ha) parcel jointly owned by the Town and Parkland County. In the early stages of work on the master plan, it was found that the entire site would likely not be required for cemetery development 100 years or so. A decision was made to subdivide the parcel into two lots, with the 11.2 ha south portion to be owned by the Town for the cemetery. Subdivision and establishing a final land agreement between the municipalities is underway.

In 2019, the Town received funding from the Province of Alberta through the Municipal Sustainability Initiative (MSI) for the capital development of Phase 1 of the cemetery. Urban Systems was contracted to prepare the Master Plan and detailed design.

A thorough planning process was conducted including reviews of the environment, stormwater, and utilities. The needs assessment from 2016 was updated based on recent demographic trends and population projections. Objectives and program requirements for the proposed cemetery were identified. Two concept options were then prepared for the cemetery site.

A preferred concept plan was generated based on comments from Town staff, and this concept was presented to the public at an open house and through an online survey. Based on feedback received from elected officials, Town staff, and the public, the concept plan was further refined.

2.0 Community Input

2.1 Survey

An online survey was used to collect input on community members' cemetery needs, and their interest in potential cemetery services and design features at Stony Plain's new cemetery (**Appendix A**). The survey was available from January 7 to February 5, 2020 and was completed by 173 community members. Key feedback from the survey is summarized below, and a complete summary of all survey responses is available from the Town of Stony Plain.

Survey participants were encouraged to answer demographic questions to provide an understanding of their connections to Stony Plain and the degree to which the age range of participants was reflective of the age range of the community. Eighty-four percent of respondents resided in Stony Plain, and 13% lived in rural areas near Stony Plain. The majority of respondents had lived in Stony Plain for between five and 20 years and ranged in age from 21 to 80 years old.

Almost three-quarters of survey participants reported that their remains are most likely to be cremated after they pass away. Fourteen percent of participants reported that their remains are likely to be buried and 15 percent said they were not sure what would happen to their remains.

More than half of the respondents reported that they would very likely have their remains placed at the Stony Plain Cemetery, with another 22% stating that they were not sure.

When asked to rank their level of interest in different cemetery services, participants expressed the most interest in a columbarium, followed by cremated remains burial plot, a family columbarium and then green burial with an individual marker. All cemetery services were of interest to respondents, with one of the least popular choices being full casket burial.

Nineteen percent of survey respondents indicated that they were receptive to consecutive double depth burials and 37% indicated that they would be open to double depth burial if they could purchase the plot. Survey respondents were also asked about their interest in additional design features at the cemetery. The design features that received the highest rankings (in order of descending priority) were a hilltop viewpoint, washrooms, and tree planting.

Survey respondents were shown the draft preferred concept plan for the cemetery and asked to provide their feedback on the design. Ten respondents indicated that they liked it/the plan looked good, while nine stated that it was unnecessary to build a cemetery. Many of the comments received were positive.

2.2 Open House

On January 14, 2020, 18 members of the public attended an open house, that included a workshop, to provide feedback on the proposed cemetery design. In general, residents appreciated the Town's initiative on the project and many of the questions raised were answered during the open house session. The input focused on the impacts on immediate neighbours and detailed comments on cemetery services and the design. There were no major themes.



3.0 Cemetery Needs

The population and needs forecast for the municipal cemetery has been updated from the 2016 Needs Assessment and Business Plan to reflect new information on population growth and recent trends related to interment options. Projections of cemetery needs are typically for 30 years because it is very difficult to project beyond that time frame.

3.1 Population Projections

The demand for cemetery services is projected through the following steps:

- Calculating population projections
- Identifying and projecting mortality rates
- Determining the “disposition” (burial or cremation) of projected deaths
- Projecting how many of the interments (burial and cremation) will be directed to a municipal cemetery in Stony Plain

Approach

Two population forecasts are provided based on the Low and Medium growth scenarios for 2017 to 2037 provided in the Town of Stony Plain Population and Employment Forecast¹ and confirmed through discussions with Town staff. The process for preparing the projections was as follows:

- Review the Low, Medium and High growth scenarios in the Stony Plain Population and Employment Forecast and determine the Low growth scenario is the most conservative approach as it provides the Town with the highest level of certainty when planning for ongoing operations and maintenance costs. The Medium growth scenario is also a realistic option as it results in a modestly higher population. The High growth scenario may result in over-projecting demand, which could result in lower revenues than projected, placing a higher burden on the Town to cover operating costs. Operations and maintenance costs will remain relatively unchanged regardless of how many interments are conducted until new areas of the cemetery are opened; therefore, higher demand will result in more interments that will help to cover ongoing costs. Both the Low and Medium growth scenarios are presented to show how interment demand differs based on population growth.
- Review the Government of Alberta Population Projections by age cohort for Spruce Grove and Stony Plain, 2006 - 2047².
- Extend the Alberta Population Projections by age cohort from 2047-2051 using a ‘simple exponential smoothing’ forecast function in Excel (ETS)³.
- Apply the projected breakdown of population by age cohort based on the Alberta Population Projections to the total population projections for Stony Plain and compare to the reported population of Stony Plain by age cohort based on the 2006, 2011 and 2016 Census profiles to confirm accuracy.

1. Town of Stony Plain Population and Employment Forecast Final Report by Applications Management Consulting Ltd., Dec 28, 2018.

2. Government of Alberta Interactive Health Data Application (IHDA) Population Projections by Local Area – Both Sexes

3. Exponential smoothing predicts future values (population by cohort) using a weighted sum of past values. It uses an exponentially decreasing weight for past observations.

Results

The Low growth scenario is based on an average annual growth rate of 1% and projects the population of Stony Plain will reach approximately 24,500 by 2051. The Medium growth scenario is based on an average annual growth rate of 1.6% resulting in a population of approximately 29,700, or 5,200 more people than the Low growth scenario for the same time period.

The projected population under each growth scenario is shown below (Table 3-1) in 10-year increments by consolidated age groupings, and in graph form in Tables 3-2 and 3-3.

Table 3-1: Stony Plain Population Projections by Consolidated Age Groupings

Age Cohort	Low Growth Scenario				Medium Growth Scenario			
	2022	2031	2041	2051	2022	2031	2041	2051
<25	5,779	6,083	6,220	6,699	5,883	6,531	7,086	8,097
25-44	5,640	5,602	6,023	6,726	5,741	6,015	6,861	8,129
45-64	4,285	4,897	5,820	6,250	4,362	5,257	6,630	7,554
65+	2,678	3,523	4,146	4,854	2,726	3,782	4,723	5,867
Total	18,383	20,105	22,208	24,529	18,712	21,586	25,299	29,648

Table 3-2: Stony Plain Population Projection to 2051 by Consolidated Age Groupings
Low Growth Scenario

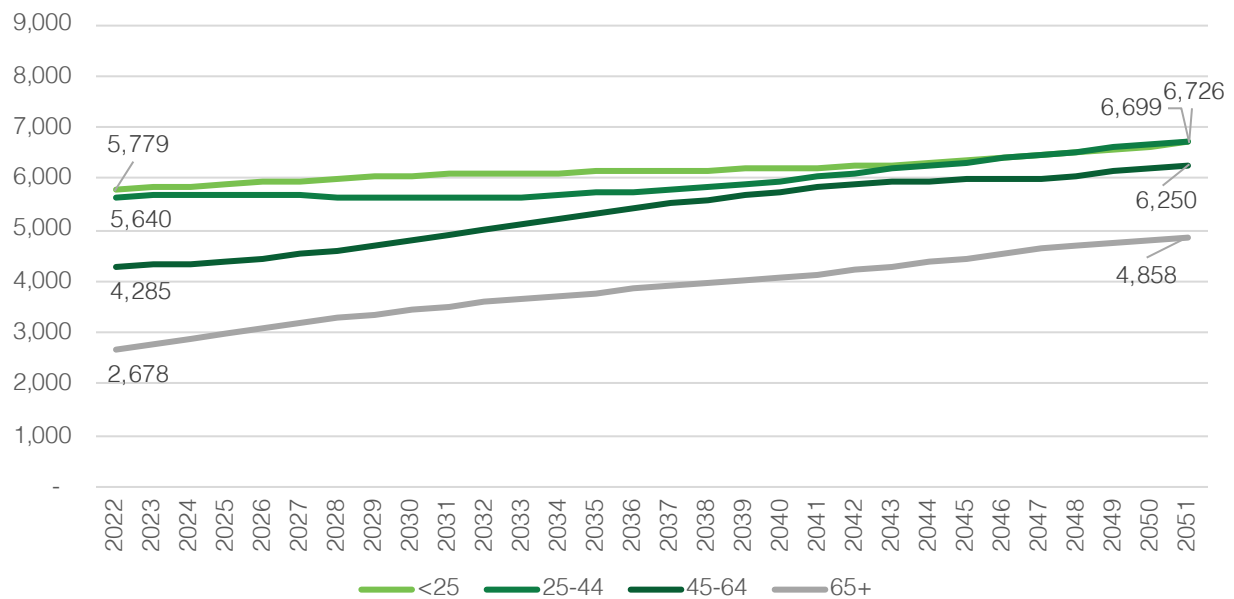
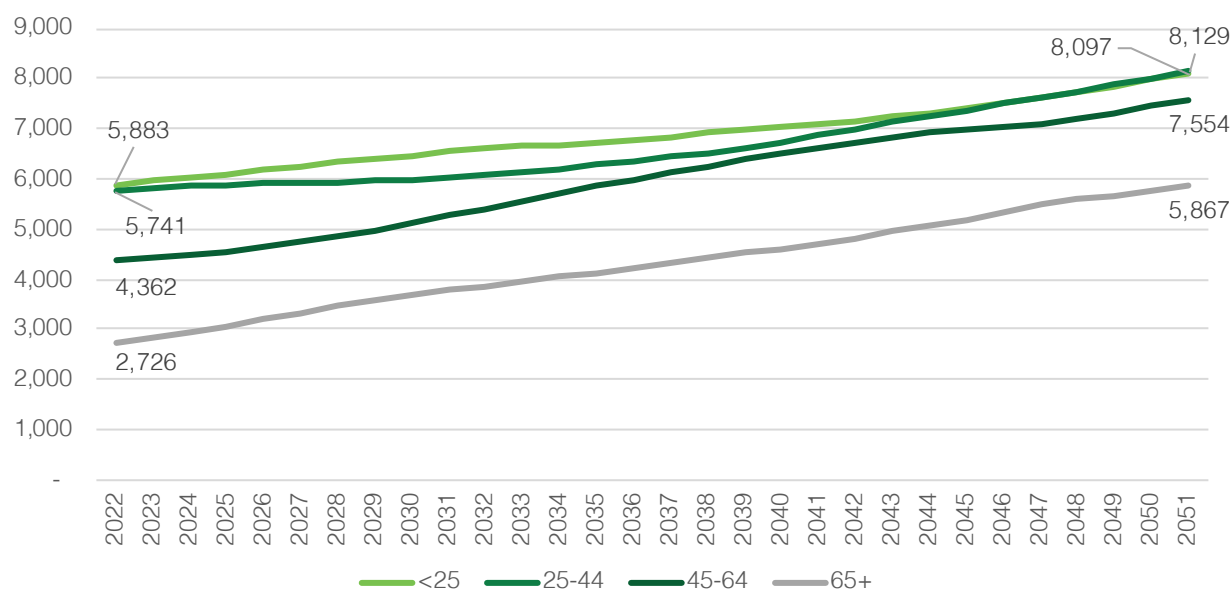
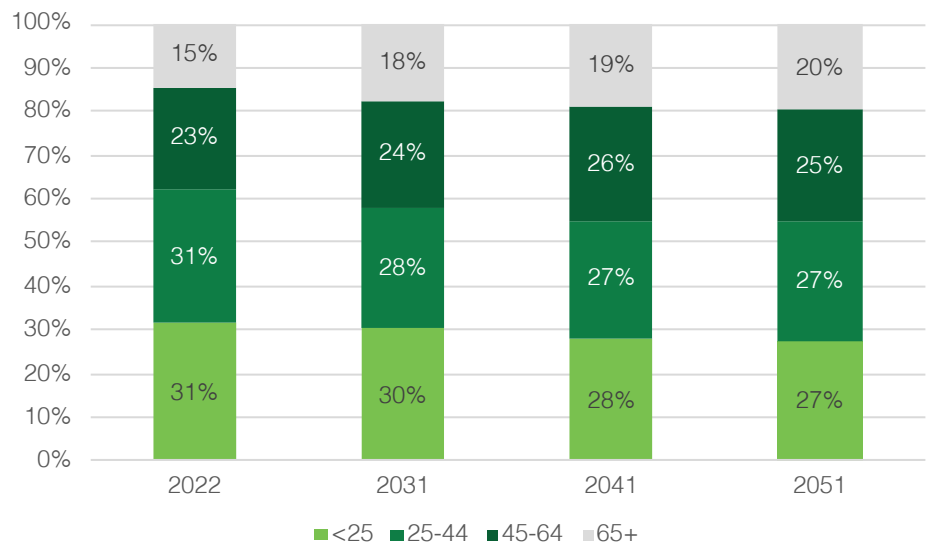


Table 3-3: Stony Plain Population Projection to 2051 by Consolidated Age Groupings
Medium Growth Scenario



The table below (Table 3-4) shows the projected distribution of Stony Plain's population by consolidated age groupings as proportions of the total. The trend indicates the age profile in the Town is growing older over time. The 65+ category is projected to represent approximately 15% of the population in 2022, and steadily increase to 20% of the total population by 2051. The 45-64 age category is projected to increase slightly from 23% in 2022 to 25% in 2051. The less than 25 and 25-44 age categories are projected to each represent 31% of the total population in 2022 and decrease slightly to 27% each by 2051.

Table 3-4: Stony Plain Population Projections by Consolidated Age Group to 2051



Mortality Rates

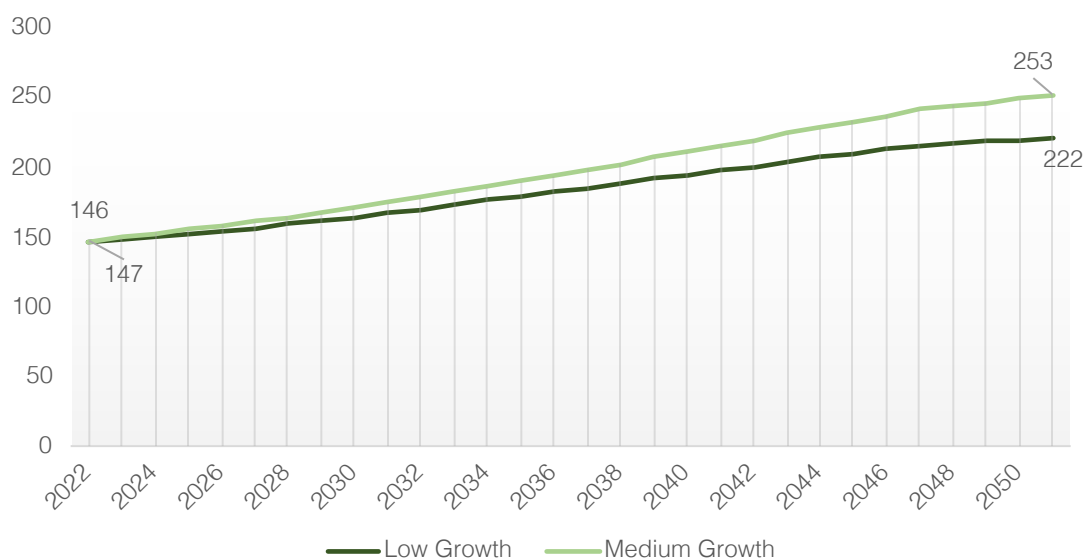
Historical mortality rates from 2013-2017 by age cohort were reviewed for the Province of Alberta and rates of year-over-year age-specific mortality **change** were calculated using this 5-year time series. This rate was applied to project future age-specific rates to 2051. These projected rates for Alberta were applied to the population projections for Stony Plain to calculate mortality of residents by age cohort.

Appendix B shows the annual population projection, growth rate, total deaths, and death rates per 1,000 people for both scenarios.

Stony Plain Resident Mortality

The mortality forecast for Stony Plain residents is based on applying the mortality rates by age cohort to each population projection scenario (Table 3-5). The forecast is adjusted upwards to better align with the historically higher number of mortalities of Stony Plain residents reported by Alberta Vital Statistics compared to the provincial mortality rates. We assume this is attributable to the end-of-life care facility in Stony Plain where most clients are Stony Plain residents and so we expect this trend will continue at a constant rate based on the capacity of the care facility.

Table 3-5: Stony Plain Resident Mortality Forecast



Between 2022 and 2051, 5,500 to 5,900 deaths of Stony Plain residents are projected under the Low and Medium growth scenarios respectively. As the population ages, the number of deaths per 1,000 will increase from 7.9/1,000 in 2022 to 9.0/1,000 (Low scenario) and 8.5/1,000 (Medium scenario) in 2051. The number of deaths among residents is projected to increase by an average of 1.4% annually under the Low growth scenario and 1.0% annually under the Medium growth scenario. The change in death rate between the two scenarios is due to the mortality rates by age cohort and the adjustment noted above for the end-of-life care facility which does not increase as the population grows.

Dispositions

Methods of disposition for Stony Plain residents are projected based on available data for the Province of Alberta between 2008 and 2018 as shown below (Table 3-6).

Table 3-6: Province of Alberta Methods of Disposition, 2008 to 2018

Year	Burial	Cremation	Other
2008	31%	68%	1%
2009	36%	62%	2%
2010	29%	71%	1%
2011	32%	68%	0%
2012	32%	67%	1%
2013	25%	73%	1%
2014	23%	77%	1%
2015	22%	78%	1%
2016	20%	78%	2%
2017	19%	80%	1%
2018	26%	74%	0%

Note: Other includes Department of Anatomy, Mausoleum, Fetal/Infant Death. Other is not considered in this analysis.

Based on historical trends, burials and cremations are expected to initially represent 25% and 75%, respectively. Over the 2022 – 2026 time period, cremation is expected to continue to increase based on recent trends so we have assumed 2% of burial dispositions will shift to cremation every 5 years. In 30 years, 15% of dispositions are expected to be burials and 85% cremations. Projected resident deaths and methods of disposition are shown below (Table 3-7) for each growth scenario.

Table 3-7: Stony Plain Resident Deaths and Method of Disposition, 2022 to 2051

Year	Low Growth Scenario			Medium Growth Scenario		
	Deaths	Burial	Cremation	Deaths	Burial	Cremation
2022	146	37	110	147	37	111
2023	148	37	111	150	38	113
2024	150	38	113	152	38	114
2025	152	38	114	155	39	116
2026	155	39	116	158	40	119
2027	157	36	121	161	37	124
2028	160	37	123	164	38	127
2029	162	37	125	167	39	129
2030	165	38	127	171	39	132
2031	167	39	129	174	40	134
2032	170	36	135	178	37	141
2033	173	36	137	182	38	144
2034	176	37	139	186	39	147
2035	179	38	142	190	40	150
2036	182	38	144	194	41	153

Year	Low Growth Scenario			Medium Growth Scenario		
	Deaths	Burial	Cremation	Deaths	Burial	Cremation
2037	186	35	150	198	38	161
2038	189	36	153	203	39	164
2039	192	36	155	207	39	168
2040	195	37	158	211	40	171
2041	198	38	161	216	41	175
2042	201	34	167	220	37	183
2043	204	35	169	224	38	186
2044	207	35	172	229	39	190
2045	210	36	174	233	40	194
2046	213	36	177	238	40	197
2047	216	32	183	242	36	206
2048	217	33	185	244	37	208
2049	219	33	186	247	37	210
2050	220	33	187	250	37	212
2051	222	33	188	253	38	215

Resident Interment Demand

Proportions of resident dispositions that are likely to be interred in the municipal cemetery are based on the analysis conducted for the 2016 Cemetery Needs Assessment and Business Plan - 50% of full burials and 30% of cremated remains are expected to be interred in the cemetery between 2022 and 2026. Every 5 years, the proportion of dispositions that will be interred in the cemetery is expected to increase by 2% for burials and 3% for cremated remains. By 2047, the proportion of resident dispositions expected to be interred in the municipal cemetery is 60% of burials and 45% of cremated remains interments.

3.2 Interment Needs

Interment needs are updated from the 2016 Needs Assessment to reflect recent trends and the results of the community survey. The projected interments based on the two population scenarios and mortality forecasts are shown below (Tables 3-8 and 3-9).

Table 3-8: Projected 5-Year Interments at Stony Plain Municipal Cemetery – Low Growth Scenario

Interment Options	2022-2026	2027-2031	2032-2036	2037-2041	2042-2046	2047-2051	Projected 30-Years 2022-2051
Full Burial	89	92	94	95	95	94	559
Green Burial	15	17	29	34	36	39	170
Total Full and Green Burial	104	109	123	129	131	133	729
Cremation Plot	85	105	124	152	180	210	857
Cremains on Occupied Burial Plot	10	12	14	17	20	23	96
Columbarium Niche	48	59	69	84	100	117	476
Scattering	15	20	24	30	35	39	163
Total Cremation Interments	158	196	231	283	336	389	1,592
Total All Interments	262	305	354	412	467	522	2,321
Average per year	52	61	71	82	93	104	464

Table 3-9: Projected 5-Year Interments at Stony Plain Municipal Cemetery – Medium Growth Scenario

Interment Options	2022-2026	2027-2031	2032-2036	2037-2041	2042-2046	2047-2051	Projected 30-Years 2022-2051
Full Burial	90	95	97	100	103	101	586
Green Burial	15	19	30	35	40	45	184
Total Full and Green Burial	105	114	127	135	143	146	770
Cremation Plot	87	107	132	163	199	237	927
Cremains on Occupied Burial Plot	10	12	15	18	22	26	103
Columbarium Niche	49	60	74	91	111	132	515
Scattering	15	20	25	30	37	44	171
Total Cremation Interments	161	199	246	302	369	439	1715
Total All Interments	266	313	373	437	512	585	2485
Average per year	53	63	75	87	102	117	497

A portion of interments will be placed in occupied plots and niches over time, which results in the requirements for plots and niches being lower than the total interments. These assumptions have changed in some instances from the 2016 Needs Assessment to reflect changing interment trends.

1. 100% of full burials will be interred in double depth plots
 - a. 50% of plots will accommodate two sets of remains
2. Demand for green burial is derived in equal portions from burial and cremation markets based on recent trends
 - a. For years 1 through 5, green burial will account for 5% of previous burial demand and 5% of previous cremation demand (total 10%)
 - b. For years 6 through 10, green burial will account for 6% of previous burial demand and 6% of previous cremation demand (total 12%)
 - c. For years 11 through 30, green burial will account for 7.5% of previous burial demand and 7.5% of previous cremation demand (total 15%)
 - d. 100% of green burial will be interred in double depth green plots
 - i. 50% of plots will accommodate two sets of remains
3. 60% of cremains interments will be interred in cremation plots or above a casket in full burial plots
 - a. 20% of cremation plots will accommodate two sets of cremains
 - b. 10% of cremains will be interred in full burial plots
4. 30% of cremains interments will be interred in columbarium niches
 - a. 67% of niches will accommodate two sets of cremains
5. 15% of cremains interments will be interred in scattering gardens

The plots and niches required for the municipal cemetery in Stony Plain to meet interment demands over the next 30 years in both growth scenarios is provided below (Tables 3-10 and 3-11). Annual demand for full burial is not expected to increase significantly over 30 years even though interment demand overall (and for green burial and cremation options) will increase due to population growth. This is because interment demand is based on recent trends that indicate a growing preference for cremation over burial disposition. Some of the existing demand for full burial will also shift to green burial.

Table 3-10: Projected 5-Year Space Demands at Municipal Cemetery – Low Growth Scenario

Interment Service	2022-2026	2027-2031	2032-2036	2037-2041	2042-2046	2047-2051	Projected 30-Years 2022-2051
Full Burial	67	69	71	71	71	71	419
Green Burial	11	13	22	26	27	29	128
Cremation Plot	66	82	96	118	140	163	666
Columbarium Niche	32	39	46	56	67	78	318
Scattering	15	20	24	30	35	39	163
Total Plot/ Niche Demand	191	223	258	301	341	380	1,694

Table 3-11: Projected 5-Year Space Demands at Municipal Cemetery – Medium Growth Scenario

Interment Service	2022-2026	2027-2031	2032-2036	2037-2041	2042-2046	2047-2051	Projected 30-Years 2022-2051
Full Burial	68	71	73	75	77	76	440
Green Burial	11	14	23	26	30	34	138
Cremation Plot	68	83	103	127	155	184	722
Columbarium Niche	33	40	50	61	74	89	345
Scattering	15	20	25	30	37	44	171
Total Plot/ Niche Demand	195	229	273	319	373	427	1,815

4.0 Site Inventory and Analysis

The site is located at SW Section 35-52-01W5M on Range Road 12 (Rosenthal Road), which can be accessed via Highway 16A. The project site is approximately 11.2 hectares (ha) in size and was historically used for agricultural production. It was identified as an area of future urban development in the 2013 Stony Plain Municipal Development Plan. There is a Canadian National (CN) railroad running south of the site that is used by approximately 20 trains per day. Heritage Creek is located north of the site in a steep, forested area. The first step was preparation of a site survey, which includes a high-resolution air photo of the site taken by a drone (**Map 1**).

4.1 Environmental

A desktop environmental assessment was prepared, including a review of historical aerial photographs, Alberta Conservation Information Management Systems (ACIMS) and Fish and Wildlife Information Management System (FWMIS) information, the Alberta Listing of Historical Resources (ALHR), Alberta Wetland Policy and Alberta Wetland Merged Inventory (AWMI) information, and a map of Alberta Environmentally Significant Areas (ESA). Key findings are summarized below, and the full report is in available as a separate document.

There are no records of sensitive or non-sensitive plants or animals, protected areas or Crown Reservations reported in the ACIMS report. According to the FWIMS report, the study area falls within the identified range of the Bald Eagle and the Sharp Tailed Grouse, which are both considered Sensitive in Alberta. The FWMIS report also included the observation of a Brook Stickleback in Heritage Creek north of the site. The ALHR search did not list the project site (SW Section 35-52-01W5M), so a historical resources assessment is not required.

The AWMI database search indicated that there is a large Class D wetland in the southeast corner of the site, and the historical aerial photograph review indicated that there may be additional wetland area within the project boundary. The site needs to be assessed by a qualified wetland specialist to determine if Alberta Water Act approval and compensation is required for the removal and/or disturbance of these wetlands. The Alberta ESA map shows that the project site is an ESA with a value of >0.189.

Due to the possibility of contamination of soils or groundwater through previous and adjacent land uses, it is recommended that a Phase 1 Environmental Site Assessment be conducted to determine the potential for contamination of the project site. In addition, due to the presence of wildlife and birds on the site, any disturbance or removal of trees, shrubs, or natural grasslands should comply with the Migratory Birds Convention Act. The Act stipulates that field surveys must be conducted by an experienced biologist if any site disturbance is to take place during the breeding bird window (April 14 – August 30). An application and approval through the Alberta Water Act will be required if the existing wetland on site is to be used for stormwater management. Riparian and wetland areas also require an environmental setback within which development cannot occur. A 30m setback has been used for the initial concept designs.

Poplar and spruce are the dominant species in the forested portions of the site. A large forested slope is located along the north edge, there is a buffer of native forest on the slope above the railway, and there is a small patch of forest at the site entry.

4.2 Geotechnical

Thurber Engineering conducted Phase 1 and Phase 2 Hydrogeologic Assessments of the site in February 2018 and June 2018, respectively. Generally, the site was found to be adequate, meeting all the Alberta Health Services (AHS) requirements for cemetery development, which include several criteria related to proximity to potable water wells and depth of the water table below the bases of burial plots. Based on the information contained in the report, the depth of the groundwater varies between 2.3 and 11 m, with a general south-easterly direction of flow. It does not pose an impediment for double depth burial plots.

Test holes indicate that the soils throughout the site consist of high plastic clay till cover of 1.2 to 4.5 m thickness over silt or fine sand. Even though there is no specific mention of percolation rates, it can be inferred that rates throughout the site will be relatively low given the dominance of fine grained lithologies. There is no indication throughout the report of areas of concern, where drainage might be problematic or where the depth of the groundwater may impede development.

4.3 Stormwater

A Stormwater Drainage Master Plan (SDMP) was developed for the Town of Stony Plain by Sameng Inc. in 2018. The report provides a comprehensive review of the Town's drainage standards, includes an inventory of the Town's existing drainage infrastructure, and provides a long-term drainage plan to allow for future development to proceed. The SDMP identifies the wetland located at the southeast corner of the site as a potential naturalized stormwater retention facility, with an outlet towards Heritage Creek. A maximum release rate into the creek of 2.5 L/s/ha was targeted.

Even though the report does not include design details for the proposed stormwater retention facility, it does highlight the importance of preserving wetlands and other naturalized features for the purposes of stormwater management. The report recommends undertaking detailed environmental reviews for this purpose, which should be carried out in future stages of the project. Based on this, it is expected that the existing wetland will be retained and used for stormwater management of the cemetery site, particularly since a large portion of the site currently drains towards this low-lying area.

Existing Drainage Patterns And Proposed Stormwater Management Concept

Stormwater management for the proposed cemetery is based on maintaining existing drainage patterns wherever possible, while abiding by the design principles outlined in the Town's Stormwater Drainage Master Plan. A topographic survey of the site shows that no offsite drainage is currently entering the project area, and that the site is currently draining towards its perimeter. The site includes three basins ([Map 2](#)), which are described below. Conceptual regrading and stormwater management works required for development are included for each basin.

Basin 1

This basin is located at the east half of the site and consists of approximately 6.68 ha of land. The basin generally drains towards the existing wetland located at the east end of the cemetery site. As mentioned previously, the wetland has already been identified as a potential stormwater retention facility, which, according to the Sameng report, may control up to 50 ha of land. As a result, the wetland should be preserved and used for stormwater management. In order to maintain its ecological integrity, a forebay will need to be constructed to provide removal of total suspended solids. All stormwater runoff from the cemetery site draining towards the retained wetland should be directed towards the forebay prior to reaching this natural feature.

Because Phase 1 of the cemetery does not extend far enough east to reach the existing wetland, the proposed forebay will not be constructed as part of this phase. In order to reduce the potential for contaminants and erosion resulting from what is expected to be a minor increase in stormwater runoff, a raingarden or similar LID feature is recommended at the east end of Phase 1.

Basin 2

This basin consists of approximately 1.61 ha at the southwest corner of the site draining towards a low elevation area located in its centre. Minor regrading should be conducted to remove this low spot and drain this the entire basin towards the retained wetland in Basin 1.

The proposed regrading of Basin 2 is proposed as part of Phase 1. Stormwater runoff will be directed towards the proposed raingarden.

Basin 3

This basin consists of approximately 3.31 ha located at the west end of the site. This basin drains west towards the neighbouring property and has approximately 3.0 m in elevation difference between its highest and lowest points. As a result, regrading this area to drain east towards the retained wetland may prove difficult and non-feasible. In order to avoid cross-lot drainage, a perimeter ditch should be constructed at the west boundary of the site.

For the most part, the ditch would drain north towards an existing treed area located within Town-owned lands, where runoff will eventually reach Heritage Creek. Similar to Basin 1, the expected increase in stormwater runoff from this area is expected to be minimal, as the proposed development will not include a large number of impervious surfaces and the majority of this basin will remain intact. As a result, no stormwater management facility in the form of a pond or constructed wetland is being proposed for this basin. Instead, a raingarden or similar LID feature is recommended at the north downstream end of the perimeter ditch, in order to reduce the potential for sediment or other contaminants from reaching the treed area and ultimately Heritage Creek.

A small portion of the perimeter ditch may have to drain southwest towards the road. The area draining towards this portion of the road is expected to be small (~0.1 ha) and as such, will be allowed to flow uncontrolled.

The entirety of Basin 3 will be constructed as part of Phase 1. This includes all proposed stormwater management infrastructure.

4.4 Servicing

According to the Town of Stony Plain's Water and Sanitary Master Plan Update (WSMPU) (Associated, 2019), the cemetery site is located in the Ultimate Growth Area; this means that water and sanitary services are not expected to be extended to the site for approximately 30 to 40 years. A brief description of future servicing options is outlined below.

Water Servicing

The closest potential water connection is approximately 1.7 km east of the cemetery site within the Brickyard neighbourhood, as shown on Figure 3.1 of the WSMPU. However, due to the elevation difference between the existing watermain and the cemetery site, this may not be a feasible connection. The WSMPU shows water servicing extending into the cemetery site in the Ultimate scenario, which includes a new reservoir and pumphouse for the new pressure zone (Figure 3-8 in the WSMPU). Constructing this infrastructure specifically for the cemetery would be a very significant cost. Due to these constraints, an on-site source is recommended for the cemetery site. This would consist of a cistern for potable water, and a water well for irrigation (if required). Potable water wells cannot be located within 250m of a cemetery site, unless they are assessed and satisfy AHS screening criteria. The size of the cistern would be determined at the detailed design stage.

Sanitary Servicing

The closest potential sanitary connection is approximately 200 m northeast of the cleared portion of cemetery site. The WSMPU identifies sanitary services extending into the cemetery site in the Ultimate scenario, as per Figure 4-10 in the WSMPU. There is an opportunity to connect to the existing main prior to the Ultimate scenario for the cemetery site servicing. However, this would be challenging due to the existing creek and tree stand, and trenchless installation may be preferable if sewer is required. If the sanitary extension is not feasible, an on-site septic tank is recommended.

Shallow Utilities

Due to the number of residential dwellings on Range Road 12, which is immediately west of the cemetery site, connections for gas, power, and communications are within close proximity. West-Parkland Gas Co-op is the franchise gas company in the area. They would likely invest to make a new connection possible.

The nearest 3-phase overhead line provided by Fortis Alberta Power is roughly 120m to the west. The line crosses Range Road 12 at an oblique angle slightly to the north. It should be feasible to build a tangent structure and run overhead to the proposed access. The connection costs for Fortis to build this overhead line and bring power to the entrance of the site would be roughly \$45,000.00.

There is a copper TELUS line running along Range Road 12. Fibre optic runs along the south portion of the cemetery property, but this is a national fibre that would not be accessible for cemetery use. TELUS would likely require an investment to bring their services to the site entrance (approximately \$25,000–50,000.00) but this could fluctuate depending on agreements established with TELUS.

Off-site upgrades may be required depending on the timing and demand required for the cemetery development. This will be confirmed during the detailed design stage depending on needs.

4.5 Site Analysis Summary

Map 3 shows the project site divided into distinct areas and identifies the opportunities and challenges associated with each of them. Some of the key opportunities and challenges of the overall site are outlined below:

Opportunities

- Upward-sloping entry driveway enhances feeling of ascent and entering a special place
- Rolling terrain will allow the design to enhance the natural topography of the site
- Hill on west side of site provides a panoramic view
- Mature trees frame most of the site and buffer the site from the railroad to the south
- Existing wetland provides opportunity for nature appreciation and stormwater management

Challenges

- Entry road is currently too steep
- Erosion next to entry road
- Steep slopes limit the use of some parts of the site for burials
- Part of the existing entrance driveway is outside the property line
- A 30m setback and regulatory reviews will be required for any development near the existing wetland



Rolling terrain



Entry driveway



View from top of hill



Trees along railroad



Wetland at east end of site



Erosion next to entry road



Some areas too steep for burial

5.0 Cemetery Concept Plan

5.1 Objectives And Program

Objectives

The following are the cemetery objectives based on the site analysis and community input:

- Design the cemetery as an appealing, attractive, and spiritual place
- Retain and follow the natural topography of the site where possible
- Use universal design principles (accessible to all)
- Protect and enhance the natural environment
- Provide a variety of interment options to address multiple cultures and faiths and a range of costs
- Provide opportunities for contemplation, walking, sitting, and gathering
- Design the site with consideration for future servicing and maintenance needs

Program

The following are the desired and needed cemetery services that were identified in the 2016 Cemetery Needs Assessment and confirmed through community engagement:



Full Burial

Placement of a casket in the ground, with mowed grass and a monument on the surface

Monuments will mostly be flush, with some upright monuments available in a limited section at an increased cost

Vaults or liners will be available, but not mandatory; runners (concrete or aggregate) are to be determined



Cremated Remains Above Burial

Placement of cremated remains in an urn or container in the ground above a full burial in the same plot

Up to six cremated remains per plot

Cremated Remains Burial Plot

Placement of cremated remains in an urn or container in the ground, with mowed grass and a monument on the surface



Columbarium

Placement of cremated remains in a niche (securely locked enclosure within a columbarium wall) with a plaque on the outside



Family Columbarium

Placement of cremated remains in niches within a small family monument



Green Burial with Group Marker

Placement of unembalmed remains in a biodegradable shroud or box in the ground; surface is planted and allowed to naturalize, name is inscribed on a communal monument



Green Burial with Individual Marker

Same as above but each plot has a monument that blends with the environment



Scattering Garden

Cremated remains are placed directly in the ground (not in a vessel) in a specific area of the cemetery, name is inscribed on a communal monument



Memorial

Name is placed on a memorial wall or monument with no placement of remains

The following are other features that are included in the cemetery design:

- Trees
- Benches
- Walking paths
- Outdoor gathering space, potentially with public art
- Maintenance yard with potential for future building for equipment
- Roads and parking
- Veteran's area
- Reception/maintenance building (with washrooms)

5.2 Concept Plan Options

Two concept plan options (Table 5-1 and **Appendix F**) explored different design ideas and configurations for the long-term layout of the cemetery. During the preparation of these options it was most important to establish the primary road and path system, entry configuration, and placement of key elements, including major changes to landforms, viewpoint/gathering space, forebay, building(s), and the maintenance yard. Proposed trees, benches, individual columbaria, and other features were not shown at this time.

The concept plan options were based on the following key design principles:

- Maximum slope should be 10% for full burial areas
- Full burial areas should be within 50 m of a road
- Forebay needs to be at low point and needs road access for servicing

The space needed for Phase 1 of cemetery development (approximately 30 years) was identified.

Table 5-1: Characteristics of Concept Plan Options

Feature	Option A	Option B
Entry Road	<ul style="list-style-type: none"> ▪ Entry road shifted 3 m from property line and regraded to retain some existing vegetation if possible 	<ul style="list-style-type: none"> ▪ Entry road relocated to centre of westernmost property line, regrading the entire area and replanting
Road Layout	<ul style="list-style-type: none"> ▪ Primary internal loop road with additional loop around viewpoint 	<ul style="list-style-type: none"> ▪ Multi-loop road
Building(s)	<ul style="list-style-type: none"> ▪ Separate reception/washroom and maintenance buildings on opposite sides of entry road 	<ul style="list-style-type: none"> ▪ Combined office and maintenance building south of entry road
Parking	<ul style="list-style-type: none"> ▪ Parking lot behind reception building (east) 	<ul style="list-style-type: none"> ▪ Parking lot in front of building (west)
Maintenance Yard and Building	<ul style="list-style-type: none"> ▪ Maintenance yard and building on their own, well screened from entry road 	<ul style="list-style-type: none"> ▪ Maintenance yard and building behind reception building, well screened from entry road
Roads (could be paved or granular)	<ul style="list-style-type: none"> ▪ Mix of 6m wide two-way roads and 3m wide one-way roads with parking pull-outs 	<ul style="list-style-type: none"> ▪ All 6m wide two-way roads with parking available at roadside
Veteran's Burial Area	<ul style="list-style-type: none"> ▪ Veteran's burial area on north side of entry road past first path 	<ul style="list-style-type: none"> ▪ Veteran's burial area on north side of entry road before intersection

Feature	Option A	Option B
Columbarium Garden	<ul style="list-style-type: none"> ▪ Columbarium garden northeast of intersection 	<ul style="list-style-type: none"> ▪ Columbarium garden on south side of entry road along tree buffer
Full Burial Area	<ul style="list-style-type: none"> ▪ Full burial area east of Veteran's area, south of entry road 	<ul style="list-style-type: none"> ▪ Full burial area after intersection
Cremation Plots	<ul style="list-style-type: none"> ▪ Cremation plots east of full burial area 	<ul style="list-style-type: none"> ▪ Cremation plots northeast of veteran's area
Hilltop/Viewpoint	<ul style="list-style-type: none"> ▪ Relocated hilltop viewpoint with smoothed slopes ▪ Central sculpture/monument with seating around ▪ Full flush burial on northwest side to maintain the form of the hillside 	<ul style="list-style-type: none"> ▪ Hilltop retained in original location ▪ Sculpture/monument visible from entry road, radial seating ▪ Grassland scattering area on northeast side ▪ East side of hill has full flush burials with flush cremation plots on west side of hill
Vehicle Access to Hilltop	<ul style="list-style-type: none"> ▪ 3m wide one-way loop road around viewpoint for ease of access 	<ul style="list-style-type: none"> ▪ Pedestrian only access to top of hill to protect location from vehicles
Stormwater Management	<ul style="list-style-type: none"> ▪ Forebay (30m X 40m) in southwest corner in front of wetland for stormwater management 	<ul style="list-style-type: none"> ▪ Forebay (30m X 40m) in northwest side of site in front of wetland for stormwater management
Paths	<ul style="list-style-type: none"> ▪ Looping path around entire site ▪ Path from north road up to viewpoint 	<ul style="list-style-type: none"> ▪ Looping path around west side of site ▪ Path from entry road to viewpoint ▪ Rest area at forebay

5.3 Preferred Concept Plan

The concept plan options were reviewed with Stony Plain staff from multiple departments. The major comment was that Phase 1 should include the most attractive portion of the site, that being the hilltop. Based on that input and a discussion of the other design features, a preferred concept plan (Table 5-2 and **Map 4**) was prepared, and the Phase 1 development was identified.

This plan shows the primary site layout as well as trees, planting areas, burial plots, columbaria, and monuments. Some elements, shown darker, are identified for inclusion in Phase 1. Other features, shown faded, are options for Phase 1, or they could be developed in the future. Proposed changes to grading are shown at a high level. The proposed hilltop viewpoint, veteran's area, and columbarium garden are shown in more detail on **Map 5**.

Table 5-2: Characteristics of Preferred Concept Plan

Feature	Preferred Concept
Major Grading	<ul style="list-style-type: none"> Entry road is regraded to reduce slope West perimeter is regraded to be suitable for full burials Hilltop is raised to emphasize the landform Loop road is graded in with gentle slopes Low area near maintenance yard is regraded for positive drainage
Entry Road	<ul style="list-style-type: none"> Entry road shifted 6 m from property line Entire area regraded for accessibility Forest planting south of entry road to replace lost vegetation, small portion of forest to be retained Wrought iron fencing and entry feature to define entrance and welcome visitors to the site Fencing to extend along entire road frontage
Road Layout	<ul style="list-style-type: none"> Multi-loop road with large loop to be included in Phase 1 and smaller loop in future phases Two-way paved road 6 m wide extending from entry to future loop One-way paved road with parking spots/pullouts around the hill in Phase 1
Building	<ul style="list-style-type: none"> Building with reception area, washrooms, and maintenance shed south of entry road slated for future phases Phase 1 may include a portable washroom
Parking	<ul style="list-style-type: none"> 14 stall parking lot west of future building
Maintenance Yard	<ul style="list-style-type: none"> Maintenance yard behind building with chainlink perimeter fence Screening of yard with vegetation
Veteran's Burial Area	<ul style="list-style-type: none"> Veteran's burial area on north side of entry road across from building Includes space for a memorial monument/sculpture, full and cremation burial plots and a columbarium
Columbarium Garden	<ul style="list-style-type: none"> Columbarium garden located west of parking lot on south side of entry road Designed as a grove with shade trees and seating
Full Burial Areas	<ul style="list-style-type: none"> Primary full burial area is on the lower slopes of the hill, planned for flush monuments to emphasize rolling terrain Full burial area with monuments is north of entry road before the loop Green burial is in blocks along the west edge of site, to be planted with native trees after interments to increase privacy and screening of adjacent residence One block of green burial in Phase 1 for group markers, another for individual markers
Cremation Plots	<ul style="list-style-type: none"> Cremation plots south of entry road, across from full burial area
Wild Rose Scattering Garden	<ul style="list-style-type: none"> Scattering garden located on north side of hill Monuments at path entry and landing Concept is to plant a wild rose bush over each interment
Hilltop Viewpoint	<ul style="list-style-type: none"> Central sculpture/monument visible from entry road Special paving, shown as a spiral, a symbol of life and journey Seating around the central space

Feature	Preferred Concept
Stormwater Management	<ul style="list-style-type: none"> Forebay (30m X 40m) in southwest corner in front of wetland for stormwater management (not required for phase 1) Two rain gardens for Phase 1 – at north of west perimeter ditch and at entry to road for future phases
Paths	<ul style="list-style-type: none"> Looping path around entire site perimeter Path from north road up to hilltop viewpoint Path from columbarium garden to be future memorial walk Extent of paths in Phase 1 to be determined
Memorial Walk	<ul style="list-style-type: none"> Path curving through trees with family columbarium units and benches

The preferred concept plan indicates the long-term capacity of Phase 1 of the cemetery development, it shows the anticipated use of the first 30 years, and it also shows space where additional interment services can be provided as demand evolves over time. Table 5-3 shows the projected interment requirements based on the Low growth scenario, the number of plots/niches shown for the first 30 years, and the additional capacity for future phases.

Table 5-3: Interment Spaces in Needs Projection and Preferred Plan

Cemetery Service	30-Year Low Growth Space Requirements	Number of Spaces For 30 Years	Number of Spaces for Future Phases
Full Burial Plots (Upright Monuments)	419	100	220
Veteran Full Burial Plot		20	
Full Burial Plots (Flush Monuments)		240	936
Total Full Burial		420	1,156
Cremation Plots	666	630	450
Veteran Cremation Plots		40	
Total Cremation Plots		670	450
Green Burial - Individual Marker	128	80	60
Green Burial - Group Marker		50	50
Total Green Burial		130	110
Columbarium Niche	318	336	0

5.4 Cost Estimate

A Class C cost estimate for Phase 1 of the cemetery design is included in [Appendix E](#) and summarized below (Table 5-4). The estimate includes items considered ideal for Phase 1 plus optional features (Table 5-5).

Table 5-4: Phase 1 Cost Estimate Summary

Phase 1	Total
Site Preparation	\$ 447,000
Site Circulation	\$ 219,100
Parking	\$ 15,400
Maintenance Yard	\$ 55,200
Interment Areas	\$ 585,700
Site Features	\$ 37,800
Planting and Landscaping	\$ 122,300
Subtotal	\$ 1,482,700
15% Design Fee	\$ 222,000
20% Contingency	\$ 296,000
Rounded Total	\$ 2,000,500

Table 5-5: Optional Items Cost Estimate Summary

Optional Items	Total Cost
Buildings	\$ 160,000
Utilities	\$ 70,000
Parking Lot (gravel)	\$31,400
Asphalt Paving (roads, parking, maintenance yard)	\$142,200
Hilltop Viewpoint Paving and Furnishings	\$ 73,800
Veteran's Area Monument/Sculpture	\$ 30,000
Granular Path Phase 1 (perimeter and memorial walk)	\$ 89,700
Granular Path – Future Phases (remainder of perimeter)	\$ 102,800
Subtotal Optional Items	\$ 719,900
15% Design Fee	\$ 108,000
20% Contingency	\$ 144,000
Rounded Total Optional Items	\$ 971,900

6.0 Business Plan

The business plan identifies estimated future revenues and expenditures to project cash flow based on three scenarios:

- Scenario 1 - Low population growth and fees at the average of comparable communities
- Scenario 2 - Low population growth and fees similar to Edmonton's
- Scenario 3 - Medium population growth and fees similar to Edmonton's

The primary goal of preparing these scenarios is to identify anticipated timing and extent of cash flow shortfalls and the impacts of variable population growth and fees. This can provide direction on when borrowing (internal or external) may be needed and when adjustments to fees may need to be considered.

6.1 Revenues

Revenues are achieved from the following sources:

- Right of interment sales (license fees)
- Interment fees (open/close fees charged at the time of interment)
- Additional fees (liners and marker permit fees)

Revenues are calculated in two ways:

- Fees based on the average of comparable cemeteries (average fees)
- Fees based on Northern Lights Cemetery in Edmonton (high fees)

Perpetual Care Fund

A perpetual care fund (PCF) may be set up for the care and maintenance of the cemetery for the time when the cemetery has reached capacity and operating revenues will no longer be available. Establishing a PCF is a best practice for municipal cemeteries although it is not required by Alberta legislation. The Town can withdraw interest earned on the PCF to cover annual operating and maintenance costs as soon as the cemetery is operating; however, this will reduce the balance retained in the PCF to continue accruing interest over time. The PCF should grow large enough such that interest earned on the balance can be used to maintain the cemetery in perpetuity. Funds could be withdrawn that exceed the annual interest earned; however, this would be contrary to the purpose of the fund.

A PCF contribution is usually calculated as a percentage of the right of interment fee. Based on the Town's interest in implementing a PCF, we propose a PCF allowance of 20% applied to right of interment fees for full, green, and cremation plots, and a 5% allowance for columbarium niches. This reflects the higher ongoing maintenance required for plots compared to niches. This is similar to other Alberta communities that have a PCF.

Fees

We reviewed cemetery fees in the following comparable communities as identified by the Town: Spruce Grove, St. Albert, Leduc, Parkland County, and Beaumont. We also reviewed fees at the nearest Edmonton cemetery, Northern Lights Cemetery. A table of comparable fees and proposed fees based on the average and high fee scenarios is provided in **Appendix D**. The right of Interment and open/close fees for green burial are calculated based on 90% of full burial fees to reflect slightly smaller plot sizes, reduced interment depths, and reduced maintenance requirements.

Additional Fees

In addition to right of interment and open/close fees, cemeteries often charge fees for other services such as liners or vaults, vases, memorial installations/inscriptions, or marker permit fees. The most common additional fees are included in the comparable fees table in **Appendix D**.

Marker Permit Fee and Memorial Options

A marker permit fee is recommended each time a monument is placed on a grave or a plaque on a niche. This fee reflects the effort required for staff to ensure the monument or plaque meets the requirements outlined in the cemetery bylaw and is installed correctly. To ensure ease of administration and cost effectiveness, we recommend the Town require customers to arrange for monuments, monument installations, niche plaques, vases and other memorial options directly with funeral homes. Costs for the Town to provide these services are not in the financial analysis.

Liners

Liners are not required by Alberta legislation, but municipalities can require them by bylaw, or make them optional. Liners help to provide level ground for mowing and clean sightlines by reducing settling; however, liners impose an additional cost on the customer as well as an environmental impact. If the Town chooses to allow or require liners, there are a variety of options based on material and price to consider. Approximate costs per liner based on current prices for Alberta are as follows:

- Fiberglass \$300
- Concrete \$800

Prices depend on volume purchased (typically shipped in pallets of 7-10) plus freight and delivery. Fiberglass liners are less expensive but they are not as durable and GHG emissions in their production are much higher.

The Town has an interest in requiring liners in full burial areas. Based on practices in other communities, we recommend the Town select one product and provide liners at cost to customers. The cost of installation is included in the interment fees.

Fee Scenarios

The average fee scenario is based on a review of the comparable communities. The PCF allowances described above are in addition to the average right of interment fees as none of these communities currently collect towards a PCF (although St. Albert indicated they planned to implement one in 2020).

The total cost to the purchaser for each typical interment type is provided below (Table 6-1). Additional costs such as liners or marker permit fees are excluded. The variation in prices for columbarium niches is based on niches higher on a wall being more desirable and therefore more expensive than ones lower down. Overtime interment charges and additional fees are provided in [Appendix D](#).

Table 6-1: Stony Plain Municipal Cemetery – Average Fee Scenario

Plot/Niche Type	Right of Interment (ROI)	PCF	ROI+PCF	Open/Close	Total
Full Burial (Double Depth Plot)	\$1,000	\$200	\$1,200	\$1,010	\$2,210
Green Burial (Double Depth Green Plot)	\$900	\$180	\$1,080	\$910	\$1,990
Infant / Child Plot	\$400	\$80	\$480	\$0	\$480
Cremation Plot	\$600	\$120	\$720	\$375	\$1,095
Veteran Plot	\$400	\$80	\$480	\$775	\$1,255
Columbarium Niche Low	\$1,500	\$75	\$1,575	\$125	\$1,700
Columbarium Niche Mid	\$1,700	\$85	\$1,785	\$125	\$1,910
Columbarium Niche Upper	\$1,900	\$95	\$1,995	\$125	\$2,120
Scattering	\$0	\$0	\$0	\$90	\$90

Note: Open/close fees for double depth plots are based on one deep interment

The high fee scenario is based on Northern Lights Cemetery fees in Edmonton. Edmonton includes a PCF allowance of 25% in their right of interment fees. This is replicated here so the total cost to the consumer in the high fee scenario is comparable to the total cost in Edmonton, though the Town could use Edmonton base fees and the PCF ratios discussed previously.

Table 6-2: Stony Plain Municipal Cemetery – High Fee Scenario

Plot/Niche Type	Right of Interment (ROI)	PCF	ROI+PCF	Open/Close	Total
Standard Double Depth	\$2,200	\$440	\$2,640	\$1,850	\$4,490
Green Plot Double Depth	\$1,980	\$396	\$2,376	\$1,670	\$4,046
Infant / Child Plot	\$940	\$188	\$1,128	\$0	\$1,128
Cremation Plot	\$1,100	\$220	\$1,320	\$475	\$1,795
Veteran Plot	\$320	\$64	\$384	\$1,185	\$1,569
Columbarium Niche Low	\$3,440	\$172	\$3,612	\$250	\$3,862
Columbarium Niche Mid	\$3,990	\$200	\$4,190	\$250	\$4,440
Columbarium Niche Upper	\$4,510	\$226	\$4,736	\$250	\$4,986
Scattering	\$0	\$0	\$0	\$250	\$250

Note: Open/close fees for double depth plots are based on one deep interment

6.2 Costs

The municipal cemetery will incur two types of costs – capital costs and operations/maintenance costs. Capital costs are one-time costs associated with cemetery infrastructure development at the beginning and for future expansions. These costs are excluded from the financial projections as the Town has received grant funding for initial capital costs.

Operating costs are associated with the ongoing day-to-day operations of the cemetery, including administration, site maintenance, and labour and equipment to conduct interments. The operating costs are updated from the 2016 Needs Assessment to align with the revised estimate of interments and to reflect the staff requirements considering the location of the cemetery.

There are two different types of maintenance required in a cemetery. One is maintenance of the grounds, and this is similar to maintenance of a park, including grass care (e.g., mowing, weeding, fertilizing, watering), litter removal, and tree and shrub care (e.g., pruning, trimming, weeding, fertilizing, watering). The other type of work is related to interments, requiring excavating and backfilling for in-ground interments, and opening and closing of niches.

Some municipalities have their parks operations crews maintain their cemeteries. Interments can be conducted by parks operations staff, engineering/public works crews, or by contractors. The estimates for operations in this section are based on all operations being conducted by one municipal crew per direction provided by Town staff.

Staff Requirements

The 2016 Needs Assessment identified a minimum of 1.6 FTE (full-time equivalents) per 42 interments for administration and operations staff based on a review of comparable communities at that time. Town staff have indicated that higher FTEs will be required due to the location of the cemetery and the nature of the work (i.e., job descriptions cannot be changed to require existing staff to work in a cemetery). The FTEs required for each 5-year period for each growth scenario based on direction from Town staff are shown below (Tables 6-3 and 6-4).

Table 6-3: Cemetery Staff Requirements (5-Year Averages) for Stony Plain Municipal Cemetery
Low Growth Scenario

Cemetery Position (Annual FTE)	2022-2026	2027-2031	2032-2036	2037-2041	2042-2046	2047-2051	30-Year Annual Average
Cemetery Clerk	0.4	0.4	0.5	0.5	0.6	0.6	
GIS Technician	0.06	0.05	0.05	0.05	0.05	0.05	
Operator	2.0	2.0	2.0	2.0	2.0	2.0	
Mechanic	0.1	0.1	0.1	0.1	0.1	0.1	
Seasonal Labourer	0.0	0.0	0.0	0.0	0.0	0.0	
Total Annual FTEs	2.5	2.5	2.6	2.6	2.7	2.7	
Annual Interments	52	61	71	82	93	104	
Interment per FTE	21	24	27	32	35	39	30
Annual Staff Operating Costs	\$195,220	\$194,350	\$199,350	\$199,350	\$204,350	\$204,350	\$199,500

Table 6-4: Cemetery Staff Requirements (5-Year Averages) for Stony Plain Municipal Cemetery
Medium Growth Scenario

Cemetery Position (Annual FTE)	2022-2026	2027-2031	2032-2036	2037-2041	2042-2046	2047-2051	30-Year Annual Average
Cemetery Clerk	0.4	0.4	0.5	0.5	0.6	0.6	
GIS Technician	0.06	0.05	0.05	0.05	0.05	0.05	
Operator	2.0	2.0	2.0	2.0	2.0	2.0	
Mechanic	0.1	0.1	0.1	0.1	0.1	0.1	
Seasonal Labourer	0.0	0.0	0.0	0.0	0.0	0.1	
Total Annual FTEs	2.6	2.6	2.7	2.7	2.8	2.9	
Annual Interments	53	63	75	87	102	117	
Interment per FTE	21	25	28	33	37	41	31
Annual Staff Operating Costs	\$195,220	\$194,350	\$199,350	\$199,350	\$204,350	\$209,150	\$200,300

Note: The Operator position encompasses the responsibilities identified in the 2016 Needs Assessment of grounds manager, equipment operator and permanent labourer.

Based on recent discussions with the Town's GIS and Finance departments, we estimate 20% of a GIS technician's time will need to be dedicated to developing cemetery software systems in the first three months of cemetery operations, with ongoing time to a lesser extent each year to enter data and prepare reports. The GIS technician will need to liaise with the Finance department to ensure the system is set up to meet tracking and financial requirements.

Equipment and Other Costs

Town staff indicated that the equipment owned by the Town is currently being used at full capacity so the Town will need to purchase dedicated equipment to operate the cemetery (Table 6-5). Equipment costs are depreciated annually over the service life of the equipment. Equipment costing less than \$5,000 is not usually depreciated but is included in the expenses shown below for the business plan to best match expenses and revenues to the same year for accounting purposes. See **Appendix C** for financing requirements.

Table 6-5: Equipment Costs and Annual Amortization Expenses

Asset Description	Year Installed	Service Life	Asset Value	Annual Amortization
Backhoe	2022	10	\$200,000	\$20,000
Vehicle	2022	15	\$37,000	\$2,467
Misc. Lawn Maintenance	2022	5	\$10,000	\$2,000
Reel & Hose System	2022	10	\$15,000	\$1,500
Gator	2022	10	\$13,500	\$1,350
Lawnmower	2022	10	\$10,000	\$1,000
Lowering Device	2022	5	\$5,000	\$1,000
Misc. Burial Equipment	2022	5	\$5,000	\$1,000
Misc. General Maintenance	2022	5	\$5,000	\$1,000
Fuel Tank	2022	25	\$20,000	\$800
Chain/Cable Rigs	2022	10	\$5,000	\$500
Oil Tank	2022	25	\$3,000	\$120
Total Annual Amortization Expense			\$328,500	\$32,737

Other annual expenses to operate and maintain the cemetery are as follows:

- Servicing two outhouses - \$3,840
- Maintenance materials - \$2,500
- Systems definition workshop - \$1,500

Costs are included for a systems definition workshop only in year 1 for a consultant to assist the GIS technician in determining what initial systems need to be put in place.

Operating Costs Summary

A summary of total operating cost estimates and assumptions for each growth scenario is shown below (Tables 6-6, 6-7, 6-8). Operating costs will increase moderately as the number of interments increases due to staff requirements. Significant increases in operations and maintenance costs are not expected to occur until a new area of the cemetery is opened. All costs are in 2020 dollars.

Table 6-6: Cemetery Operating Costs Projections – Low Growth Scenario

Category	2022-2026 Average	2027-2031 Average	2032-2036 Average	2037-2041 Average	2042-2046 Average	2047-2051 Average	30-Year Annual Average
Staff Salaries/ Benefits	\$195,220	\$194,350	\$199,350	\$199,350	\$204,350	\$204,350	\$199,500
Equipment Amortization	\$32,737	\$32,737	\$32,737	\$32,737	\$32,737	\$32,737	\$32,737
All Other Expenses	\$6,640	\$6,340	\$6,340	\$6,340	\$6,340	\$6,340	\$6,390
Total Annual Operating Costs	\$234,597	\$233,427	\$238,427	\$238,427	\$243,427	\$243,427	\$238,627
Annual Interments	52	61	71	82	93	104	77
Operating Costs per Interment	\$4,475	\$3,833	\$3,368	\$2,894	\$2,609	\$2,331	\$3,084

Table 6-7: Cemetery Operating Costs Projections – Medium Growth Scenario

Category	2022-2026 Average	2027-2031 Average	2032-2036 Average	2037-2041 Average	2042-2046 Average	2047-2051 Average	30-Year Annual Average
Staff Salaries/ Benefits	\$195,220	\$194,350	\$199,350	\$199,350	\$204,350	\$209,150	\$200,300
Equipment Amortization	\$32,737	\$32,737	\$32,737	\$32,737	\$32,737	\$32,737	\$32,737
All Other Expenses	\$6,640	\$6,340	\$6,340	\$6,340	\$6,340	\$6,340	\$6,390
Total Annual Operating Costs	\$234,597	\$233,427	\$238,427	\$238,427	\$243,427	\$248,227	\$239,422
Annual Interments	53	63	75	87	102	117	83
Operating Costs per Interment	\$4,413	\$3,728	\$3,200	\$2,729	\$2,377	\$2,121	\$2,890

Table 6-8: Cemetery Operating Cost Assumptions

Staff Position	Salary (FTE)
Cemetery Clerk	\$50,000
GIS Technician	\$87,000
Operator	\$80,000
Mechanic	\$100,000
Seasonal Labourer	\$48,000

If the Town could operate the cemetery based on the average 42 interments per FTE rate in other communities and use equipment shared for maintenance of the cemetery and parks, the 30-year annual average operating costs could be reduced. Preliminary calculations indicate potential reductions as follows:

- Reduction in 30-year annual average staff operating costs of \$59,100 (from \$199,500 to \$140,400 in low growth scenario) and \$54,100 (from \$200,300 to \$146,200 medium growth scenario)
- Reduction in the value of assets (equipment) required of \$257,000 (from \$328,500 to \$71,500) and the annual amortization expense would reduce by \$25,400 (from \$32,700 to \$7,300)
- Annual reduction of \$79,500 - \$84,500 in salaries and equipment

6.3 Cash Flow Projections

Cash flow projections are provided for each of the three scenarios:

- Scenario 1 - Low population growth and fees at the average of comparable communities
- Scenario 2 - Low population growth and fees similar to Edmonton's
- Scenario 3 - Medium population growth and fees similar to Edmonton's

Revenue Projections

Revenues are based on the projected number of interments and cemetery fees. Projected revenues in 10-year increments for each scenario are provided below (Tables 6-9, 6-10, 6-11). The cash flow projections only include rights of interment and opening/closing revenues based on the typical interment types. Weekend and overtime interment fees are expected to apply to 15% of interments and are included in revenues. Infrequent services such as veteran's or children's plots and interments are excluded as it is difficult to estimate needs and revenues are minor.

Table 6-9: Revenue Projections – Scenario 1

Revenue Source	2022-2031	2032-2041	2042-2051	30-Year Total
Rights of Interment Revenue	\$362,210	\$479,991	\$610,775	\$1,452,976
Interment Revenues	\$291,735	\$371,390	\$445,269	\$1,108,394
Total Revenues (Gross)	\$653,945	\$851,380	\$1,056,044	\$2,561,370
Avg. Per Year	\$65,395	\$85,138	\$105,604	\$85,379

Table 6-10: Revenue Projections – Scenario 2

Revenue Source	2022-2031	2032-2041	2042-2051	30-Year Total
Rights of Interment Revenue	\$779,222	\$1,030,516	\$1,307,678	\$3,117,416
Interment Revenues	\$440,478	\$557,112	\$660,632	\$1,658,222
Total Revenues (Gross)	\$1,219,700	\$1,587,629	\$1,968,310	\$4,775,638
Avg. Per Year	\$121,970	\$158,763	\$196,831	\$159,188

Table 6-11: Revenue Projections – Scenario 3

Revenue Source	2022-2031	2032-2041	2042-2051	30-Year Total
Rights of Interment Revenue	\$797,355	\$1,090,726	\$1,451,259	\$3,339,340
Interment Revenues	\$451,330	\$585,163	\$729,267	\$1,765,760
Total Revenues (Gross)	\$1,248,685	\$1,675,888	\$2,180,526	\$5,105,100
Avg. Per Year	\$124,868	\$167,589	\$218,053	\$170,170

Perpetual Care Fund

The projected PCF balance is estimated based on the number and type of right of interments purchased at the cemetery as discussed in the Revenues section. For projection purposes, we assume an annual interest rate of 2% will be accrued and retained in the PCF. Since the cemetery has capacity beyond 30 years, the interest earned on the PCF over the next 30 years is not expected to be enough to maintain the cemetery in perpetuity. The PCF allowances should be reviewed regularly in the future to ensure the balance is on track to maintain the cemetery once it reaches capacity. The projected PCF balance for each scenario is provided below (Tables 6-12, 6-13, 6-14).

Table 6-12: Stony Plain PCF Contributions Projections – Scenario 1

Perpetual Care Fund	2022-2031	2032-2041	2042-2051	30-Year Total
Contributions	\$55,094	\$70,957	\$86,724	\$212,775
Interest	\$6,228	\$21,443	\$43,545	\$71,216
Total Earned (Gross)	\$61,322	\$92,399	\$130,270	\$283,991
Avg. Per Year	\$6,132	\$9,240	\$13,027	\$9,466

Interest earned in year 30 (2051) in Scenario 1 is estimated to be approximately \$5,600.

Table 6-13: Stony Plain PCF Contributions Projections – Scenario 2

Perpetual Care Fund	2022-2031	2032-2041	2042-2051	30-Year Total
Contributions	\$115,419	\$147,749	\$178,972	\$442,139
Interest	\$13,061	\$44,842	\$90,724	\$148,627
Total Earned (Gross)	\$128,480	\$192,591	\$269,695	\$590,766
Avg. Per Year	\$12,848	\$19,259	\$26,970	\$19,692

Interest earned in year 30 (2051) in Scenario 2 is estimated to be approximately \$11,600.

Table 6-14: Stony Plain PCF Contributions Projections – Scenario 3

Perpetual Care Fund	2022-2031	2032-2041	2042-2051	30-Year Total
Contributions	\$118,246	\$155,680	\$197,981	\$471,907
Interest	\$13,290	\$46,336	\$95,519	\$155,145
Total Earned (Gross)	\$131,536	\$202,016	\$293,500	\$627,052
Avg. Per Year	\$13,154	\$20,202	\$29,350	\$20,902

Interest earned in year 30 (2051) in Scenario 3 is estimated to be approximately \$12,300.

Cash Flow Projections

Three cash flow projections are presented that consider the low and medium growth scenarios and the impact on cash flow of average versus high fees. Inflation is excluded for revenues and operating costs as we assume fees will be adjusted each year to account for actual inflation.

Scenario 1 – Low Population Growth and Average Fees

In scenario 1, a Town subsidy of 75% will be required to cover operating costs in the first year of cemetery operations (2022). The required subsidy will steadily decrease over 30 years to 54% in 2051.

Table 6-15: 30-Year Cash Flow Projections – Scenario 1

Year	Revenues	Operating Costs	Surplus/Deficit	Subsidy Required (%)
2022	59,423	239,277	- 179,854	-75%
2023	61,050	233,427	- 172,376	-74%
2024	61,924	233,427	- 171,503	-73%
2025	61,924	233,427	- 171,503	-73%
2026	62,797	233,427	- 170,630	-73%
2027	67,253	233,427	- 166,174	-71%
2028	68,126	233,427	- 165,301	-71%
2029	68,126	233,427	- 165,301	-71%
2030	71,225	233,427	- 162,202	-69%
2031	72,098	233,427	- 161,328	-69%
2032	75,435	238,427	- 162,992	-68%
2033	79,497	238,427	- 158,930	-67%
2034	80,370	238,427	- 158,057	-66%
2035	81,243	238,427	- 157,183	-66%
2036	82,116	238,427	- 156,310	-66%
2037	88,319	238,427	- 150,108	-63%
2038	89,790	238,427	- 148,636	-62%
2039	90,663	238,427	- 147,763	-62%
2040	91,537	238,427	- 146,890	-62%
2041	92,410	238,427	- 146,017	-61%
2042	98,612	243,427	- 144,814	-59%
2043	99,485	243,427	- 143,941	-59%
2044	100,359	243,427	- 143,068	-59%
2045	101,232	243,427	- 142,195	-58%
2046	102,703	243,427	- 140,724	-58%
2047	107,553	243,427	- 135,874	-56%
2048	110,652	243,427	- 132,775	-55%
2049	111,525	243,427	- 131,902	-54%
2050	111,525	243,427	- 131,902	-54%
2051	112,398	243,427	- 131,028	-54%
Total	2,561,370	7,158,650	- 4,597,280	

Table 6-16: Revenue and Operating Costs (30 Years) – Scenario 1

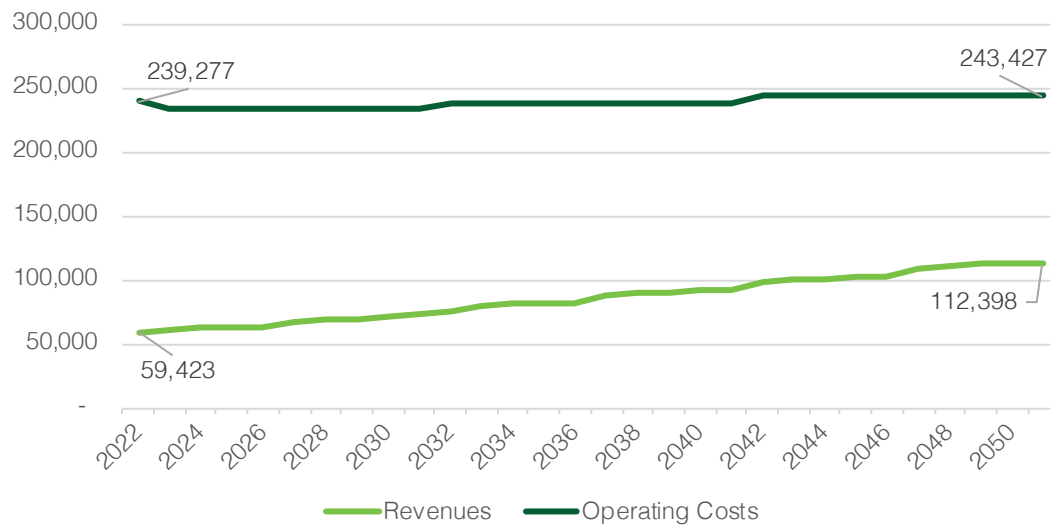
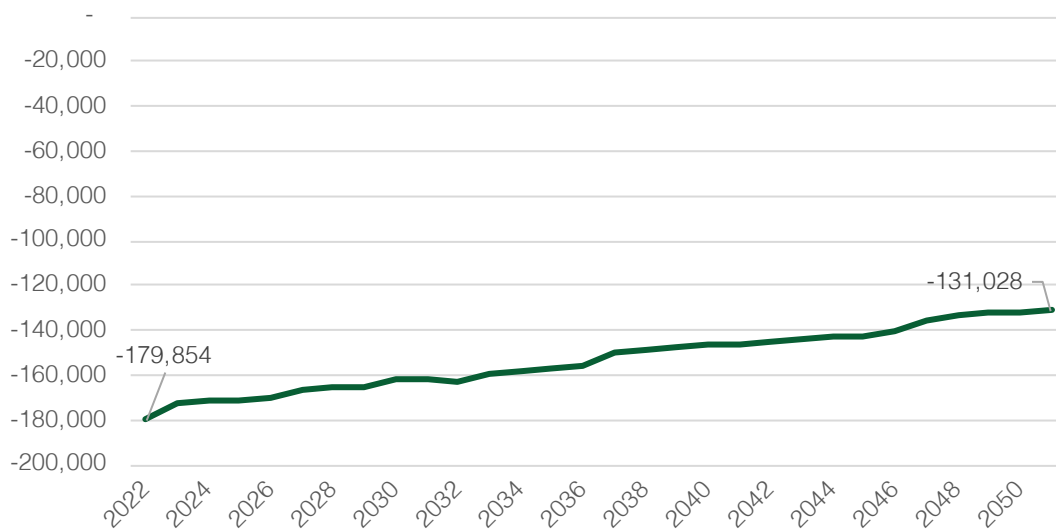


Table 6-17: Operating Fund Surplus/Deficit (30 Years) – Scenario 1



Scenario 2 – Low Population Growth and High Fees

In scenario 2, a Town subsidy of 53% will be required to cover operating costs in the first year of cemetery operations (2022). The required subsidy will steadily decrease over 30 years to 14% in 2051.

Table 6-18: 30-Year Cash Flow Projections – Scenario 2

Year	Revenues	Operating Costs	Surplus/Deficit	Subsidy Required (%)
2022	110,838	239,277	- 128,438	-54%
2023	113,883	233,427	- 119,543	-51%
2024	115,499	233,427	- 117,928	-51%
2025	115,499	233,427	- 117,928	-51%
2026	117,114	233,427	- 116,313	-50%
2027	125,440	233,427	- 107,986	-46%
2028	127,056	233,427	- 106,371	-46%
2029	127,056	233,427	- 106,371	-46%
2030	132,850	233,427	- 100,577	-43%
2031	134,465	233,427	- 98,962	-42%
2032	140,630	238,427	- 97,797	-41%
2033	148,289	238,427	- 90,137	-38%
2034	149,905	238,427	- 88,522	-37%
2035	151,520	238,427	- 86,907	-36%
2036	153,135	238,427	- 85,291	-36%
2037	164,692	238,427	- 73,734	-31%
2038	167,441	238,427	- 70,985	-30%
2039	169,057	238,427	- 69,370	-29%
2040	170,672	238,427	- 67,755	-28%
2041	172,287	238,427	- 66,139	-28%
2042	183,844	243,427	- 59,582	-24%
2043	185,460	243,427	- 57,967	-24%
2044	187,075	243,427	- 56,352	-23%
2045	188,690	243,427	- 54,736	-22%
2046	191,439	243,427	- 51,988	-21%
2047	200,433	243,427	- 42,994	-18%
2048	206,227	243,427	- 37,200	-15%
2049	207,842	243,427	- 35,585	-15%
2050	207,842	243,427	- 35,585	-15%
2051	209,457	243,427	- 33,969	-14%
Total	4,775,638	7,158,650	- 2,383,012	

Table 6-19: Revenue and Operating Costs (30 Years) – Scenario 2

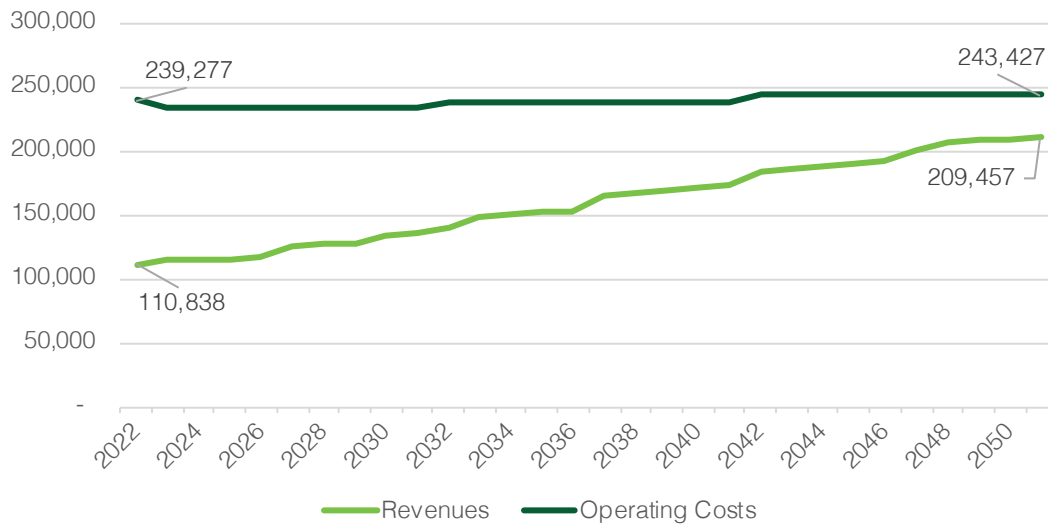
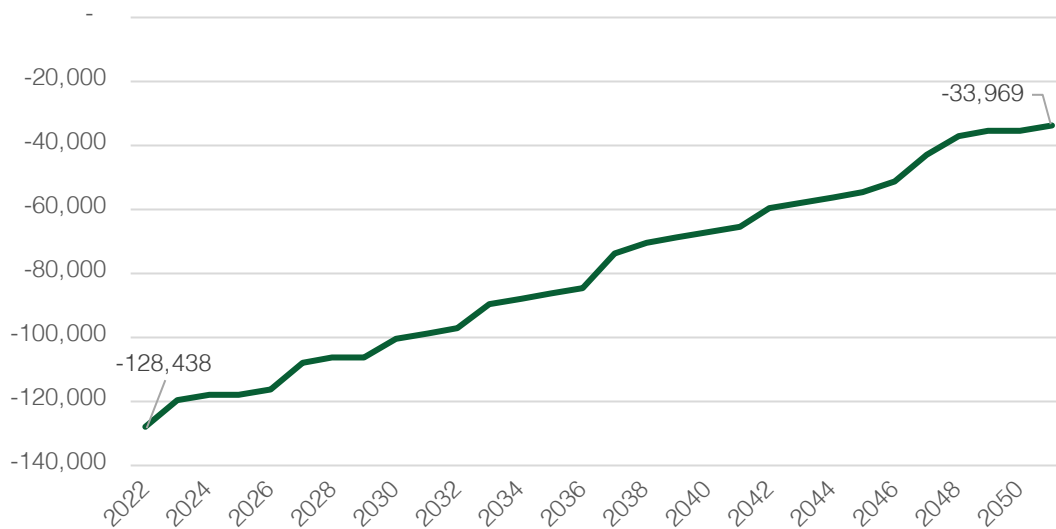


Table 6-20: Operating Fund Surplus/Deficit (30 Years) – Scenario 2



Scenario 3 – Medium Population Growth And High Fees

In scenario 3, a subsidy of 54% will be required by the Town to cover operating costs in the first year of cemetery operations (2022). The required subsidy will steadily decrease over 30 years to 5% in 2051.

Table 6-21: 30-Year Cash Flow Projections – Scenario 3

Year	Revenues	Operating Costs	Surplus/Deficit	Subsidy Required (%)
2022	110,838	239,277	- 128,438	-54%
2023	115,499	233,427	- 117,928	-51%
2024	115,499	233,427	- 117,928	-51%
2025	117,114	233,427	- 116,313	-50%
2026	121,774	233,427	- 111,652	-48%
2027	127,056	233,427	- 106,371	-46%
2028	132,850	233,427	- 100,577	-43%
2029	134,465	233,427	- 98,962	-42%
2030	134,465	233,427	- 98,962	-42%
2031	139,126	233,427	- 94,301	-40%
2032	151,520	238,427	- 86,907	-36%
2033	153,135	238,427	- 85,291	-36%
2034	154,751	238,427	- 83,676	-35%
2035	159,411	238,427	- 79,016	-33%
2036	161,026	238,427	- 77,400	-32%
2037	172,287	238,427	- 66,139	-28%
2038	176,948	238,427	- 61,479	-26%
2039	178,563	238,427	- 59,864	-25%
2040	181,794	238,427	- 56,633	-24%
2041	186,454	238,427	- 51,973	-22%
2042	199,330	243,427	- 44,097	-18%
2043	200,945	243,427	- 42,481	-17%
2044	207,221	243,427	- 36,205	-15%
2045	209,087	243,427	- 34,340	-14%
2046	212,317	243,427	- 31,110	-13%
2047	225,193	248,227	- 23,033	-9%
2048	228,424	248,227	- 19,803	-8%
2049	230,039	248,227	- 18,187	-7%
2050	231,655	248,227	- 16,572	-7%
2051	236,315	248,227	- 11,912	-5%
Total	5,105,100	7,182,650	- 2,077,550	

Table 6-22: Revenue and Operating Costs (30 Years) – Scenario 3

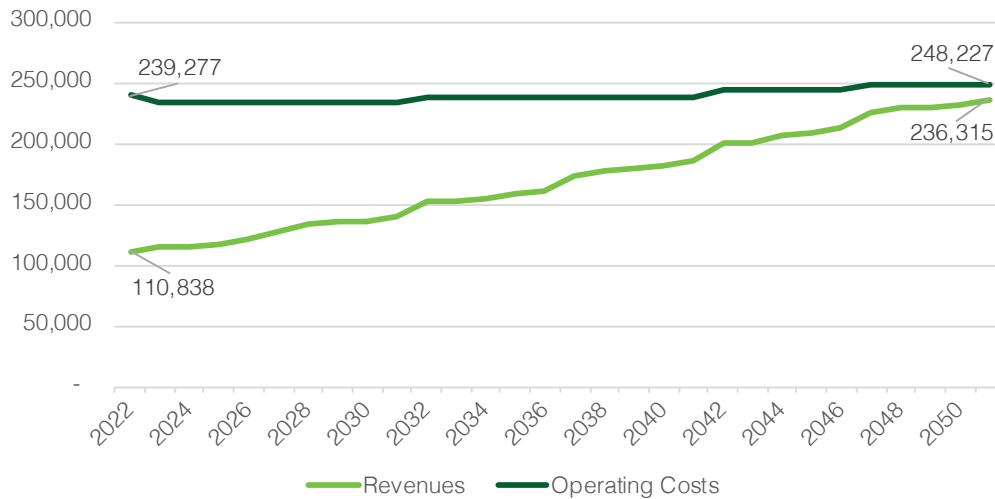
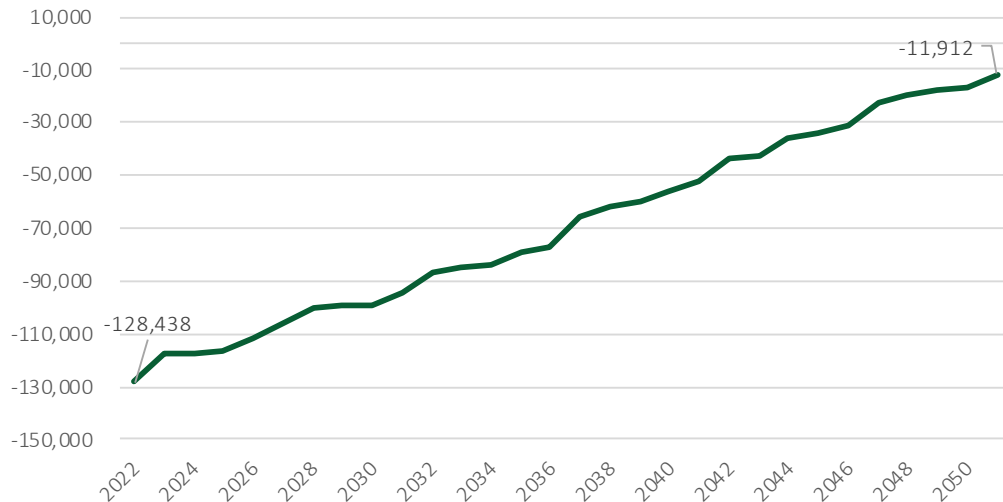


Table 6-23: Operating Fund Surplus/Deficit (30 Years) – Scenario 3



6.4 Financial Summary

Cemetery revenues are less than estimated in the 2016 Needs Assessment, primarily due to significantly lower population growth forecasts. Cemetery operations and maintenance costs are substantially higher due to staff and equipment needs determined by Town staff, particularly the need for two FTEs from the outset and dedicated equipment for the cemetery. This results in the need for a significant subsidy from the Town to cover annual operations and maintenance costs.

There may be ways to reduce maintenance costs, and thereby the subsidy, through different approaches to maintenance by Town staff and/or by involving a contractor for a portion of the maintenance. There are two options worthy of exploration. One is the use of Town parks crews for ongoing maintenance of the cemetery site. This would require a review of staff work descriptions and union considerations. The other option is the use of a contractor for interments. To investigate this option, a request for proposals from contractors would be a suitable approach. The term of the contract would need to be long enough to encourage contractors to submit a proposal, but short enough that the Town would have options for taking over the work once revenues are higher.

7.0 Implementation Plan

7.1 Cemetery Operations

The Town of Stony Plain will need to have staff, services, equipment, and policies in place to operation the cemetery. The following are the key services areas needed for cemetery administration, management and operations:

- **Planning** – prepare and update bylaw, establish fees, site planning and design (most often falls within the responsibility of Parks or Community Services, sometimes Planning)
- **Capital Development** – project management, construction management (most often by Public Works or Parks)
- **Clerk** – public interface, selling cemetery services, supporting family needs (usually assigned to someone on the municipal administrative team such as Community Services clerk; once a cemetery is large enough, a full-time staff person is assigned, and for very large cemeteries, there may also be support staff)
- **Administration** – record keeping, collecting fees, obtaining permits (usually combined with the person responsible for public interface, or administration can be from the Finance or Administration departments)
- **Operations and Maintenance** –
 - maintaining site – mowing grass, trimming, weeding, litter removal (usually by the same team that maintains parks)
 - cemetery services - performing burials – excavation and backfill, cremation services (burial and niche), exhumation, installing monuments (can be same team as above or Public Works if that is a different group)

The following are some of the systems and equipment needed:

- **Software** – conducting and recording sales and expenses, record keeping of lots, tracking operations and maintenance, reporting, mapping – consider integration and use of existing systems for asset management and finance first to see if they can be adapted for cemetery management; more advanced options include software that can support genealogy research, and interactive site map for searching names and locations in the cemetery
- **Equipment** – lowering device, shoring device, mower, weed eaters, squeeze lift for monuments, bobcat excavator, truck
- **Webpage** – cemetery information and fees on Town's website
- **Marketing Strategy** – to inform the public about cemetery services

It is advisable for cemetery staff to obtain training in the respective operations, which could be through courses, conferences, and collaboration with staff working in other cemeteries. It is also beneficial to join and attend industry associations. The Western Canada Cemetery Association will offer great connections and information. The BC Funeral Association is a larger organization that includes cemetery operators, and its conferences and resources would be valuable as well.

7.2 Software Analysis

There are two main options for cemetery software – using and adapting existing software used by the Town or purchasing proprietary cemetery software packages. Other communities report concerns with packaged software in terms of compatibility with other municipal systems and capability to meet specific needs. There are few cemetery software packages available in Canada and those in the US cannot usually be used due to issues with the confidentiality of the data.

Town staff participated in a workshop in December 2019 to explore current software capabilities and the applicability to cemetery administration. The table below summarizes the software currently used regularly by Town departments.

MaxGalaxy	
Current Uses	Usage Notes
<ul style="list-style-type: none"> Program sign-up Facilities booking Block ice booking 	<ul style="list-style-type: none"> Generates editable reports Not online Not integrated with finance Software support challenges Phone bookings only Town is having challenges with the vendor Unlikely to transfer well to cemetery use due to short-term storage of data
Bellamy	
Current Uses	Usage Notes
<ul style="list-style-type: none"> Utilities billing and meter readings Offsite levies Property assessments for the purpose of taxation Employee timesheets Hiring process Purchase orders Assessments, tax data 	<ul style="list-style-type: none"> Tax management is integrated Generates purchase orders Historical data management

CityWide	
Current Uses	Usage Notes
<ul style="list-style-type: none"> Finance department Inventory systems 	<ul style="list-style-type: none"> User-friendly Quick uploads
ESRI/ArcGIS	
Current Uses	Usage Notes
<ul style="list-style-type: none"> Asset data storage Mapping 	<ul style="list-style-type: none"> The Town has an in-house GIS specialist who can build functions into ESRI that supplement software that other departments are using Can manipulate (draw polygons and attach information) Online portal Indefinite longevity of data Asset 123 Survey 123
eSite (through Serenic)	
Current Uses	Usage Notes
<ul style="list-style-type: none"> Permitting 	<ul style="list-style-type: none"> Online function Public cannot access online function directly, still requires Town staff input

Using the collection of knowledge of current software uses and limitations, the group brainstormed the important features of a software tool and made connections to cemetery activities. The following list of important features for either one tool, or a combination of tools, emerged from the discussion:

- Online capability
- Longevity of record-keeping
- Connection/integration with Bellamy
- Spatial mapping
 - For record-keeping and internal communication
 - Spatial accuracy to support staff responsible for interment locations
- Enhancing customer experience by providing visuals (for wayfinding within the cemetery, for determining plot availability, etc.) Must support good coordination between departments (this software either integrates with existing software, or workflows/processes must be developed)
- User-friendly (this can be subjective, and the Town must be clear on who the users are)
- Capability for multi-phased transactions, or the coordination of multi-phase transactions

- Reporting functions
 - Coordination with Public Works
 - Operations & Maintenance
 - Where to dig?
 - When to dig?
 - Black out periods for maintenance activities (ie. burial services)
 - Coordination of plot filling and headstone placement
 - Lawn Maintenance schedule
 - Road maintenance
 - Snow removal
 - Annual reporting
 - Capacity
 - Usage
 - Financial report
 - Forecasting
- Financial management
 - Invoicing
 - Accepting payment
 - Revenue and expense tracking
- Connection/compatibility with funeral homes

There are several software options (or combinations of options) available to the Town that could adequately serve cemetery administration needs. At the end of the discussion, there was consensus that the Town already has many different software systems that are capable of many of the features that are important to cemetery administration. The participants agreed that the capabilities of both Bellamy and ESRI in supporting cemetery administration should be explored before a stand-alone cemetery software is considered. This will also involve the development of internal processes to support the necessary functions like sales and operations coordination.

Some key considerations for the successful development of processes include the following:

- While the development of processes will not involve purchase costs, there will be some start-up costs in staff time and resources
- Development of processes should be completed in collaboration with all departments that will be participating in the processes
- Start with observing existing processes that are similar and already work well, and adapt to the needs of cemetery administration
- Identify a staff champion who is accountable and responsible for the development and implementation of new processes
- Periodically revisit processes to confirm that they are working as needed, and adjust processes if necessary

The following are recommended as the next steps for software determination:

1. Discuss the cemetery module available in Bellamy and ask Bellamy some questions about the desired features. Assess whether this module will adequately support the financial administration of the cemetery and assess the value for the price.
2. Explore the capabilities of ESRI to support the spatial information gathering, mapping, and data storage needs for the cemetery.
3. Collaborate with Finance and GIS to develop workflows and processes that could effectively integrate data between Bellamy and ESRI.
4. Document a plan for data and information management for the cemetery that has clear roles, responsibilities and workflows.

7.3 Next Steps

The following items will be addressed in the next phase of work once the Master Plan is approved by Council.

Administration

- Confirm cemetery fees
- Establish operations and maintenance procedures for different parts of the cemetery, distinguishing between manicured and natural areas
- Request proposals for operations and maintenance of the cemetery
- Determine whether Town or a contractor will conduct operations and maintenance and set up staff, systems and equipment accordingly
- Set up software per the previous section
- Hire or designate staff for cemetery administration
- Provide training for staff as required
- Prepare a Cemetery Bylaw
- Set up a cemetery webpage on the Town's website
- Prepare a marketing strategy for cemetery services

Detailed Design and Construction

- Obtain approvals from the Province as required
- Prepare a detailed design package for the cemetery that includes drawings and specifications
- Tender the project and set up staff for construction management services

Appendix A:

Community Survey Summary

Introduction

An online survey was used to collect input on community members' cemetery needs, and their level of interest in potential cemetery services and design features at Stony Plain's new cemetery. The survey was available from January 7 to February 5, 2020 and was completed by 173 community members.

The summary below presents the findings of this survey. Because all questions were optional, the percentages shown in the graphs are based on the number of respondents that answered each question. For some questions, participants were also given the opportunity to provide comments. Themes from these comments are summarized and the numbers in parentheses show how many comments were related to each theme if there was more than one of comment.

Demographics

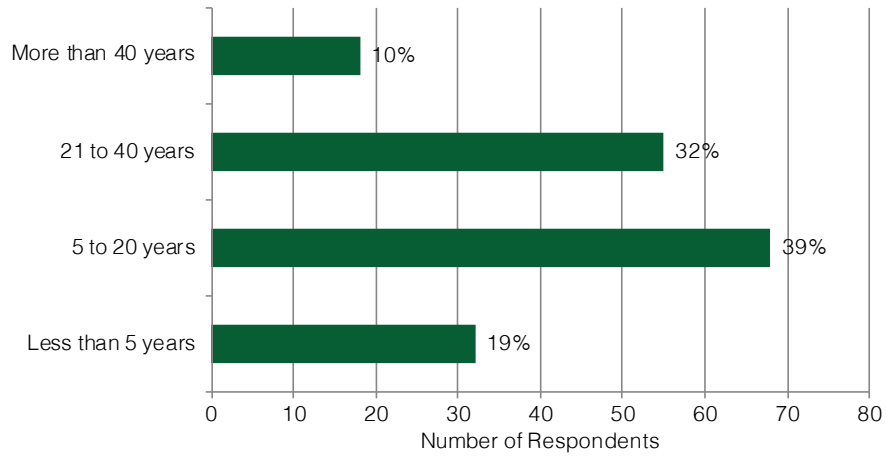
Participants were encouraged to answer some demographic questions to provide an understanding of their connections to Stony Plain and the degree to which participants represent the age range of the broader community.

Eighty-four percent of survey participants live within the Town of Stony Plain and 13 percent live in a rural area near Stony Plain. A small percentage are from Spruce Grove and three participants live elsewhere - Wabamun, Parkland County, and the Greater Edmonton Area.

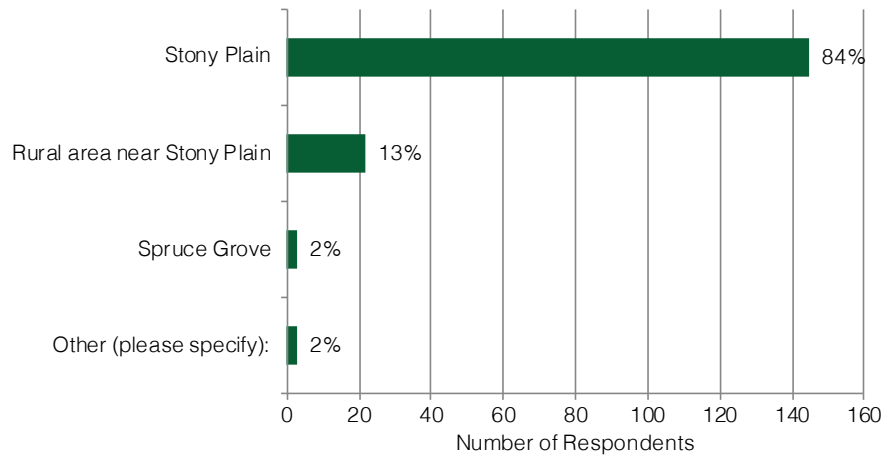
Most people have lived in their respective community for between five and 20 years with only ten percent for longer than 40 years and 19 percent less than five years.

The survey has a good distribution of participants between 21 and 80 years old. There is only one participant over 80 and one under 21.

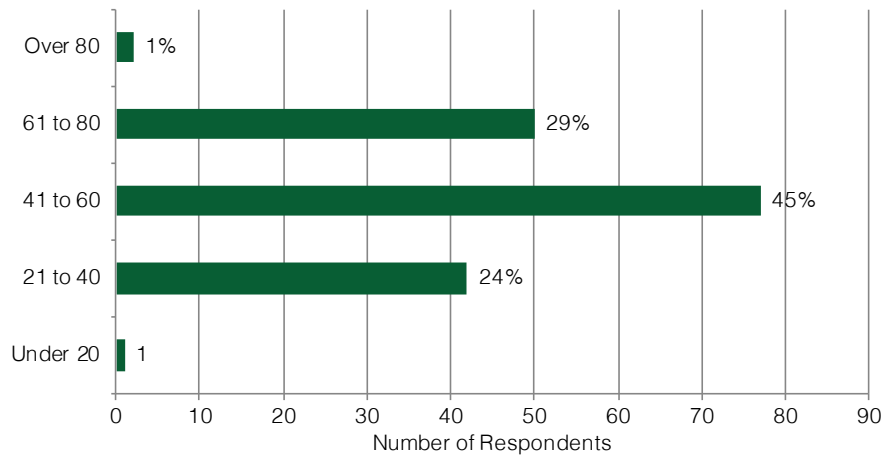
How long have you lived there?



Where do you live?



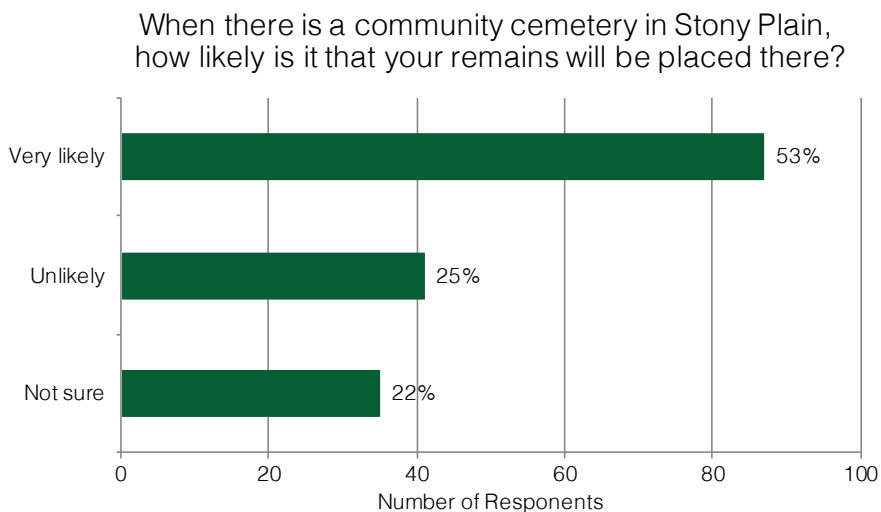
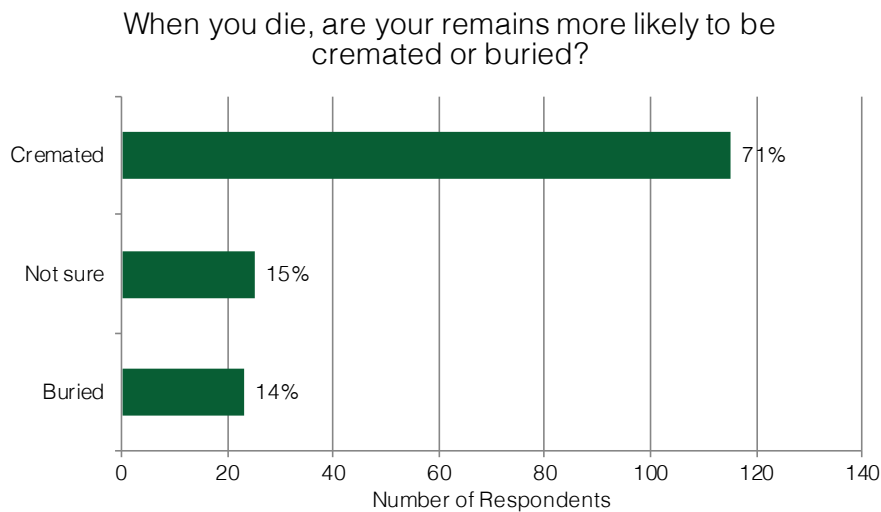
What is your age range?



Cemetery Needs

Almost three-quarters of survey participants reported that their remains are most likely to be cremated after they pass away. Fourteen percent of participants reported that their remains are likely to be buried and 15 percent said they were not sure what would happen to their remains.

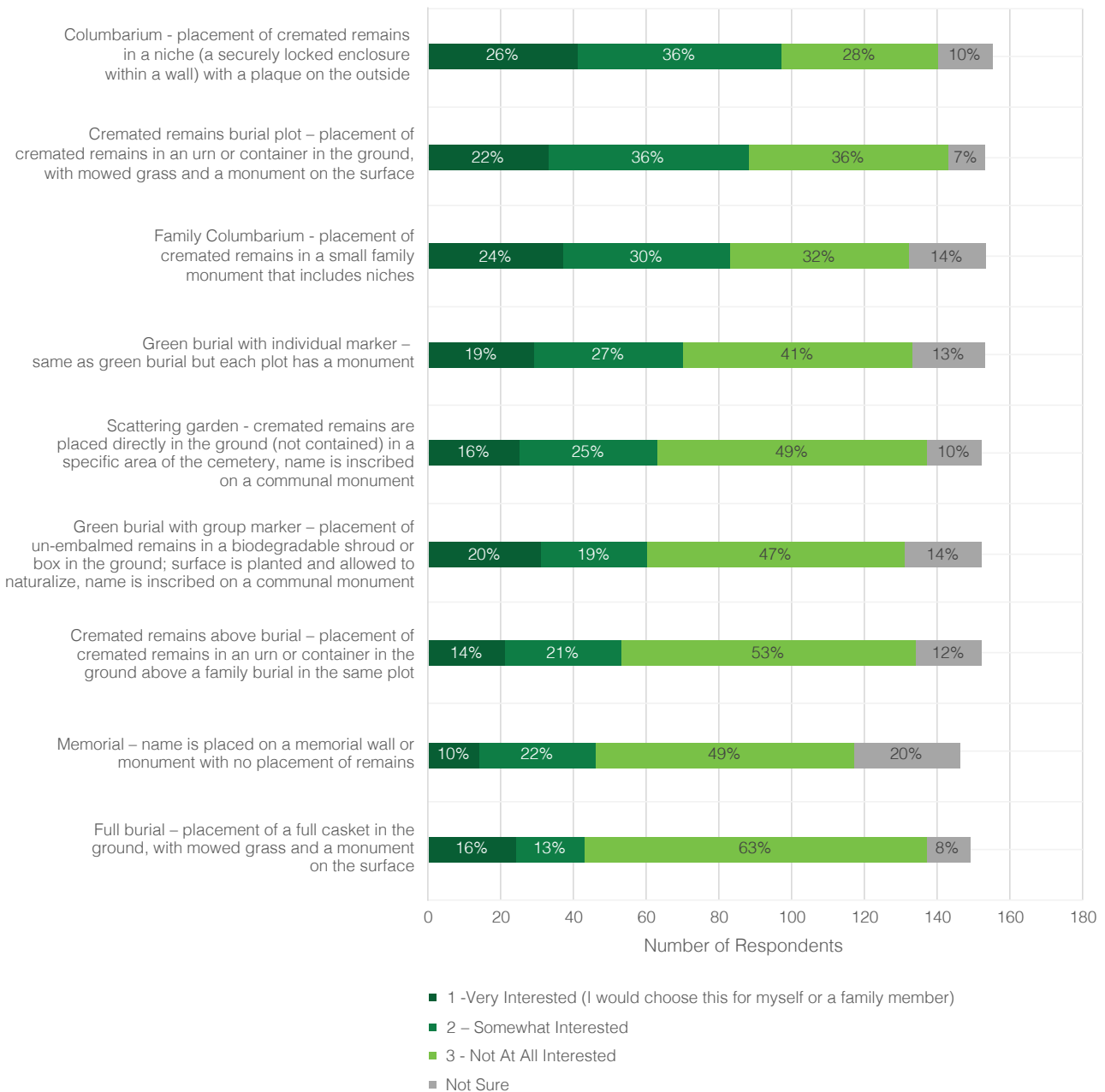
More than half of the respondents reported that would very likely have their remains placed at Stony Plain Cemetery, with another 22 percent not sure.



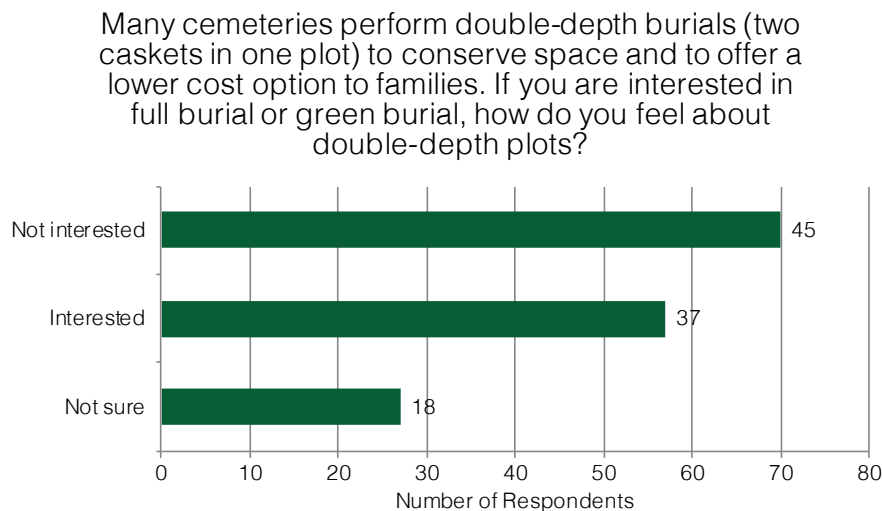
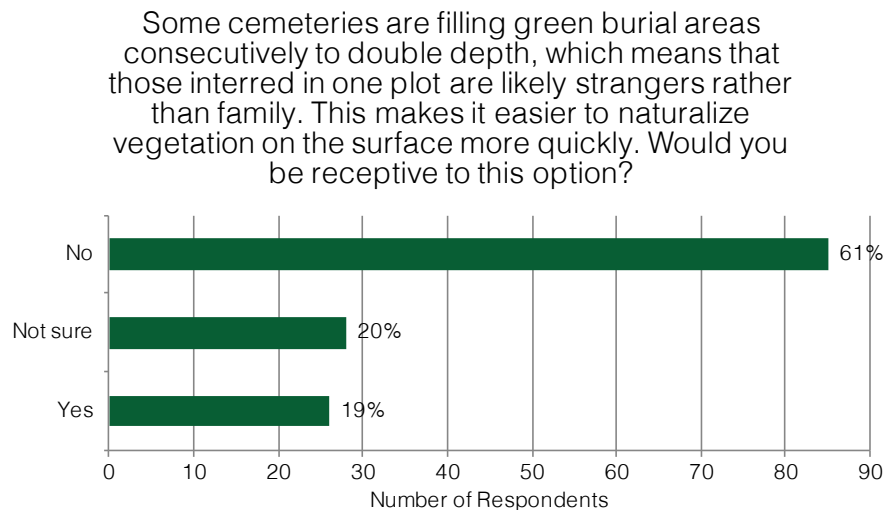
Cemetery Services and Features

Participants were asked about their level of interest in a variety of cemetery services. The graph below summarizes their responses. The proposed services are arranged in order of highest interest - 'very interested' and 'somewhat interested' to not at all interested. Participants expressed the most interest in the columbarium.

What is your interest in the following cemetery services?

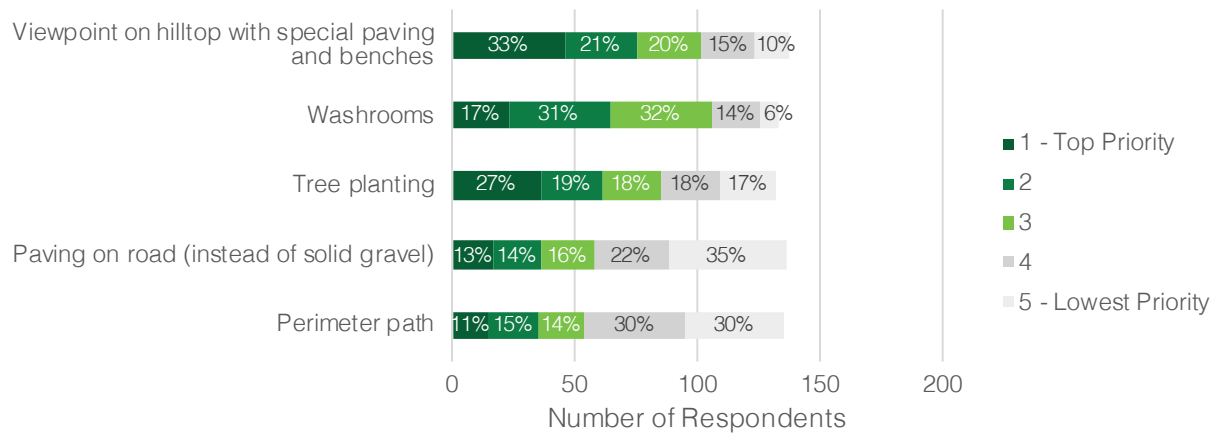


Survey participants were asked their opinion of double depth burial, both consecutive and within a family. Nineteen percent are receptive to consecutive double-depth burial and 37 percent are open to this option if they can purchase the plot.



Participants were asked about their interest in additional design features in the cemetery if the budget allows this. The graph below summarizes their responses. Design features are arranged in order of highest interest 'top priority' (1 and 2) to 'lowest priority' (5). There is significant interest in all proposed design features, particularly the viewpoint, washrooms, and tree planting.

The Town has been approved a limited budget for construction for Phase 1 of the cemetery. If there is additional funds available please rank the following options



Concept Plan

Survey participants were asked to share comments on the draft concept plan (see next page). There was a wide range of answers to this question as summarized below:

Multiple Comments

- I like it / looks good (10)
- Waste of taxpayers' money, no need for a cemetery (9)
- Let's get this built (5)
- Love the move toward green burial/ the option (3)
- Green burials with pods that will grow into trees with either a plaque or a headstone next to the tree (3)
- Gazebo, benches, small pond (2)

Singular Comments

- Is the cemetery only for Town residents?
- Will stormwater runoff become contaminated from this site? (please explain with data)
- Will the area be fenced?
- Where is this located? How will it be accessed?
- Where is it in Layman's View?
- Space for emergency services memorial
- Work with the Legion to design the veteran's cemetery
- Concerned about vandalism

Appendix B:

Population and Mortality

Trend Analysis

Table A-9-1: Stony Plain Population Projections, Total Deaths, Death Rate per 1,000 People, 2022-2051

Year	Low Growth Scenario			Medium Growth Scenario		
	Population	Total Deaths	Death Rate per 1,000 People	Population	Total Deaths	Death Rate per 1,000 People
2022	18,383	146	7.9	18,712	147	7.9
2023	18,566	148	8.0	19,012	150	7.9
2024	18,752	150	8.0	19,316	152	7.9
2025	18,940	152	8.0	19,625	155	7.9
2026	19,129	155	8.1	19,939	158	7.9
2027	19,320	157	8.1	20,258	161	7.9
2028	19,514	160	8.2	20,582	164	8.0
2029	19,709	162	8.2	20,911	167	8.0
2030	19,906	165	8.3	21,246	171	8.0
2031	20,105	167	8.3	21,586	174	8.1
2032	20,306	170	8.4	21,931	178	8.1
2033	20,509	173	8.5	22,282	182	8.2
2034	20,714	176	8.5	22,639	186	8.2
2035	20,921	179	8.6	23,001	190	8.3
2036	21,130	182	8.6	23,369	194	8.3
2037	21,342	186	8.7	23,743	198	8.4
2038	21,555	189	8.8	24,123	203	8.4
2039	21,771	192	8.8	24,509	207	8.4
2040	21,988	195	8.9	24,901	211	8.5
2041	22,208	198	8.9	25,299	216	8.5
2042	22,430	201	9.0	25,704	220	8.6
2043	22,655	204	9.0	26,115	224	8.6
2044	22,881	207	9.1	26,533	229	8.6
2045	23,110	210	9.1	26,958	233	8.6
2046	23,341	213	9.1	27,389	238	8.7
2047	23,574	216	9.2	27,827	242	8.7
2048	23,810	217	9.1	28,272	244	8.6
2049	24,048	219	9.1	28,725	247	8.6
2050	24,289	220	9.1	29,184	250	8.6
2051	24,532	222	9.0	29,651	253	8.5

Table A 92: Alberta Age-Specific Mortality Rates, 2008-2017

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Less than 1	0.590%	0.570%	0.560%	0.560%	0.570%	0.570%	0.570%	0.570%	0.580%	0.600%
1 to 4	0.620%	0.550%	0.590%	0.520%	0.430%	0.530%	0.510%	0.470%	0.440%	0.460%
5 to 9	0.020%	0.020%	0.030%	0.020%	0.020%	0.030%	0.020%	0.020%	0.020%	0.020%
10 to 14	0.010%	0.010%	0.010%	0.010%	0.010%	0.010%	0.010%	0.010%	0.010%	0.010%
15 to 19	0.010%	0.010%	0.010%	0.010%	0.010%	0.010%	0.020%	0.020%	0.010%	0.010%
20 to 24	0.050%	0.050%	0.040%	0.050%	0.050%	0.040%	0.060%	0.050%	0.050%	0.050%
25 to 29	0.070%	0.060%	0.070%	0.060%	0.070%	0.070%	0.070%	0.080%	0.080%	0.070%
30 to 34	0.070%	0.070%	0.060%	0.060%	0.070%	0.070%	0.080%	0.080%	0.080%	0.090%
35 to 39	0.070%	0.070%	0.070%	0.070%	0.070%	0.070%	0.070%	0.090%	0.090%	0.110%
40 to 44	0.110%	0.100%	0.090%	0.080%	0.080%	0.080%	0.100%	0.100%	0.110%	0.110%
45 to 49	0.140%	0.150%	0.130%	0.130%	0.140%	0.120%	0.140%	0.150%	0.140%	0.140%
50 to 54	0.240%	0.230%	0.190%	0.210%	0.220%	0.220%	0.220%	0.200%	0.210%	0.210%
55 to 59	0.370%	0.350%	0.330%	0.320%	0.320%	0.320%	0.310%	0.320%	0.340%	0.320%
60 to 64	0.550%	0.490%	0.490%	0.510%	0.480%	0.470%	0.490%	0.470%	0.490%	0.480%
65 to 69	0.810%	0.800%	0.750%	0.770%	0.760%	0.760%	0.730%	0.750%	0.720%	0.720%
70 to 74	1.300%	1.270%	1.150%	1.160%	1.180%	1.190%	1.150%	1.130%	1.140%	1.110%
75 to 79	2.130%	1.990%	2.020%	1.990%	1.940%	1.970%	1.850%	1.790%	1.790%	1.840%
80 to 84	3.410%	3.400%	3.150%	3.080%	3.120%	3.050%	2.990%	2.990%	3.000%	2.900%
85 to 89	5.820%	5.500%	5.510%	5.170%	5.360%	5.250%	5.250%	5.250%	5.070%	4.980%
90+	10.180%	9.730%	9.230%	9.300%	9.450%	9.470%	9.050%	9.000%	8.810%	9.020%

Appendix C:

Equipment Financing Schedule

Table A-10-1: Equipment Financing Schedule

Asset Description	Year Installed	Service Life	Asset Value	Equipment Required					
				2022	2027	2032	2037	2042	2047
Vehicle	2022	15	37,000	37,000	-	-	37,000	-	-
Backhoe (John Deere)	2022	10	200,000	200,000	-	200,000	-	200,000	-
Gator	2022	10	13,500	13,500	-	13,500	-	13,500	-
Lawnmower	2022	10	10,000	10,000	-	10,000	-	10,000	-
Lowering Device	2022	5	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Chain/Cable Rigs	2022	10	5,000	5,000	-	5,000	-	5,000	-
Misc Burial Equipment	2022	5	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Misc Lawn Maintenance	2022	5	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Misc General Maintenance	2022	5	5,000	5,000	5,000	5,000	5,000	5,000	5,000
Reel & Hose system	2022	10	15,000	15,000	-	15,000	-	15,000	-
Fuel Tank	2022	25	20,000	20,000	-	-	-	-	20,000
Oil Tank	2022	25	3,000	3,000	-	-	-	-	3,000
Total	-	-	328,500	328,500	25,000	268,500	62,000	268,500	48,000

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Appendix D:

Comparable Fees Table

Cemetery Fees									
Comparable Communities and Proposed Stony Plain Fees									
Plots	City of Spruce Grove	City of St. Albert	City of Leduc	Parkland County	Beaumont	Northern Lights Cemetery (City of Edmonton)	Average (Excluding Edmonton)	Proposed Stony Plain Fees - AVG Scenario	Proposed Stony Plain Fees - High Scenario less PCF
Standard Plot Resident	\$1,200	\$1,600	\$850	\$500	\$800	\$2,754	\$990	-	-
Standard Double Depth Resident	N/A	\$1,600	\$850	N/A	\$800	N/A	\$1,083	\$1,000	\$2,200
Green Plot Double Depth Resident	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$900	\$1,980
Infant / Child Plot resident	N/A	\$640	\$100	N/A	\$400	\$1,176	\$380	\$400	\$940
Cremation Plot Resident	\$500	\$755	\$550	\$500	\$450	\$1,368	\$551	\$600	\$1,100
Cremation Plot Child Resident	N/A	\$302	N/A	N/A	N/A	N/A	\$302	N/A	N/A
Veteran Res/Non-Res	N/A	\$800	NO CHARGE	N/A	\$225	N/A	\$513	\$400	\$320
Vetern Spouse	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Columbarium Niche Low Range	\$1,350	\$1,950	\$1,350	N/A	\$1,300	\$3,624	\$1,488	\$1,500	\$3,440
Columbarium Niche Mid Range	\$1,450	\$2,280	N/A	N/A	\$1,500	N/A	\$1,743	\$1,700	\$3,990
Columbarium Niche Upper Range	\$1,550	\$2,450	\$1,550	N/A	\$1,700	\$4,756	\$1,813	\$1,900	\$4,510
Scattering	N/A	\$0	N/A	N/A	N/A	\$0	\$0	\$0	\$0
Interment (Open/Close) Services									
Full Burial (standard depth)	\$850	\$920	\$500	N/A	\$795	\$1,185	\$766	\$775	\$1,185
Full Burial (double depth)	\$1,000	\$1,200	\$650	N/A	\$985	\$1,849	\$959	\$1,010	\$1,850
Green Burial (standard depth)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$700	\$1,070
Green Burial (double depth)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	\$910	\$1,670
Full Burial / Green Burial - Overtime	\$360	\$530	\$75 - \$250	N/A	\$1,195	\$306 - \$514	\$584	\$390	\$390
Full Burial - Winter	No winter surcharge	No winter surcharge	No winter surcharge	N/A	\$1,295	\$514	\$1,295	No winter surcharge	No winter surcharge
Infant Burial	N/A	N/A	N/A	N/A	N/A	\$521	N/A	N/A	N/A
Cremation	\$400	\$504	\$200	N/A	\$370	\$475	\$369	\$375	\$475
Cremation - Overtime	\$360	\$530	\$75 - \$250	N/A	\$555	\$153 - \$257	-	\$390	\$390
Cremation - Winter	No listed winter surcharge	No listed winter surcharge	No winter surcharge	N/A	\$870	\$257	\$870	No winter surcharge	No winter surcharge
Niche	\$130	\$125	\$100	N/A	\$100	\$243	\$114	\$125	\$250
Niche - Overtime	\$360	\$300	\$50 - \$250	N/A	\$160	\$153 - \$257	-	\$250	\$250
Niche - Winter	No winter surcharge	No winter surcharge	No winter surcharge	N/A	No winter surcharge	\$257	-	No winter surcharge	No winter surcharge
Ashes Scattering	N/A	\$90	N/A	N/A	N/A	\$242	\$90	\$90	\$250
Additional Fees									
Concrete liner		\$735	N/A	N/A	N/A	\$931	\$735	Based on cost	Based on cost
Marker Permit / Admin Fee	\$65		\$50 - \$75	N/A	\$30	\$85	\$48	\$50	\$50
Marker Installation	N/A	\$450	N/A	N/A	N/A	N/A	\$450	N/A	N/A

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Appendix E:

Class C Cost Estimate

Stony Plain Cemetery Class C Cost Estimate				
Estimate is based on Conceptual Plan dated 2020/03/26				
COST ESTIMATE	unit	estimated quantity	unit rate	Total Cost
PHASE 1 (57,200 m²)				
SITE PREPARATION				
<i>Site Preparation</i>				
Mobilization/Demobilization	LS	1	\$5,000.00	\$ 5,000
			<i>Subtotal Site Preparation</i>	<i>\$ 5,000</i>
<i>Removals</i>				
Tree clearing and grubbing at entrance	allow	1	\$2,500.00	\$ 2,500
			<i>Subtotal Removals</i>	<i>\$ 2,500</i>
<i>Earthworks and Grading</i>				
Site stripping and grading with on-site reuse	m³	28600	\$15.00	\$ 429,000
Drainage ditch along west perimeter	lm	350	\$30.00	\$ 10,500
			<i>Subtotal Earthworks and Grading</i>	<i>\$ 439,500</i>
SITE CIRCULATION				
<i>Service Roads</i>				
6.0 m wide two-way road base (geotextile, 150mm sub-base, 100mm base) including swales	lm	340	\$390.00	\$ 132,600
3.5m wide one-way road base (geotextile, 150mm subbase, 100mm base) including swales	lm	380	\$227.50	\$ 86,450
			<i>Subtotal Service Roads</i>	<i>\$ 219,100</i>
PARKING				
<i>Parking along one-way roads (13 stalls total)</i>				
Granular parking surface including strip, prep, geotextile, 150mm subbase, 100mm granular base	m²	220	\$70.00	\$ 15,400
			<i>Subtotal Public Parking Lot</i>	<i>\$ 15,400</i>
MAINTENANCE YARD				
<i>20m x 25m Maintenance Yard (incl. access road)</i>				
Granular yard surface including strip, prep, geotextile, 150mm subbase, 100mm granular base	m²	660	\$70.00	\$ 46,200
1.5m high chain link fence	lm	90	\$100.00	\$ 9,000
			<i>Subtotal Maintenance Yard</i>	<i>\$ 55,200</i>

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INTERMENT AREAS				
<i>Grass for Interment Areas</i>				
Maintained grass including fine grade, amend 150mm growing medium, finish grade, seed, watering and establishment	m ²	49,100	\$9.00	\$ 441,900
			<i>Subtotal Grass</i>	<i>\$ 441,900</i>
<i>Veteran's Area</i>				
Granular surface for Veteran's Area including strip, prep, 100mm granular subbase on landscape fabric, 50mm granular surface	m ²	80	\$60.00	\$ 4,800
Columbarium, 48 niche double-sided with concrete base	ea	1	\$35,000.00	\$ 35,000
			<i>Subtotal Veteran's Area</i>	<i>\$ 39,800</i>
<i>Columbarium Garden</i>				
Granular surface for Columbarium Garden including strip, prep, 100mm granular subbase on landscape fabric, 50mm granular surface	m ²	300	\$60.00	\$ 18,000
Columbarium, 48 niche double-sided with concrete base	ea	2	\$35,000.00	\$ 70,000
			<i>Subtotal Columbarium Garden</i>	<i>\$ 88,000</i>
<i>Memorialization</i>				
Memorials for scattering and green burial areas	allow	2	\$8,000.00	\$ 16,000
			<i>Subtotal Memorialization</i>	<i>\$ 16,000</i>
SITE FEATURES				
<i>Entry Sign</i>				
Cemetery Entry Sign	allow	1	\$15,000.00	\$ 15,000
			<i>Subtotal Entry Sign</i>	<i>\$ 15,000</i>
<i>Entry Gate and Fence</i>				
Montage wrought iron style gate	LS	1	\$5,000.00	\$ 5,000
1.2 m high Montage wrought iron style fence	lm	10	\$200.00	\$ 2,000
			<i>Subtotal Entry Gate and Fence</i>	<i>\$ 7,000</i>
<i>Furnishings</i>				
Benches with concrete pad	ea	4	\$3,500.00	\$ 14,000
Waste receptacles with concrete pad	ea	1	\$1,800.00	\$ 1,800
			<i>Subtotal Furnishings</i>	<i>\$ 15,800</i>
PLANTING AND LANDSCAPING				
<i>Planting and Landscaping</i>				
Well for water to establish plants	LS	1	\$20,000.00	\$ 20,000
Rain garden areas (incl. 450mm growing medium)	m ²	250	\$65.00	\$ 16,250
Forest planting at entry	allow	1	\$10,000.00	\$ 10,000
Buffer trees along perimeter of site	allow	1	\$20,000.00	\$ 20,000
Trees along roads and in Columbarium Garden	ea	70	\$800.00	\$ 56,000
			<i>Subtotal Planting and Landscaping</i>	<i>\$ 122,300</i>
			SUBTOTAL	\$ 1,482,500
			15% Design Fees	\$ 222,400
			20% Contingency	\$ 296,500
			TOTAL	\$ 2,001,400

OPTIONAL ITEMS						
Buildings						
Washroom Building - 200 sf	LS	1	\$80,000.00	\$	80,000	
Reception and Maintenance Building - 450 sf	LS	1	\$160,000.00	\$	160,000	
			Subtotal Buildings	\$	160,000	
Utilities						
Water Cistern and Septic Tank (less well)	LS	1	\$10,000.00	\$	10,000	
Power (\$45,000 offsite plus onsite)	LS	1	\$60,000.00	\$	60,000	
			Subtotal Utilities	\$	70,000	
Security Lighting						
Solar Operated Security Lighting	LS	1	\$20,000.00	\$	20,000	
			Subtotal Security Lighting	\$	20,000	
Public Parking Lot (14 Stalls)						
Granular parking surface including strip, prep, geotextile,	m²	448	\$70.00	\$	31,360	
			Subtotal Public Parking Lot	\$	31,400	
Asphalt Paving						
Paved surface for two-way roads (75mm depth asphalt	lm	346	\$	180.00	\$	62,190.00
Paved surface for one-way roads (75mm depth asphalt pavement)	lm	382	\$	105.00	\$	40,110.00
Paved surface for parking lot (75mm depth asphalt pavement)	lm	448	\$	30.00	\$	13,440.00
Paved surface for parking areas (75mm depth asphalt	lm	220	\$	30.00	\$	6,600.00
Paved surface for maintenance yard (75mm depth asphalt pavement)	lm	660	\$	30.00	\$	19,800.00
			Subtotal Asphalt Paving	\$	142,200	
Viewpoint Paving and Furnishings						
Unit paver plaza including strip, prep, subbase, setting bed and concrete unit pavers	m²	132	\$180.00	\$	23,760	
Benches with concrete pad	ea	2	\$10,000.00	\$	20,000	
Public art monument or sculpture	allow	1	\$30,000.00	\$	30,000	
			Subtotal Plaza	\$	73,800	
Veteran's Area Monument/Sculpture						
Public art monument or sculpture for Veteran's Area	allow	1	\$30,000.00	\$	30,000	
			Subtotal Veteran's Area Monument/Sculpture	\$	30,000	
Granular Path Phase 1						
2.0m granular pedestrian surface including strip, prep, 100mm granular subbase on landscape fabric, 50mm granular surface	lm	747	\$120.00	\$	89,640	
			Subtotal Granular Path - Phase 1	\$	89,700	
Granular Path - Future Phases						
2.0m granular pedestrian surface including strip, prep, 100mm granular subbase on landscape fabric, 50mm granular surface	lm	827	\$120.00	\$	99,240	
Benches with concrete pad	ea	1	\$3,500.00	\$	3,500	
			Subtotal Granular Path - Future Phases	\$	102,800	
SUBTOTAL OPTIONAL ITEMS				\$	719,900	
15% Design Fees				\$	108,000	
20% Contingency				\$	144,000	
TOTAL				\$	971,900	

Appendix F:

Concept Plan Options

CONCEPT OPTION A

LEGEND

- ① VETERAN'S AREA
- ② FULL BURIAL
- ③ COLUMBARIUM GARDEN
- ④ CREMATION PLOTS
- ⑤ CREMATION PLOTS (FLUSH MONUMENTS)
- ⑥ FULL BURIAL (FLUSH MONUMENTS)
- ⑦ GREEN BURIAL



CONCEPT OPTION B

Lot 1
Block 1
Plan 522 0726

Road Plan 522 0726

Road

Allowance

LEGEND

- 1 VETERAN'S AREA
- 2 FULL BURIAL
- 3 COLUMBARIUM GARDEN
- 4 CREMATION PLOTS
- 5 CREMATION PLOTS (FLUSH MONUMENTS)
- 6 FULL BURIAL (FLUSH MONUMENTS)
- 7 GREEN BURIAL
- 8 GRASSLAND SCATTERING GARDEN

MAINTENANCE YARD
COMBINED RECEPTION/MAINTENANCE BUILDING
PARKING LOT
RELOCATED ENTRY ROAD

Lot A
Plan 52 0129

Lot 1
Plan 522 0873

Lot C
Plan 570 MC

Lot D
Plan 570 MC

C. of T. 892 189 402
S.W. 1/4 Sec.35-52-1-W5M
31.295 ha

SITE BOUNDARY

VIEWPOINT

FOREBAY

6M WIDE TWO-WAY ROAD

GRANULAR PATH

CN RAIL CORRIDOR

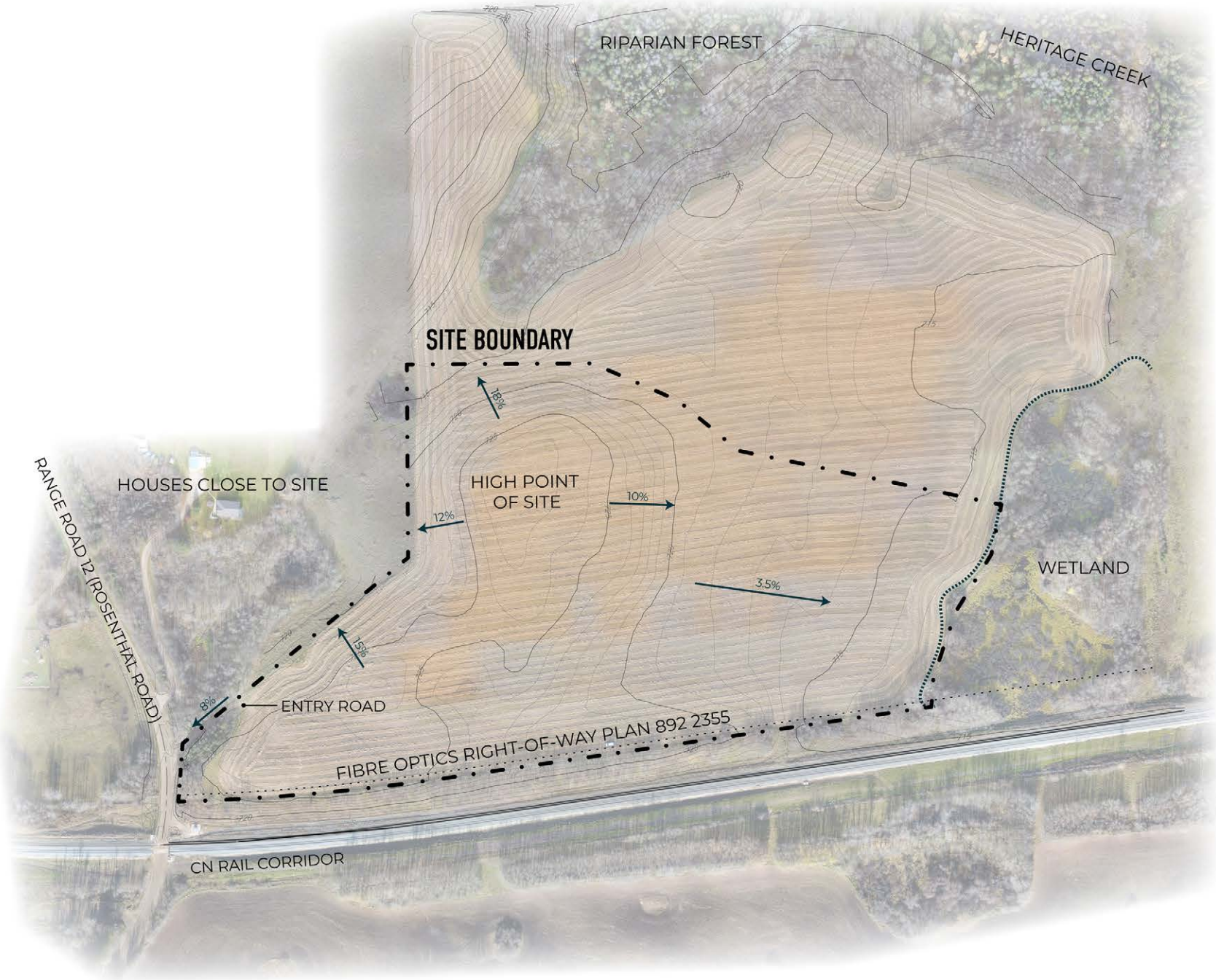
S.W. 1/4 Sec.35-52-1-W5M

0m 100m



DRAFT

MAP 1 - SITE INVENTORY



LEGEND

STUDY AREA BOUNDARY

1.5%

EXISTING DRAINAGE AND SLOPE

EDGE OF WETLAND

EDGE OF RIPARIAN FOREST

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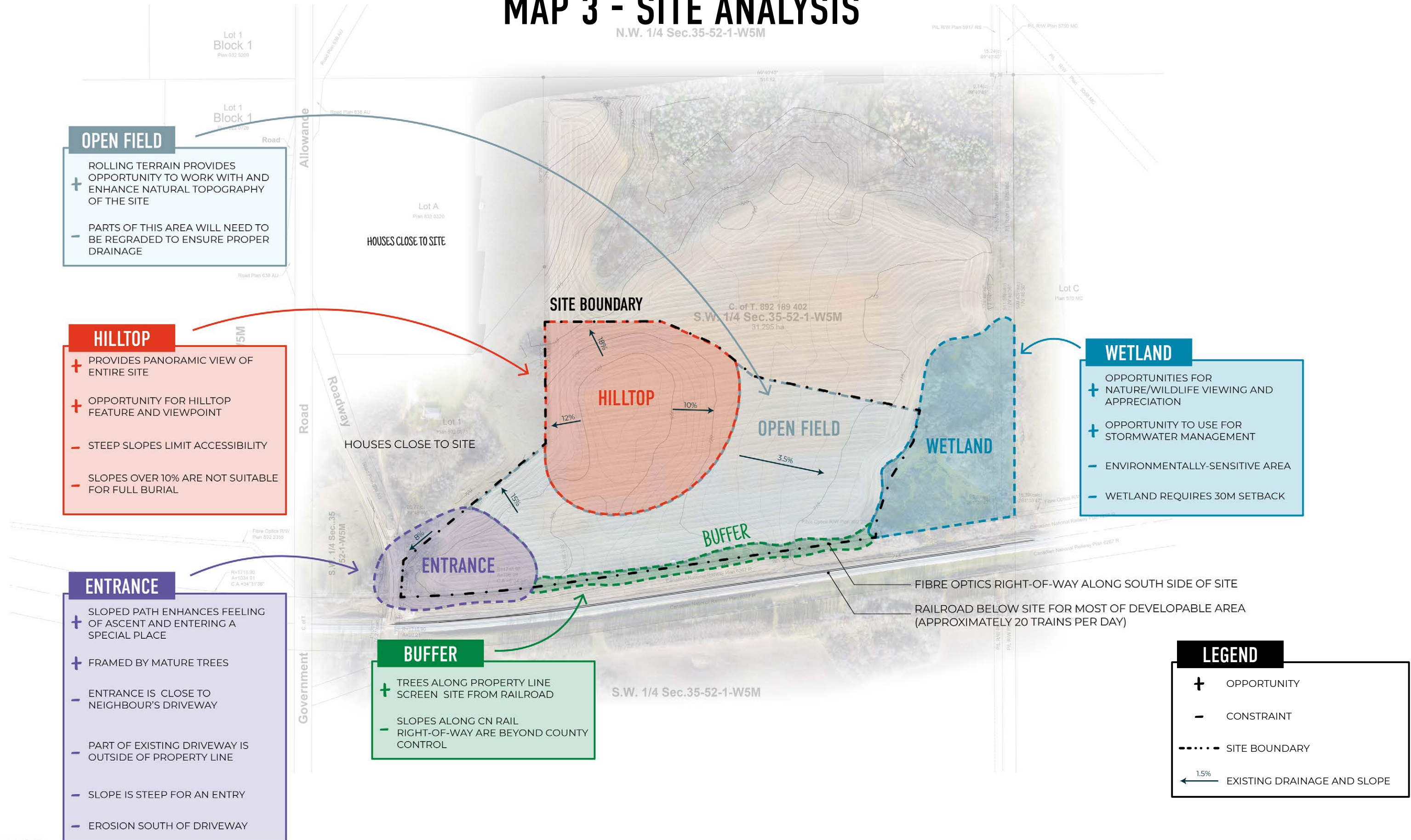
MAP 2 - EXISTING DRAINAGE PATTERNS AND PROPOSED STORMWATER MANAGEMENT CONCEPT



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MAP 3 - SITE ANALYSIS

N.W. 1/4 Sec.35-52-1-W5M



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LEGEND

- 1 VETERAN'S AREA
- 2 FULL BURIAL
- 3 COLUMBARIUM GARDEN
- 4 CREMATION PLOTS
- 5 FULL BURIAL (FLUSH MONUMENTS)
- 6 WILD ROSE SCATTERING GARDEN
- 7 GREEN BURIAL

- EXISTING 1M CONTOUR
- EXISTING 5M CONTOUR
- PROPOSED 1M CONTOUR
- PROPOSED 5M CONTOUR

- MONUMENT - PHASE 1
- MONUMENT - FUTURE PHASES

MAP 4 CEMETERY CONCEPT PLAN

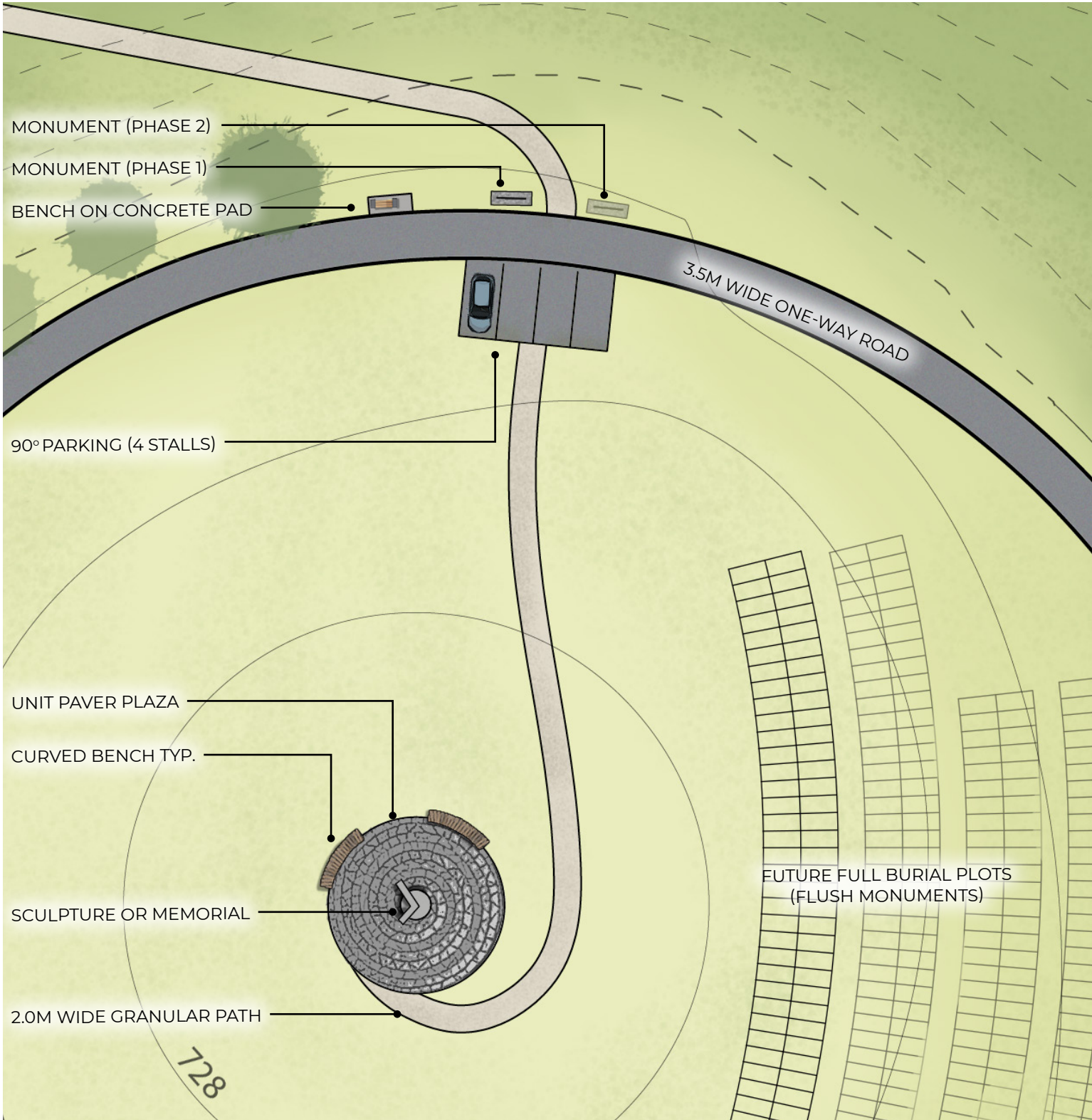
CEMETERY SERVICE	NUMBER OF SPACES FOR 30 YEARS	NUMBER OF SPACES FOR FUTURE PHASES
FULL BURIAL PLOTS (UPRIGHT MONUMENTS)	100	220
VETERAN FULL BURIAL PLOT	20	
FULL BURIAL PLOTS (FLUSH MONUMENTS)	240	936
CREMATION PLOTS	630	450
VETERAN CREMATION PLOT	40	
GREEN BURIAL - INDIVIDUAL MARKER	80	60
GREEN BURIAL - GROUP MARKER	50	50
COLUMBARIUM NICHE	336	



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MAP 5 CEMETERY CONCEPT PLAN ENLARGEMENTS

HILLTOP VIEWPOINT



VETERAN'S AREA AND COLUMBARIUM GARDEN

