APPLICATION OF A NONPROFIT PROJECT MANAGEMENT METHODOLOGY TO SOLID ROCK BIBLE CAMP INFRASTRUCTURE PLANNING

By

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ABSTRACT

Over the last decade, several costly infrastructure issues have been presented to Solid Rock Bible Camp (SRBC) due to deferred maintenance, poor record-keeping, and short-term, donation-based funding. This has cost the organization substantial time and money and has risked its ability to obtain insurance for its infrastructure. The application of project management principles to SRBC's unique nonprofit structure and values identified SRBC's current infrastructure needs, pursued future infrastructure solutions, and prioritized future project recommendations. This project documented the campus's current state and compared its inventory to industry standards and the needs of its stakeholders to find deficiencies. These deficiencies were prioritized by stakeholders based on their impact on SRBC's mission statement and then ranked using a cost-benefit analysis. The products of this project delivered to SRBC included: Current Infrastructure Inventory, Photographs of Each Structure, Estimated Rebuild Costs, Infrastructure Report Card, Summary of Deficiencies Identified, Summary of Solutions and Costs, Prioritization of Project Solutions, and Site-Specific Best Practices.

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KEY WORDS

Youth Camp, Summer Camp, Religious Camp, Bible Camp, Infrastructure Management, Facilities Planning, Campus Planning, Nonprofit Management, Project Management, Cost-Benefit Analysis, Nonprofit Stakeholders, Volunteer Labor, In-Kind Budget, Preventive Maintenance Budget, Facilities Consulting, Infrastructure Deficiencies

BACKGROUND

Solid Rock Bible Camp owns nearly 200 acres surrounding Miracle Lake, located five miles outside of Soldotna, Alaska, with the original buildings dating back to the 1950s. See Exhibit 1: Map of Solid Rock Bible Camp below. They are a non-profit religious organization that services several communities through week-long summer camps, winter retreats, camp rentals, equestrian programs, and more. Most of their staff live on campus and fund their salaries through several church connections. SRBC receives donations and volunteer labor to support most of its infrastructure needs, allowing it to keep tuition low and offer tuition scholarships. Low tuition is a core mission of this organization. Over the last decade, several issues have been presented to SRBC regarding infrastructure due to deferred maintenance, poor record-keeping, and short-term, donation-based funding. This has cost the organization substantial resources and has put its ability to obtain insurance for its infrastructure at risk.

Exhibit 1: Map of Solid Rock Bible Camp

LITERATURE REVIEW RESULTS

The literature review for this project included several best-practice recommendations related to specific portions of the camp's infrastructure, as outlined in comparable use-case standards. Areas of concern were discussed in stakeholder meetings to aid research, and the project manager used subject matter expertise to fill unknown areas of concern. All areas of concern related to portions of SRBC infrastructure were researched. Research with recommended standards that did not reflect SRBC current state were documented. These infrastructure areas were:

Minimum Preventive Maintenance Budget: The amount of money recommended to be allocated in a yearly budget for preventative maintenance.

Cost of Deferred Maintenance: The estimated future costs of deferring preventative maintenance.

Value of Volunteer Labor: The monetary value of an in-kind labor hour to an organization.

Building Codes' Plumbing Requirements: The minimum building codes standards for lavatories and showers per person in an equivalent living situation.

Horse Pasture Standards: The recommended minimum grazing pasture area for healthy horses.

Kitchen Size Recommendations: The recommended square footage of a kitchen per person it serves.

Office Space Recommendations: The recommended square footage of an office per employee.

Below is Exhibit 2: Literature Review Results which summarized the applicable literature review:

Literature Review	Applicable Results	Source
Minimum Preventive Maintenance Budget	2-4% allocation of the cost to rebuild the structure on preventive maintenance each year	National Research Council, 1990
Cost of Deferred Maintenance	Every $1 saved on deferred maintenance equates to $4 in capital expenditures	Rockefeller Institute of Government, 2007
Value of Volunteer Labor	$37.71 per hour in Alaska in 2025 dollars	Independent Sector, 2023 U.S. Bureau of Labor Statistics, n.d.
Building Codes' Plumbing Requirements	Dormitories require 8:1 ratio for users to showers, 10:1 ratio for users to lavatories	International Code Council, 2024

Horse Pasture Standards	2-4 acres of paddock per horse	Kenny, 2023
Kitchen Size Recommendations	5 square feet of kitchen space per person served	Sam Tell Companies, 2019
Office Space Recommendations	150-250 square feet of office space per employee	National Business Furniture, n.d.

Exhibit 2: Literature Review Results

RESEARCH APPROACH

The research approach was based on several stakeholder conversations regarding the issues seen regarding camp infrastructure. Their feedback led to researching topics regarding those issues and possible sources of their concerns. Research was done based on sections of the camp, distributed by area (ie, Kitchen, Office, Barn, Plumbing, etc.). Research was done by the planner, assisted by a research librarian at the University of Alaska, Anchorage (UAA), and Alaska Pacific University (APU) Consortium Library. Methods for finding research for this project included the use of the UAA/APU Consortium Library database, online web search tools, and Artificial Intelligence (AI). Research data used in this project were retrieved from the source article or website. AI summaries were ignored and discarded. If there was a discrepancy in the research recommendations and the current state, that was added to the literature research review. The planner used subject matter expertise to fill in unknown areas of concern. In this way, both seen and unseen infrastructure issues by the planner were accounted for with research. Research with recommended standards that did not reflect SRBC's current state was documented.

ANALYSIS

This project included the recordkeeping of current infrastructure assets owned by SRBC. This recordkeeping included photos and applicable building features that can be compared to the literature review results and deficiency log, can be used to calculate an estimated rebuild cost, and can be used by insurance companies and maintenance staff. See Exhibit 14: Infrastructure Photo Example on page 29 for an example of one of the 500 infrastructure photos taken and inventoried. The inventory categories included ID, Name, Primary Program, Secondary Program, Year of Construction, Year of Renovations, Family Units, Camp Bedrooms, Camp Beds, Lavatories, Showers, Offices, External Square Footage, Foundation, Framing, Stories, Roof Type, Year of Roof Installation, Heating Source, Electric, Gas, Propane, Sewer, Water, Winter Use, Insured, and Notes. See APPENDIX A on page 35 to see the Current Infrastructure Inventory. External square footage was measured to the nearest 50 square feet. Categories with unknown information that were not found during the site walkthrough, recordkeeping, or stakeholder knowledge were left blank. Structures that were estimated to be worth less than a few thousand dollars and were not an outhouse were omitted from this list. There were 82 structures documented on campus. This inventory was then reviewed, edited, and updated by the Executive Director and Facilities and Maintenance Director with historical knowledge. This document was then reviewed by the planner before final submittal with updates to the SRBC infrastructure during the project.

This inventory was used by a general contractor in Soldotna, Alaska, to provide a high-level estimate of the cost to rebuild and the cost of materials for each of the structures. These categories were added to the inventory. Due to the nature of SRBC being a nonprofit organization run on volunteer labor, the cost of materials column was recorded for camp management to estimate the cost of a potential rebuild, excluding in-kind labor. The costs provided by the contractor were estimates based on the inventory given to them and represent a no-less-than, high-level estimate based on rough sizing and average square footage costs, rounded to the nearest one thousand dollars. This process was to provide a rough order of magnitude in future infrastructure development planning. Deeper project planning by SRBC is recommended before any construction for the actual costs associated with rebuilding their infrastructure.

The local general contractor also gave Soldotna-specific construction best practices that were either added to this project's infrastructure recommendations or used to estimate future infrastructure project costs. The recommendations included:

- The 40/60 rule: This rule is used to estimate the cost of materials and labor used by multiple Soldotna contractors. Across several construction and maintenance industries, 60% of project costs are attributed to labor, and 40% to materials.

- The most efficient way to design buildings for the smallest cost per square footage is to have building floor plans as close to a square as possible and design them as two stories. This reduces siding and window expenses, stacks utilities vertically, and minimizes foundation and roof sizes.
- Estimated square footage costs for a variety of building types in Soldotna: residential housing, sewer/septic install, horse fencing, hotel lodging, commercial dining, office space, and bathhouses.
- Material recommendations: Use of materials that are more expensive, but are easy to maintain and clean, will cost the organization more expenses upfront, but can save the organization several maintenance hours and rebuild costs. Materials like Trex decking, non-aluminum gutters, and solid surface bathroom surfaces are products to consider when planning campus construction projects.
- For bidding work, $85 per hour is the unit used by Soldotna contractors to estimate the value of professional construction and maintenance employees to their company.

Victory Bible Camp in Glacier View, Alaska is a religious campus in Alaska that was the closest example of an industry standard for SRBC's current infrastructure. A site visit to Victory Bible Camp on September 6th, 2025 revealed that the campus has a significantly larger office area per employee and kitchen area per customer. They have one non-staff lavatory per 4.1 customers and one non-staff shower per 5.7 customers. Victory Bible Camp also reports actively hiring to reach seven total maintenance employees, one of whom is part-time. This site visit produced contextual industry data that was used to confirm academic recommendations.

The American Society of Civil Engineers (ASCE) releases an infrastructure report card for each state every four years. The Alaskan report card provides a letter grade to major infrastructure categories within the state. They publicize their basis of the criteria for each letter grade. Its language and criteria were adjusted by the planner to be specific to SRBC. The Executive Director and Facilities and Maintenance Director collaborated to fill out the report card, and the conversation from this exercise gave the planner notes on what areas of SRBC infrastructure to perform a literature review. The following is the grade criteria for the report card:

A. Excellent, fit for the future. The infrastructure in the system or network is generally in excellent condition, typically new, or recently rehabilitated, and currently meets capacity needs for the future. A few elements show signs of general deterioration that require attention. Facilities meet modern standards for functionality and are resilient to withstand most disasters and severe weather events.

B. Good, adequate for now. Infrastructure in the system or network is in good to excellent condition; some elements show signs of general deterioration that require attention. A few elements exhibit significant deficiencies. Safe and reliable, with minimal capacity issues and minimal risk.

C. Fair, required attention. The infrastructure in the system or network is in fair to good condition. It shows general signs of deterioration and requires attention. Some elements exhibit significant deficiencies in conditions and functionality, with increasing vulnerability to risk.

D. Poor, at risk. American infrastructure is in poor to fair condition and mostly below standard, with many elements approaching the end of their service life. A large portion of the system exhibits significant deterioration. Condition and capacity are of serious concern with a strong risk of failure.

F. Failing, unfit for purpose. The infrastructure in the system is in an unacceptable condition with widespread advanced signs of deterioration. Many of the components of the system exhibit signs of imminent failure

The Executive Director and Facilities and Maintenance Director assigned letter grades in the following way, using the following definitions to create a report card for SRBC's infrastructure.

- Capacity: Does the infrastructure's capacity meet current and future demands?
- Condition: What is the infrastructure's existing and near-future physical condition?
- Operation and Maintenance (O&M): What is the owner's ability to operate and maintain the infrastructure properly?

Below is Exhibit 3: Infrastructure Report Card that documented results from the Executive Director and Facilities and Maintenance Director.

Infrastructure Areas	Grades		
	Capacity	Condition	O&M
Staff Housing	C	B	B
Camp Housing	A	A	A
Sanitation/Waste	D	C	C
Utilities - Other	B	B	A
Equestrian	C	B	B
Kitchen	C	C	C

Office Space	D	A	B
Other Activity Buildings	C	C	C
Shop/Maintenance	C	B	B

Exhibit 3: Infrastructure Report Card

The above observations, research, and stakeholder conversations were compiled to determine nine major SRBC infrastructure deficiencies. A summary of these deficiencies was documented on a slide deck and presented to SRBC's Board of Directors and administrative staff. The following are the nine deficiencies.

- Lack of Non-Staff Sanitation

  The 2024 International Building Code (IBC) Chapter 29 Plumbing section lists minimum shower and lavatory needs for different types of buildings. The category of building that most closely relates to SRBC's use is Dormitories. This category's minimum standards will be the basis for this project's non-staff sanitation recommendations: one lavatory per ten people and one shower per eight people. SRBC is broken into separate camp programs. Below is Exhibit 4: Program Sanitation Inventory based on the Current Infrastructure Inventory in APPENDIX A on page 35 and its associated needs if it were classified as a dormitory under IBC. Outhouses are included and marked specially.

Program	**Capacity**	**Minimum Lavatories**	**Current Lavatories**	**Minimum Showers**	**Current Showers**
Wagon Train + Equestrian	60 people	6	3 (outhouses)	8	0
Wilderness	14 people	2	3 (outhouses)	2	0
Lakeside	220 people	22	10	28	6
Lodge	31 people	4	8	4	5
Total	325 people	34	18/24	42	11

Exhibit 4: Program Sanitation Inventory

Subtracting the minimum lavatories and shower requirements from the current inventory, the sanitation needs of SRBC are 31 showers and 16 lavatories (10 if including outhouses as a suitable lavatory). These numbers were graphed and compared to the IBC

and Victory Bible Camp's reported sanitation ratios in Exhibit 5: User Per Sanitation Comparison below.

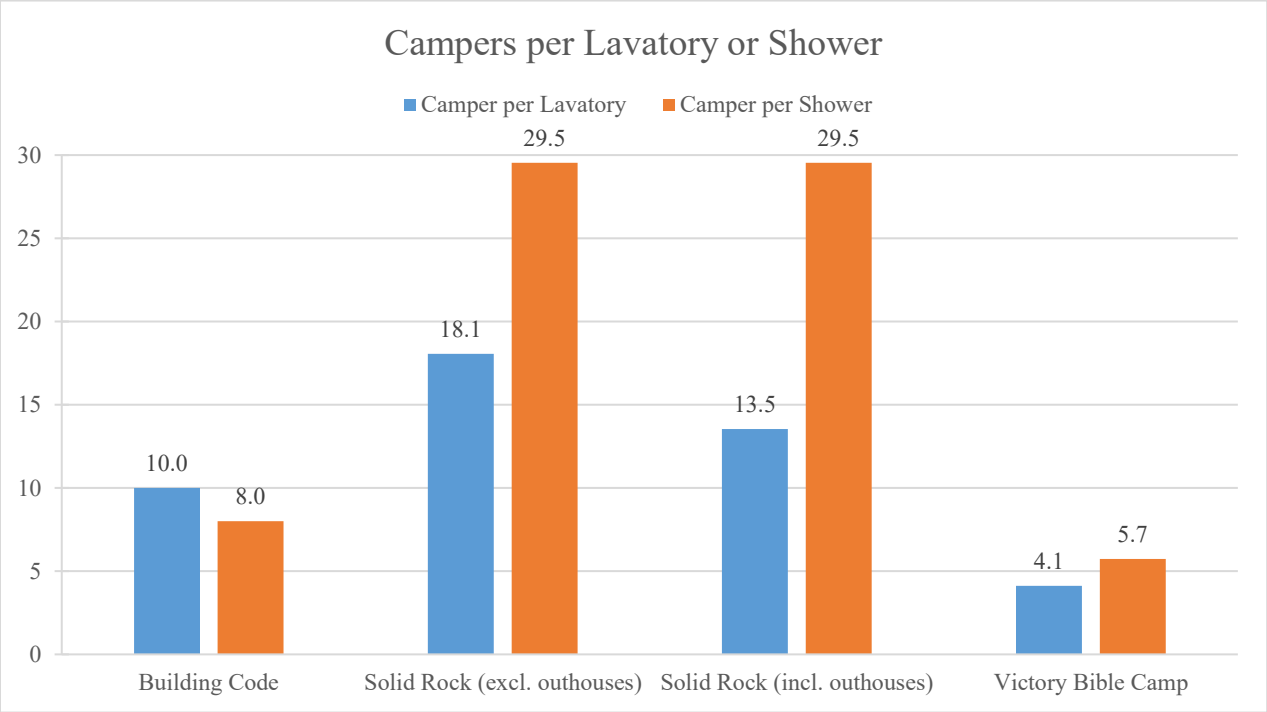

Exhibit 5: User Per Sanitation Comparison

- Insufficient Staff Housing

  The Programs Administrator for SRBC provided the project with a current employee organizational chart. This chart was reviewed by the Executive Director and additional positions were added to include unfilled positions and planned future employee growth. SRBC needs to maintain 20 employees, but currently employs 12. This is partially due to SRBC employees traditionally living on campus in SRBC staff housing, and there is not enough housing to host 20 employees and their families. The Current Infrastructure Inventory on APPENDIX A on page 35 recorded a total of 10 family units, one of which is a dry cabin. Three family units have been determined to be located within the Lakeside Program, which has had adverse effects on SRBC safety and security. The long-term goal would be to move those families to housing outside of Lakeside Program limits. With three current employees not needing staff housing due to sharing households and alternative, off-site housing. An estimate of 8 additional staff housing family units will be needed to meet their employee needs and transition the three housing locations.

- Low Building Maintenance Budget

  According to Pacific Partners Consulting Group (2007): “Every $1 deferred in maintenance costs $4 of capital renewal needs in the future.” Preventive maintenance is cheaper in the long run than diagnostic maintenance. The Facilities and Maintenance Director reported several cases in the last decade of excess maintenance expenses from past deferred maintenance. They suggested that the current maintenance budget allocated to buildings may be lower than the industry standard.

  The Building Research Board of the National Academies (1990) published a report recommending a 2-4% allocation of the current replacement value of a building each year on maintenance as a minimum standard, not to include catch-up expenditures for a prior lack of preventative maintenance. This project will use a conservative 2% for its minimum recommendations. The sum of each structure’s cost to rebuild in the Current Infrastructure Inventory in APPENDIX A on page 35 is $16,909,000. Using the contractor’s industry recommendation, 60% of deferred maintenance can be supplied by SRBC’s in-kind labor. Therefore, the minimum recommended preventative building maintenance budget is 40% of 2% of $16,909,00, which is $135,300 in 2025 dollars. This only includes infrastructure documented on the inventory, and does not include grounds, automotive, or road preventative maintenance costs. SRBC's 2025 building budget is about a third of that value and includes a larger scope than just preventative building maintenance costs.

- Lack of Potable Water Access

  The north-west section of the SRBC property, as depicted in Exhibit 6: Map of Wagon Train and Equestrian Program Areas on page 17 is dedicated to the Wagon Train Equestrian programs. These areas do not have access to potable water infrastructure. The bathrooms in the region are outhouses, and for showers, the two programs walk around Miracle Lake to the southern section of the property to use the showers within the Lakeside program. This increases the demand on Lakeside’s showers and requires sacrificing several hours each week of Wagon Train’s program time to dedicate to camper sanitation needs. For drinking water and handwashing stations, maintenance staff fill a tank of water at the Lakeside program and deliver it to the Wagon Train program for use by both the Equestrian and Wagon Train programs. Non-potable water is available at the barn within the Equestrian program that is adequate for the horses’ drinking water, but not for people.

Exhibit 6: Map of Wagon Train and Equestrian Program Areas

- Lack of Grazing Pasture

  Kenny (2023) outlined the required acreage needed to maintain a healthy horse paddock. 2-4 acres of pasture per horse is recommended for the quality of pasture SRBC has access to. This area improves herd health, reduces food costs, and improves horse temperament. The camp currently boards 17 SRBC horses, intending to board 25 camp horses to meet their program needs. According to this article, SRBC needs 50-125 additional acres of pasture. Currently, the camp has two main paddocks, totaling 5.2 acres, and Wagon Train has 2.9 acres of grassland for grazing, 9.1 acres in total. This is 41 acres below the minimum recommendation of 2 acres per horse. The Executive Director, who previously was SRBC's Equestrian and Barn Manager, reported that improper grazing can lead to increased costs of pasture maintenance and supplemental food costs. Lack of a proper area for horses to roam causes concerns for individual horse health, herd health, and horse temperaments when working with youth trainers. Below are two pie graphs in Exhibit 7: Horse Pasture Discrepancy, Current and Goal,

visualizing the discrepancy in the current pasture acreage and the acres needed to meet the recommendation, both at the current horse capacity and the horse capacity goal.

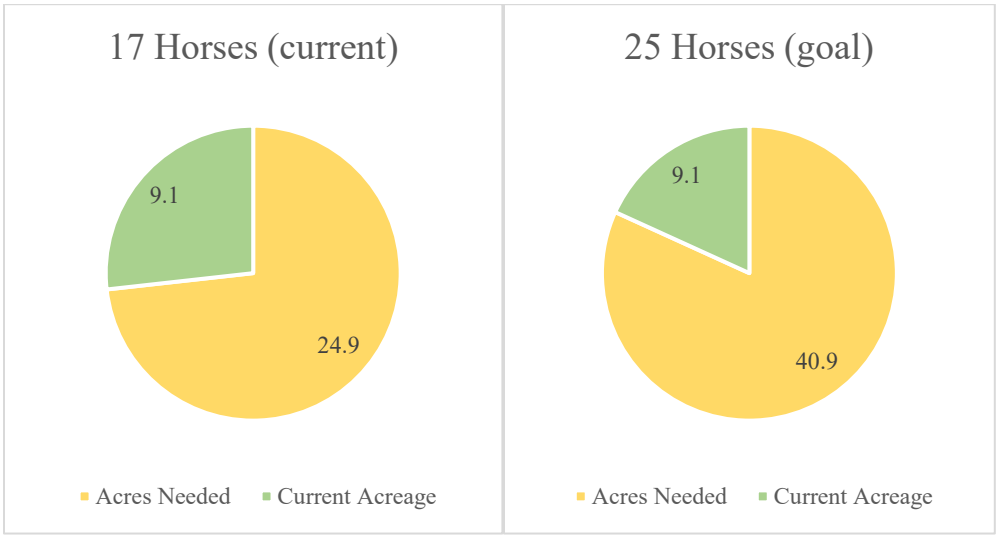

Exhibit 7: Horse Pasture Discrepancy, Current and Goal

- Memorial Lodge in Failing Condition

Stakeholders of SRBC have several concerns about the current state of the building named Memorial Lodge. See Exhibit 8: Memorial Lodge below for a picture of the structure from the northwest corner.

Exhibit 8: Memorial Lodge

This structure provides kitchen services for all camp programs, and dining facilities for the Lakeside Program and Guest Groups Program. The second floor of Memorial Lodge offers housing for speakers, short-term staff, work crew, cooks, and

guests. It also serves as the nurse's office. The structure was originally built in 1961 with additions in 1968, 1986, and 2014. Excluding the 2014 additions, this building lacks a proper foundation, built on skids. This has caused settlement issues within the building, which has led to structural concerns and uneven flooring. The heating for the building is inefficient, resulting in high heating costs in the winter, and the utilities are difficult to access. There is currently no roof on the west side of the building. Due to the location of the building, service trucks that deliver food and pick up waste must drive through Lakeside program activities, then reverse approximately 400 feet of vertical and horizontal curves on a one-lane dirt road. See the orange-highlighted area in Exhibit 9: Reverse Service Truck Path to Lodge below.

Exhibit 9: Reverse Service Truck Path to Lodge

This has been a safety concern for both the service companies and management staff, as children frequently cross this section of road in three different locations, travelling among Lakeside's program areas.

- Small Kitchen Space

  The SRBC kitchen within Memorial Lodge is expected to be able to cook for up to 300 individuals at maximum capacity. Sam Tell Companies (2019) states that the general rule of thumb is that a kitchen should have approximately 5 square feet of space per person served; therefore, SRBC needs about 1500 square feet of kitchen space, while it currently has 800 square feet, including the two dishwashing stations.

- Small Office Space

  National Business Furniture (n.d) states that the common office guideline is to estimate 150-250 square feet of office space per employee for medium-density offices when factoring in communal spaces like conference rooms, a printer room, and an entrance. The Program Center's corporate office space is only 1,500 square feet, with eight offices shared by twelve employees, and the planned growth is to reach 20 employees. Wagon Train, the Barn, and the Shop have an office for their respective departments, but only during the summer months. These offices are not included in the total square footage.

- Lack of Maintenance Professionals

  Independent Sector's 2024 Value of Volunteer Time Report for Alaska for 2023 with a 6.2% Consumer Price Index estimate from 2023 to 2025 by the Bureau of Labor Statistics (BLS), reports that the average value of a nonprofessional volunteer hour will be priced at $37.71. According to the contractor, the average hourly rate for a construction worker or maintenance professional on the Kenai Peninsula is $85.00. Using their recommended 60/40 split of labor and materials, respectively, the maintenance labor costs needed each year for the current infrastructure SRBC maintains equate to about 2390 hours of professional labor allocated each year on preventative building maintenance, 5380 hours of unprofessional labor, or a combination of the two labor sources. Each SRBC employee is expected to work in their respective areas 35-40 hours a week, with a month of leave each year dedicated to raising support. At these rates, SRBC requires one and a half maintenance professionals who are dedicated to preventative building maintenance. SRBC currently has three maintenance employees, including the director. This team supports the automotive, utilities, grounds, and building areas of camp that include both regular maintenance, diagnostic maintenance, and new projects.

  For a comparison to a similar organization, Victory Bible Camp reports that it is currently hiring to achieve seven maintenance staff members, one of them being part-time, and has a capacity of 350 concurrent customers. SRBC has three employees with the intent of filling a fourth position. With 325 concurrent customer capacity, SRBC should have a capacity need for a maintenance team closer to Victory Bible Camp's staff capacity than it has currently identified.

The list of deficiencies was separated into two categories based on their preferred solution type: operational changes and future projects. Future project deficiencies were compiled into a Project Impact Form in

APPENDIX B on page 36. The SRBC administrative staff and Board of Directors individually used a 10-point allocation pool to evaluate and weight each future project deficiency by its impact on SRBC's mission statement: "To provide the youth of Alaska with outdoor experiences to encourage a relationship with God through Jesus Christ." A copy of SRBC's expanded mission, objectives, and philosophy was attached to this form for their reference. Their mission statement is in APPENDIX D on page 38.

Below is Exhibit 10: Stakeholder 10-Point Allocation Results, the individual results from the stakeholder 10-point allocation form on future project deficiencies.

Name	Role	Non-Staff Sanitation	Staff Housing	WT/EQ Potable Water	Grazing Pasture	Memorial Lodge	Kitchen Space	Office Space	Total
Respondent 1	Board Vice President	2.0	2.0	1.0	0.0	4.0	1.0	0.0	10.0
Respondent 2	Board Member	1.0	0.0	3.0	1.0	2.0	2.0	1.0	10.0
Respondent 3	Board Member	1.0	1.0	1.0	1.0	2.0	4.0	0.0	10.0
Respondent 4	Board Member	1.5	1.0	2.0	1.0	1.5	2.0	1.0	10.0
Respondent 5	Executive Director	2.0	3.0	1.0	0.5	2.0	1.0	0.5	10.0
Respondent 6	Business Manager	1.0	1.0	3.0	0.0	2.5	2.5	0.0	10.0
Respondent 7	Maintenance Director	1.5	2.0	1.5	0.5	3.0	1.0	0.5	10.0
Respondent 8	Program Admin.	2.0	2.0	2.0	0.0	4.0	0.0	0.0	10.0
Respondent 9	Program Develop.	1.5	4.0	1.0	0.0	3.0	0.5	0.0	10.0
Total Mission Impact		13.5	16.0	15.5	4.0	24.0	14.0	3.0	90.0

Exhibit 10: Stakeholder 10-Point Allocation Results

The Memorial Lodge deficiency was determined by SRBC stakeholders to have the highest impact on SRBC's mission, while the Lack of Grazing Pasture and Small Office Space deficiencies were the lowest impact.

Solutions to each deficiency requiring a future project were then ideated by the planner, Executive Director, and Maintenance and Facilities Director. The local contractor's recommendations were used for project construction planning efficiency. Their industry-standard construction square footage costs and 40/60 rule were used to assign high-level material costs for each solution. A summary

of the preferred solutions, determined by the Executive Director, was documented in a slide deck and presented to the Board of Directors and administrative staff. Below are the solutions to the future project deficiencies identified earlier in the project and their associated costs to implement.

- Lack of Non-Staff Sanitation: Build Standalone Bathhouses - $250,000

  To meet the sanitation needs of SRBC, standalone bathhouses will be created with a collective sanitation capacity of at least 16 lavatories and 31 showers. If potable water access in the Wagon Train and Equestrian programs is determined by their stakeholders to be a high-priority project, at least six lavatories and eight showers will be built within their program areas, and the rest will be built in the Lakeside program area. Otherwise, all bathhouses will be built in the Lakeside program area. The contractor estimates a minimum of $35 per square foot in materials costs for bathhouses with an additional $2,000 per shower, $1,000 per toilet, $400 per sink, and $4,000 per commercial washer and dryer unit. Analyzing various bathhouse layouts and square footage, it is expected that $250,000 would be the cost in materials for this project, regardless of location.
- Insufficient Staff Housing: Build Eight Staff Housing Family Units - $1,292,000

  To meet the staff housing needs of SRBC, eight family units of various sizes will be created on the east side of their property between the Maintenance Shop and Faith Duplex. See Exhibit 11: Future Staff Housing Map below.

Exhibit 11: Future Staff Housing Map

This area will be dedicated to staff housing and is located outside of other program activities. This new location will need a new well, septic, and a natural gas extension from the Radio Station Duplex to the south. These utility infrastructure costs are expected to be $60,000 upfront and provide the opportunity for the Maintenance Shop to gain access to these utilities. The contractor estimates a minimum of $140 per square foot for materials costs for new staff housing units. The square footage of this project's units will be dependent on current staff housing family needs and may change by the time of construction. Larger families need a larger space. The following is an example estimate of what could be built with a variety of sizes to assume the high-level costs of this project:

(1) 5,200 square foot 3-bedroom fourplex ($728,000)
(1) 2,000 square foot 2-bedroom duplex ($280,000)
(2) 800 square foot 1-bedroom cabin ($224,000)

It is expected that around $1,292,000 would be the cost in materials for this project, including the upfront utility costs needed before unit development.

- Lack of Potable Water Access: Install a Well/Septic by Wagon Train - $45,000

  To provide potable water access to the Wagon Train and Equestrian programs, install a well and septic system within the Wagon Train program area for use by both the

Wagon Train and Equestrian programs. Connect the Sourdough Café to the new well. The local contractor estimates $45,000 will be needed for this project.

- Lack of Grazing Pasture: Fence 20 Acres of Additional Paddock - $172,000

  To reduce the deficiency in pasture area, install 4,300 linear feet of fencing to the west and south of the current paddock up to the property edge north and west of the Barn, the Wagon Train program border to the south, and the road to the east. See Exhibit 6: Map of Wagon Train and Equestrian Program Areas on page 17. This area will be broken into three fenced sections and will add 20 additional acres of paddock space to the existing pastures. While this does not increase the pasture to the minimum recommended standard area, this is the largest expansion possible to the Equestrian program with the property area available to SRBC. The estimated material costs of steel horse paddock fencing are $40 per linear foot for a project cost of $172,000.

- Memorial Lodge in Failing Condition: Rebuild Memorial Lodge - $1,430,000

  The Memorial Lodge has two primary uses: dining and lodging. There are 4,750 square feet of dining area, including the dining hall, kitchen, and fridges, and there are 4,000 square feet of lodging space upstairs on the floor above the dining section. The contractor estimates a material cost of $120 per square foot and $200 per square foot for lodging and dining construction, respectively. To restore the failing condition of Memorial Lodge in a separate rebuild with a more efficient building design, a rebuild of these areas would cost in materials $950,000 for the dining and $480,000 for the lodging, totaling $1,430,000.

  Rebuilding these areas provides SRBC the opportunity to relocate and separate these areas. The location immediately east of the Schutze House and outside of the property easement was identified by the Executive Director and Maintenance and Facilities Director as the optimum location for dining services. This location allows for delivery and waste services without interrupting camp, while still allowing for a walkable environment between the Lakeside/Guest program areas and dining services.

  The Department of Transportation (DOT) is currently in the process of reconstructing the Sterling Highway, which is the entrance to SRBC. In the next few years, this project will change the location of SRBC's entrance and access to the highway. This Sterling Highway project will benefit the new location of dining services by providing a roadway loop for large vehicles to turn around without reversing.

  This project would require repurposing the Schultz House, other than for staff housing. Options include a gift shop, coffee shop, nursing office, or speaker housing.

Lodging will be rebuilt either at its current location or on the second floor of the new dining area, depending on the funding timeline.

- Small Kitchen Space: Increase Kitchen Square Footage - $140,000

  To meet the size requirements of the SRBC kitchen, an additional 700 square feet of kitchen space will need to be constructed. This project is based on the stakeholder cost-benefit analysis of the Rebuild Memorial Lodge project solution. If a new dining area is planned to be constructed, this project will use that opportunity to upgrade the kitchen square footage to meet the needs of the camp. If not, this project will be an addition to the current Memorial Lodge. The contractor estimates a material cost of $200 per square foot for kitchen construction, regardless of location, totaling $140,000.

- Small Office Space: Construct a New Corporate Office Building - $300,000

  To meet the size requirements of the SRBC corporate office, a new 3,000-square-foot office building is to be constructed. The new building need is due to the current office space in the Program Center not having additional space for construction development, as determined by the Facilities and Maintenance Director. This new office space could be constructed conjoined with the new Memorial Lodge location. This location allows for office space use outside of the Lakeside/Guest program areas, preventing vehicle traffic and interruptions. The current office space will be repurposed by this project for Lakeside/Guest program use. The contractor estimates a materials cost of $100 per square foot for new office construction, totaling $300,000.

Below is Exhibit 12: Cost-Benefit Value of Project Solutions. This exhibit documents the list of impact deficiencies requiring a project solution, the mission impact score from the stakeholder feedback, and the cost of the solution identified in thousands of dollars. A cost-benefit score was created by dividing the mission impact score by the project cost. The higher this value is, the more efficient the project is at supporting SRBC's mission statement, according to SRBC stakeholder feedback.

	Lack of Non-Staff Sanitation	Insufficient Staff Housing	WT/EQ Potable Water	Lack of Grazing Pasture	Memorial Lodge	Small Kitchen Space	Small Office Space
Mission Impact	13.5	16.0	15.5	4.0	24.0	14.0	3.0
Project Cost (thousands of dollars)	$250	$1,292	$45	$170	$1,430	$140	$300
Cost-Benefit	0.054	0.012	0.344	0.024	0.017	0.100	0.010

Exhibit 12: Cost-Benefit Value of Project Solutions

Below is Exhibit 13: Cost-Benefit Analysis of SRBC Projects, a bar graph visualizing the Cost-Benefit scores calculated in Exhibit 12: Cost-Benefit Value of Project Solutions above.

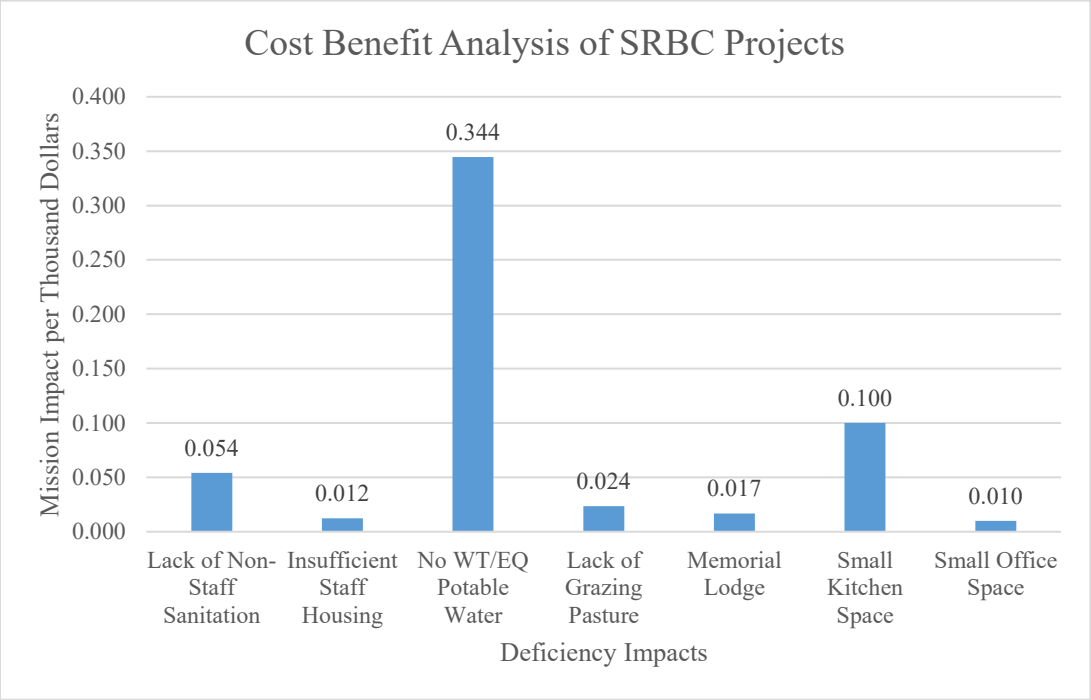

Exhibit 13: Cost-Benefit Analysis of SRBC Projects

Project solutions were classified into three categories for SRBC's Infrastructure Plan: High-Priority (Critical Infrastructure), Standard-Priority (Mid-term Plans), and Low-Priority (Opportunistic-Construction). High-Priority (Critical Infrastructure) solutions were recommended to address first, followed by Standard-Priority (Mid-term Plans) solutions. Low-Priority (Opportunistic-Construction) solutions are recommended last, unless construction project costs are reduced through opportunities outside the scope of this project. The SRBC Infrastructure plan is in APPENDIX C on page 37.

The three deficiency impacts determined to have the highest cost-benefit value towards SRBC's mission are No WT/EQ Potable Water, Small Kitchen Space, and Lack of Non-Staff Sanitation. Due to this, their project solutions will be classified as High-Priority for SRBC's Infrastructure Plan. The deficiency impact of Insufficient Staff Housing has a solution that is scalable, with stakeholders reporting that the primary impact on SRBC's mission is the first few staff housing units created. At $323,000 to construct the first two housing units with utilities, the cost/benefit value would equal 0.050. Therefore, the first two staff housing units built will be classified as High-Priority for SRBC's Infrastructure Plan, and the next two staff housing units will be classified as Standard-Priority. Therefore, the remaining four staff housing units will be classified as Low-Priority. The Memorial Lodge is the highest value-add to the

SRBC mission, but does not have a high cost-benefit score, so its project solution will be classified as Standard-Priority for SRBC's Infrastructure Plan. Increasing the size of the kitchen is dependent on rebuilding Memorial Lodge; therefore, these projects will be paired in the Standard-Priority category despite Small Kitchen Size being categorized as High-Priority independently. Lack of Grazing Pasture and Small Office Space is classified as Low-Priority for SRBC's Infrastructure Plan due to the combination of low mission impact and low cost-benefit value.

PRODUCTS OF THE PROJECT

- Current Infrastructure Inventory

  This document is an Excel spreadsheet that documents the current state and known information of SRBC structures. The documented categories included ID, Name, Primary Program, Secondary Program, Year of Construction, Year of Renovations, Family Units, Camp Bedrooms, Camp Beds, Lavatories, Showers, Offices, External Square Footage, Foundation, Framing, Stories, Roof Type, Year of Roof Installation, Heating Source, Electric, Gas, Propane, Sewer, Water, Winter Use, Insured, and Notes. See APPENDIX A on page 35 to see the Current Infrastructure Inventory. External square footage was measured to the nearest 50 square feet. Categories with unknown information that were not found on a site walkthrough, recordkeeping, or stakeholder knowledge were left blank. Structures that were estimated to be worth less than a few thousand dollars and were not an outhouse were omitted from this list. There were 82 structures documented on campus. This inventory was then reviewed, edited, and updated by the Executive Director and Facilities and Maintenance Director with historical knowledge. This document was then reviewed by the planner before final submittal with updates to the SRBC infrastructure during the project. A printed version of this document was given to the Executive Director along with a digital copy delivered through a flash drive.

- Photographs of Each Structure

  Multiple photographs were taken of each structure in the Current Infrastructure Inventory during the recording of the inventory and organized into folders by structure and program use. These photographs were given to the Executive Director, delivered on a flash drive. See Exhibit 14: Infrastructure Photo Example below for one of the photos delivered that documented the Program Center.

Exhibit 14: Infrastructure Photo Example

- Estimated Rebuild Costs

  The estimated cost to rebuild and the cost of materials to rebuild for each structure identified in the Current Inventory Infrastructure were estimated by the planner and using the contractor's high-level cost analysis of the structure's current attributes recorded in the inventory and photographs. These values were documented in the Current Infrastructure Inventory.

- Infrastructure Report Card

  The Executive Director, Facilities and Maintenance Director, and the planner filled out an Infrastructure Report Card based on the American Society of Civil Engineers (ASCE) Report Card criterion. The results are documented in Exhibit 3: Infrastructure Report Card on page 14, and delivered to the Executive Director on a flash drive.

- Summary of Deficiencies Identified

  A summary of the infrastructure deficiencies identified by the project was recorded in a slideshow presentation, presented to the Board of Directors and administrative staff, and delivered to the Executive Director on a flash drive.

- Summary of Solutions and Costs

  A summary of the infrastructure deficiency solutions and costs identified by the project was recorded in a slideshow presentation, presented to the Board of Directors and administrative staff, and delivered to the Executive Director on a flash drive.

- Prioritization of Project Solutions

  Future project deficiencies were compiled into a Project Impact Form in

APPENDIX B on page 36. The SRBC administrative staff and Board of Directors individually used a 10-point allocation pool to evaluate and weight each future project deficiency by its impact on SRBC's mission statement: "To provide the youth of Alaska with outdoor experiences to encourage a relationship with God through Jesus Christ." A copy of SRBC's expanded mission, objectives, and philosophy was attached to this form for their reference. Their mission statement is in APPENDIX D on page 38. The results of their mission impact values were documented and compared to the cost of their respective project material costs in Exhibit 12: Cost-Benefit Value of Project Solutions on page 25 and Exhibit 13: Cost-Benefit Analysis of SRBC Projects on page 26. Three prioritization classifications were given to project solutions: High-Priority, Standard-Priority, and Low-Priority. These priorities were documented in the SRBC Infrastructure Plan in APPENDIX C on page 37. This document was delivered to the Executive Director on a flash drive.

- Site-Specific Best Practices

  Site-specific best practices were compiled based on recommendations from a local general contractor and from literature review research. These recommendations were documented in the SRBC Infrastructure Plan in APPENDIX C on page 37. This document was delivered to the Executive Director on a flash drive.

KEY ASPECTS OF PM APPROACHES

This project used project management recommendations outlined by the Project Management Institute (PMI) and by the University of Alaska, Anchorage (UAA) Project Management department. Project management documents used for this project included a Project Management Plan, Project Charter, Letter of Support, Advisory Committee Contract, Current Infrastructure Inventory, Scope Change Log, Work Breakdown Structure (WBS), Requirements Traceability Matrix (RTM), Project Schedule, In-Kind Labor Budget, Stakeholder Register, Stakeholder Analysis Matrix, Risk Appetite Statement, Risk Register, Triple Restraint Matrix, and Project Performance Metrics.

- Project Management Plan: This document served to outline the project abstract, charter, integration, scope, schedule, resources, stakeholders, requirements, communication, risks/opportunities, quality, cost, and change control.
- Project Charter: This document was a high-level review of the plan to move forward with initial planning.
- Letter of Support: This document was a signed letter by the project sponsor and SRBC Executive Director, Noah Proctor, validating the authorization for the project manager to pursue this project.
- Advisory Committee Contract: This document was a signed contract between the project manager and three staff advisors from the University of Alaska, Anchorage (UAA). This allowed for this project to be a part of the capstone qualifications for a Master of Science in Project Management (MSPM).
- Current Infrastructure Inventory: This document outlined the inventory scope of work needed to be documented and served as a living document during the project for future deficiency and solution analysis.
- Scope Change Log: This document kept a continual record of scope changes throughout the project.
- Work Breakdown Structure (WBS): This document outlined the scope into individual tasks to develop the schedule and budget.
- Requirements Traceability Matrix (RTM): This document kept a continual record of the needs of the organization and the requirements of the project and served as a living document during the project for future deficiency analysis.
- Project Schedule: This document kept a continual record of the tasks completed and not completed and served as the source of project performance metrics during the project.

- In-Kind Labor Budget: This document kept a continual record of the volunteer staff hours estimated and spent on this project to record the cost of labor support of SRBC to this project.
- Stakeholder Register: This document kept a continual record of the stakeholders involved in this project and organization, along with their roles and contact information.
- Stakeholder Analysis Matrix: This document kept a continual record of the engagement level of the stakeholders, their influence, interest, and ownership.
- Risk Appetite Statement: This document outlines SRBC's current risk appetite and risk goals by category. This was used to determine project scope and in the project's solution analysis.
- Risk Register: This document keeps a continual record of project risks and opportunities along with their impact, probability, exposure, and response, attaching those risks and opportunities to WBS task items. This document was used during the project to forecast and respond to expected risks and opportunities.
- Triple Restraint Matrix: This document ranked SRBC's values regarding this project between Cost, Time, and Scope. This was used to determine initial project budget, schedule, and scope, along with being referenced for potential changes to the project budget, schedule, and scope.
- Project Performance Metrics: This document kept a continual record of project costs, budget, and progress to determine project performance metrics at project milestones.

This project's owner is a nonprofit religious camp organization with unique requirements, resources, and value systems. Their labor is volunteer. Their project funding is donation-based. Their stakeholders are highly vested in outcomes. Their bylaws have specific religious requirements that, for example, prevent them from taking out loans like a traditional for-profit organization would to meet their infrastructure needs.

A unique aspect of this project is having a godly figure as a primary stakeholder. Implementing those requirements into the stakeholder management plan was a unique area to explore for the Project Management body of knowledge. This project was unique in its organizational structure, a nonprofit board with substantial volunteer and rotational employees. Solid Rock Bible Camp (SRBC) has a unique risk appetite specific to its mission statement and fiduciary goals. Their main goal is not to make money but to spread their mission. Money is just a tool to do that.

Their labor being entirely volunteer also separated their resources into two areas: money and labor. These resources have not been priorly equated into a single monetary budget like a regular business because they do not pay for labor and are unable to purchase more labor. These resources were tracked

and monitored independently. The staff volunteer labor for this project was monitored and labelled as “in-kind” for record-keeping and value assessment using a researched standard value for a volunteer hour.

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APPENDIX A

CURRENT INFRASTRUCTURE INVENTORY

Appendix D - Current Infrastructure Inventory.pdf

APPENDIX B

PROJECT IMPACT FORM

Project Impact Form.pdf

APPENDIX C

SRBC INFRASTRUCTURE PLAN

SRBC Mission and Philosophy.pdf

APPENDIX D

SRBC MISSION STATEMENT

SRBC Mission and Philosophy.pdf