



JANUARY 2019

STRATEGIC MANAGEMENT PLAN

ADA COUNTY SOLID WASTE

KURT HUNT-DIRECTOR
THERESA RADEMACHER- DEPUTY DIRECTOR

Introduction

Ada County is required, under State of Idaho laws and regulations, to maintain a municipal solid waste disposal system. To meet these obligations, Ada County established the Solid Waste Enterprise Fund for development and operation of the disposal system. Charged with the responsibilities of complying with federal, state and local laws, rules and regulations, the County's Solid Waste Division oversees operation and management of the County's:

- i. Landfill Cells – Hidden Hollow and North Ravine;
- ii. Household Hazardous Waste collection and disposal;
- iii. Electronic, Wood, and Organics recycling; and
- iv. 2,700-acre multi-use Ada County Landfill Complex.

As an enterprise fund, Solid Waste does not receive any support from tax-dollars for the activities of the division. Responsibilities are met through collection of user fees assessed at the landfill gate. Those fees support all daily operations, payroll expense, long-term obligations (i.e., landfill closure and post-closure care), capital improvements, special waste collections, and diversion and recycling programs (i.e., household hazardous waste management, electronic recycling, and organics recycling).

Mission statement

Solid Waste Management seeks to pro-actively manage County waste disposal facilities, enforce applicable codes, and provide reasonably priced and environmentally acceptable methods for solid and hazardous wastes reduction and disposal for County residents and businesses. Services provided by the Division include:

- v. Maintenance of a sanitary landfill for acceptance of wastes generated by County residents,
- vi. Operation of a permanent year-round facility for disposal of household and small business hazardous wastes,
- vii. Contractual oversight of the franchised trash collection in unincorporated Ada County ensuring compliance with trash pick-up, recycling and rates,
- viii. On-site recycling programs for wood, tires, automotive batteries, refrigerators and air conditioners,
- ix. Educational resource for local schools and service groups.

Department Structure

An organizational chart of the Department is attached in the Appendix of this document. As the Department evolves during the course of time the chart will be updated and adjusted as necessary. The Administration staff, introduced below, relies on the support and knowledge of the staff of 19 county employees and three temporary employees.

Kurt Hunt is the Director of the Solid Waste Management Department. Mr. Hunt brings twenty one years of hazardous materials, solid waste and recycling experience to the Ada County team. After serving in Desert Shield, Mr. Hunt transferred his petroleum experience into hazardous materials and solid waste management. With fifteen years of experience at the Ada County Landfill, Mr. Hunt has embraced his position as Director to implement numerous cost saving and process efficiencies. He currently manages a team of nineteen employees, including landfill technicians and an environmental compliance coordinator, operations supervisor and administration staff. Mr. Hunt has been MOLO (Manager of Landfill Operations) Certified for the last nine years and has been 40 Hour HAZWOPER certified for over 21 years. His knowledge and hands-on experience bring a distinct level of expertise to the solid waste management in Ada County.

Theresa Rademacher is the Deputy Director of Solid Waste Management. Ms. Rademacher is a graduate of Boise State University and has worked for Ada County Solid Waste Management since April 2013. During that time Ms. Rademacher has investigated and rewritten the procedures for all accounts receivable and payables; and updated antiquated practices within the Scale House. Ms. Rademacher is certified from the Solid Waste Association of North America as a Manager of Landfill Operations. She is passionate about the long term environmental impact of the landfill in Ada County and researches methods of waste reduction and diversion programs to implement on a county wide spectrum. Ms. Rademacher is responsible for all tours coming to the landfill, including school age children who come up with their classes. These tours, focusing on what the landfill does and the finality of the land that is being used, promotes waste diversion and reduction in the community.

Chad Schwend is an Environmental Compliance Coordinator who works with Ada County Solid Waste performing compliance reporting related to the landfill's air permit and groundwater remediation, ensures safety is a priority and performs training, and provides oversight of the household hazardous waste program. Mr. Schwend has always had a passion for the environment and waste management. He believes that the proper management of solid waste, whether through recycling, reuse or landfilling, is vital to our daily lives and the future viability of our environment, be it air, water or land. Mr. Schwend has worked in areas of hazardous waste management, recycling, safety, training, air permit compliance, and groundwater inspection and remediation. He has been able to put to practice his experience with interpreting and applying federal, state, and local laws, such as: Resource Conservation and Recovery Act, Clean Water Act, Clean Air Act, Occupational Health and Safety Administration rules, and Department of Transportation laws. As a hazardous materials manager, Mr. Schwend, and his team achieved a Platinum Safety Award for five years of zero recordable incidents. Mr. Schwend's training includes 40 Hour Hazwoper certification, DOT certification, and OSHA 1910 certification. He has performed duties as a committee chair and member of the organizing board for the Northwest North American Hazardous Materials Management Association conferences and as a member of the Boise

State University's Advisory Board for seeking reaccreditation through the National Environmental Health Science and Protection Accreditation Council for their Environmental Occupational and Environmental Health Program. Mr. Schwend holds a Bachelor of Science degree in Environmental Health from Boise State University.

Justin McConnell is the Operations Supervisor for Ada County Solid Waste Management. Mr. McConnell started his career with Ada County in January 2011 as a Landfill Technician. Mr. McConnell moved his way up holding various positions including Environmental Technician, and Environmental Systems Coordinator over the course of his career. When Mr. McConnell is not working at the landfill he enjoys camping, hunting, and spending time with his wife and new baby boy.

Financial

The Ada County Solid Waste Management Department operates self-sufficiently and, as an Enterprise Fund, does not receive any money from the County General Fund. This provides some benefits and challenges for the department.. The enterprise fund ensures that the Department has all monies needed to facilitate both the daily operations of the landfill, and the long term obligations, readily available.

Tipping fees account for approximately 93%-97% of all income for the Department. Tipping fees pay for daily operations of the landfill, including installation and maintenance of all environmental systems. Personnel and the obligations associated with those employees are also funded through tipping fees. Any other revenues are generated from the sale of landfill gas, recycling revenue, investment interest and, at times, the sale of property.

Closure and Post-Closure obligations are part of the functions of the landfill. The closing, and long term, monitoring of closed landfills falls under CFR 40 Subtitle D and requires that the landfill be monitored for a minimum of thirty (30) years post closure.

Additionally, the closure of a landfill must be part of every solid waste management department. The North Ravine Cell has approximately seventy-five years left until it reaches its permitted capacity. The cost for closing that landfill, and the post closure care that accompanies that process, will be the responsibility of the Solid Waste Department. As an Enterprise Fund the Department accrues the monies to be used for these future expenses.

Capital Projects are part of every budget that the Department submits. It might be something smaller, like horizontal gas collectors, which are installed every year to keep up with the development of the landfill, or it could be the obligatory expansion of the North Ravine Cell. The 300 acre cell has just fewer than 100 of those acres developed for municipal solid waste disposal. The expansions happen in approximately thirty (30) acre portions and are scheduled to be designed and built every five years. The process spans at least two fiscal years; the first year consists of the engineering and design, and the approval from the Department of Environmental Quality. The expansion of the cell usually starts in the same fiscal year as the engineering and the approval, however construction will roll over into the following fiscal year.

Challenges

As explained before, the Solid Waste Management Department operates independently from the General Fund. However, operating without the assistance of the general fund also comes with some challenges and means that until we are able to cover the prescribed amount for closure as established by Federal Regulations. The Operations/ Closure/ Post-Closure report published by Jacobs Engineering (formerly CH2 M Hill) in 2017 establish the closure post-closure obligation to be \$37,004,000. The Department operating account, Closure account and the Expansion account combined do not have the amount determined; therefore when those three are combined, the Department must rely on the good credit of the County to be responsible for the difference. This is what facilitates the need to build the Enterprise Fund.

In addition to closure and post-closure obligations that the Department must adhere to, there are the financial obligations for expansion. Any major project that the Department undertakes, like expansions, the fund for the work must be available at the start of the project. For example, the 2018 expansion of the North Ravine Cell will cost approximately \$13,373,237.95 over fiscal year 2018 and 2019. This includes the cost for engineering, design and build. In order to begin the planning for the project the monies had to be available prior to the start of the project. These requirements pose a challenge for the Solid Waste Department as it requires careful budgeting, and fiscally responsible spending. Additionally this justifies charging customers more than what is spent at the Scale House.

Since everything is funded by tipping fees collected at the Scale House, the Department must carefully collect fees that will cover daily operational expenses and those of future endeavors. Annual budgeting must include funds for all future capital expenses such as landfill expansion, gas field collection expansion and updating, all infrastructure additions and expansions and any changes that are to be capitalized. These monies are accrued in an account for use as the projects are performed. This accrual account must maintain a minimum balance at all times to ensure that unforeseen expenses can be funded.

Historic

For the historic data the department will examine five years, Fiscal Year 2014-2018.

Revenue

Over the past five years, the revenue for the department has remained stagnant, with an average \$13,640,501.62 earned each year. A large 13% increase is noted from Fiscal Year 2015 to Fiscal Year 2016. This jump can be partially attributed to the Esther Simplot Park development in Boise. Additionally the increase in building and populations that have been building in Ada County is part of the large jump in revenue for Fiscal Year 2016.

Expenditures

For the same amount of time the expenditures fluctuated, an average of \$13,450,562.54 per year. However during the same increase between Fiscal Year 2015 to Fiscal Year 2016, there was a 20% increase in expenditures. Conversely, a 32% reduction between Fiscal Year 2016 and 2017 is noted. Fiscal Year 2018 had the largest expenditures during the defined timeframe; the total budget is \$20,565,718.06. This large budget is due to the expansion of the North Ravine Cell. \$10 million was transferred to the expansion fund that was set up by the County Controller, specifically for this purpose and is only funded when an expansion project is necessary. After Fiscal Year 2019, the next anticipated deposit into the expansion fund will be 2023.

Projected

As projections are graphed, the department has, historically, implemented a 3% increase on all parts of the landfill, from waste analysis to revenue and budgetary implications. Because of the nature of a landfill, both the budget and expenditures have a direct correlation to the amount of waste that is brought to the landfill. This can go up or down depending on the efficacy of waste diversion processes and programs in place both within the community and at the landfill.

Revenue

The Solid Waste Management Department relies on tipping fees to sustain operations. Since the Department operations is independent of the general fund, 97% of all revenue is generated from the tipping fees at the landfill. The remainder is from:

- Sale of Landfill Gas
- Sale of Real Property
- Investment interest income

Revenue must be generated for all operational, capital, expansion and closure purposes, but additionally the revenue must be generated to finance future projects for the landfill. These projects are not only necessary for the department, but also for the community at large.

Expenditures

Expenditures are a reality for all departments, divisions and businesses as a whole. The landfill is not exempt from this reality. The department believes in fiscal responsibility and reduced spending when possible, however the department still spends approximately an average of over \$13 million for the past five fiscal years. While spending for operations was down for fiscal years 2017 and 2018, there was still an 11% increase in expenses during the two years. Expenditures fall under five categories:

- Personnel
- Operating
- Capital
- Expansion
- Closure

Personnel cover all costs associated with having a staff. This category directly relates to the number of employees the department has and the number of hours they work. As a Department within the County infrastructure the employees within the department are entitle to all of the benefits of being a County Employee.

Operating expenses cover the expenses to operate the landfill. These expenses include the hazardous waste program, the environmental required infrastructure and accommodates the free and reduced programs the landfill offers to the community.

Capital expenses are those expenses which are singular in their nature. They only occur once and have a high dollar amount associated with them. These expenses can include, but are not limited to:

- Vehicles
- Landfill gas horizontal pipe infrastructure
- Buildings
- Major computer equipment

Expansion resides in its own fund. This fund is only financed when an expansion project is planned. This fund has two line items, professional services and construction. This fund allows for all expansion invoices to be paid for by one fund. The finance for this fund is part of the overall Enterprise Fund and is only funded when the monies are available from saved tipping fees.

The closure fund is in place to facilitate the need to close the landfill. This fund is separate from both the operational budget and the expansion fund. The operation budget has a line item for closure that is sent over at the end of every fiscal year. Historically there has been \$350,000 sent to the closure fund annually, in Fiscal Year 2019 the department earmarked \$500,000 to this fund to help grow the fund more quickly.

SWOT Analysis

While the SWOT (Strengths, Weaknesses, Opportunities, and Threats) is a business model more directed toward sales companies, it was an ideal exercise for the landfill to see where we stand in regards to longevity.

- a. Strengths
 - x. Self-Funded
 - xi. Staff is dedicated
 - xii. Staff is educated

- b. Weaknesses
 - xiii. Finite Airspaces
 - xiv. Long term financial obligations
 - xv. Closure/post-closure obligations
 - xvi. Staffing limitations
 - xvii. Contract reliance
 - xviii. Hybrid tipping fee schedule
 - xix. Administrative and financial staff are kept in separate facilities
- c. Opportunities
 - xx. Waste Diversion
 - xxi. Education
 - xxii. Public Outreach
 - xxiii. Weight Based tipping Fee
 - xxiv. In-house operations
- d. Threats
 - xxv. Environmental impact
 - xxvi. Unforeseen regulatory changes or issues
 - xxvii. Increased population in the county results in more waste being generated

Goals

Part of every business model are goals to achieve success. While departmentally the goals are sustainability, the environmental monitoring and efficiency of the operation are paramount in the functionality of the landfill. With the long term goals in focus, the Department has identified the following goals to facilitate the overall objectives of the department.

Tipping floor on North Ravine Cell Phase 1

This is, in part, a project that was proposed in the Fiscal Year 2019 budget presentation to the Board of Ada County Commissioners by the Division. However, what was proposed was closer to a transfer station, and was proposed as a Z-Wall. Originally this project, over two years, was slated to cost the division \$821,000 over fiscal years 2019 and 2020. Instead of following the original plan the updated plan will cost approximately \$150,000

One rate, weight based tipping fee

During fiscal year 2018, the question of a weight based rate became paramount for the future operation of the Solid Waste Management Department. With the installation of the scales, came the ability to weigh each load that is brought through the scales. After an analysis of rates and the number of loads for the landfill, the rates were determined to be less than equitable for each customer and the department will be implementing a weight based single rate for all loads. The Department, in order to openly facilitate the process for determining a rate, will work with external auditing departments to vet the data to provide a non-biased suggested rate for the County to

consider. The estimated cost is \$50,000. The Department is anticipating a report from the audited data by January 30, 2019. Using this data the Department will offer a recommendation to the Board of County Commissioners shortly after the analytical report is issued. The Department will request that the rate be adopted and published for the budgetary cycles of local municipalities so that they may appropriately adjust their budgets for implementation for Fiscal Year 2020, or October 1, 2019.

Office Building

The current office building for the Solid Waste Management Department is antiquated and too small. The Department employs one Director, one Deputy Director, six landfill technicians, a Landfill Operations Supervisor, an Environmental Compliance Office, six Scalehouse Operators, one Office Manager, one account clerk, one Administrative Specialist and three temporary employees. The Landfill Technicians and Scalehouse Operators do not work five days a week. Additionally the Technicians share a single office as they are frequently out in the field, and the Scalehouse Operators are stationed in the Scalehouse; two of the temporary employees work in the field and one is an administrative temporary employee. The Office Manager, Account Clerk, Administrative Specialist and Temporary Administrative Assistant all share a single wide trailer for their office space. The remaining administration is housed in the Administrative Offices, over a mile from the heart of the financial operations, the Scalehouse. With the number of employees stationed at the Landfill the office space available is no longer adequate for the scope of the operation of the Landfill. The request for a new administrative office was approved by the Board of County Commissioners to start in the Fiscal Year 2019 budget process, however the project was abandoned. The department will be resubmitting the request for Fiscal Year 2020 to be completed in a single fiscal cycle.

Education Center

After the construction of a new administrative building, the Department will be left with an empty building. Instead of allowing the current office building to sit empty the Department will renovate the current administrative office and transform it into an education center. This center will be available for interactive education for members of the public to come and learn about the landfill, and any waste diversion programs that are employed. Additionally, this center will provide a staging area for tours, which are given regularly throughout the year. In addition to the community benefit, the education center will offer conference room space that can be utilized for the Department and any other departments in need of meeting space. There is not a current estimate for this project and it cannot begin until the new administrative office is built.

In house operation

Currently the daily operations of the landfill is contracted through a private company, under the scope of a contract which is renewed annually. This scope of this contract has been diminishing with each renewal, while the cost of the contract has not reduced, and has increased periodically. The contract is charged by the ton, and while the amount of waste has increased, the cost per ton has as well. The contractual obligations that are reduced each year essentially fall on County staff

to complete. The Department has conducted an extensive analysis of the amount paid to the contractor. Using the analysis performed the department compared to market rates of employees and equipment and believe that bringing the operations in house will offer a savings of no less than \$500,000 per year if all of this operation would be brought within the county landfill operations. The Department is actively working to implement this operational change October 1, 2019.

Increase diversion programs to extend the life of the landfill

Diverting waste from the landfill is potentially the most effective way to extend the life of the landfill beyond the estimated 75 years left in 2018. Currently the Solid Waste Management department has minimal waste diversion programs available onsite for customer. These include:

- Household Hazardous Waste
- Refrigerators and Air Conditioner Units
- Wood Recycling
- Tire Recycling
- Electronic Waste
- Metal Recycling

As it currently stands most of these waste diversion programs are at the discretion of the customer, with few exceptions. The only required recycling that the Department enforces are; Household Hazardous Waste, Refrigerators and Air Conditioners, Tires and specific Electronic Wastes, such as CRT television and monitors. The Department only enforces these materials because they are detrimental to the landfill and cause greater harm to the surrounding environment, or they are barred by federal regulations. Beyond these required diversion programs and those that are offered voluntarily to customers the Department is investigating several more options to increase diversion and recycling at the landfill.

Recycle area on site for diversion programs

Currently there is an area of the landfill property that is specified for waste diversion. This is where all diversion activities take place, including wood, electronics, metals, refrigerators and tires. All of these activities are in the elements and are minimally monitored for appropriate utilization. In order to facilitate the desire to extend the life of the landfill, the Department requested, and was approved, in the Fiscal Year 2019 budget to further develop the recycle area. This has the ability to be expanded and adapted to include all types of recyclables, however the current plan only includes metals, electronics waste and tires. This project was originally projected to span over two years, 2019 and 2020, with a total cost for this estimated at \$810,000. This project is currently on hold and will be reassessed for the Fiscal Year 2021 budget.

Increase Re-Use

For fiscal year 2019 the division will be investigating, and, adding expanded re-use to municipal solid waste. This will include the investigation of a larger re-use facility. By increasing Re-Use to the available diversion projects this offers first a way to keep waste out of the landfill, but secondly

provides a new home to many products that are brought to the landfill. This project is a two-step process.

Feasibility study

This study will determine the potential efficacy of an expanded re-use program at the Ada County Landfill. Additionally, this will determine the procedures and timeline for this project

Implementation

The second portion of this will be the assessment of the study, and the implementation of, the suggestions and procedures to facilitate an expanded re-use program at the Ada County Landfill. The cost for this project is currently being investigated

Expand Household Hazardous Waste Facility

The Household Hazardous Waste Facility has been in operation since 1998. During the time when it was designed and built, there was the idea that it would need to be expanded, or at least reexamined at some point. With the facility accepting over a million pounds of household hazardous waste every year, the time has come to evaluate the facility. The examination will come in three parts:

Feasibility study

The Department will be ordering a feasibility study of the building and the program to determine options for the HHW Facility

Engineering

Once a course of action has been determined engineering and architecture will be consulted to start the process, whatever it might be

Development

Once the engineering and architecture has been completed, the division will proceed with building and development of the plan. It is a reasonable estimate that this portion of the project will take no less than one year to complete, however the implementation of the project will likely take longer. There is not currently a cost estimate for this project.

Long term planning post closure

New site for landfill

The existing site of the landfill has a finite amount of space which can be occupied by waste. The current engineering estimates suggest that the landfill will reach its capacity in approximately seventy-five years, or approximately the year 2093, assuming that waste diversion programs and new technologies do not emerge to reduce the amount of waste that is put into the landfill, and that population growth does not exceed projected growths. Nonetheless, the question still remains: what are we going to do next? Even if the landfill was expanded on site, and engineered higher than the 100 feet that the landfill tops off at eventually, there will not be any room in the

landfill and we will need to do something else. The development of a new landfill will need to be considered sometime around 2035. While this date is not a definite time, the conversation will need to begin so that a new landfill can be planned, designed and construction started well before the expiration of the North Ravine Cell. While the cost of this project has not been estimated, the timeline is defined, though slightly flexible.

New technologies

The Department is consistently investigating new technologies to increase the efficiency and reduce the environmental impact of the landfill. Currently the Department employs a vacuumed landfill gas system to generate electricity, and what is not burned in the generators is burned in the onsite flare. For fiscal year 2019, the department is conducting a study to investigate the feasibility of adding additional generators to increase the output of electricity from the landfill gas.

Additionally, the Solid Waste Industry is investigating different technologies to manage municipal solid waste. While the technology is being developed, tested and hopefully implemented, the cost for these new technologies is frequently high, and the Department cannot absorb the cost of these technologies when they are first available for installation in landfills nationwide.

Scales

Upgrade current scales

The Department utilizes four industrial truck scales for fee assessment and data collection, two inbound and two outbound. These scales have been used for eight years and are starting to experience maintenance issues, in spite of regular maintenance and minor repairs. While the issues have not gotten out of hand yet, the landfill will explore the options for replacement starting in 2023.

The replacement of these scales can be accomplished using different plans and methods. The first option is to replace all four scales at once. This plan would, obviously, come with a higher initial cost.

The second option allows the replacement of one scale each year, starting in 2023 and finishing the project in 2026.

There has not been a determination as of yet as of the best way to accomplish this goal and there is currently not a cost estimate for this project. Because the scales are pieces of equipment they will wear out and will need to be replaced in regular intervals. The replacement and the cost for the replacement of the scales will occur approximately every ten years.

Install new scales for backup systems

As stated, the Landfill currently operates with four truck scales, two inbound and two outbound. With the increased population of Ada County, the Department anticipates that the amount of municipal solid waste will increase with the expanded population. It is reasonable to presume that there will be a need to install one more scale each for inbound and outbound. While there is not an immediate need to add these scales to the operations, the Department will begin to explore

this option in 2027 at the latest. Because the scales are not an immediate need, there is not a cost associated with this project.

North Ravine Cell Expansion

The Expansion of the North Ravine Cell (NRC) is going to take place over the next few decades. The NRC is slated to last approximately seventy-five more years, however the division has chosen to do the development of the cell in stages. Currently the North Ravine Cell has two phases in use: NRC1 and NRC2. NRC1 is currently resting and there are not any immediate plans to begin dumping in there. NRC2 is the current dumping site for the landfill. All waste that is generated in Ada County is being put into NRC2.

All expansions are broken down to two fiscal years, the first year is typically the engineering and design and the second is typically the construction of the phase. The construction of each phase of the landfill requires that all modern technologies are utilized, this includes a liner, leachate lines, leachate reinjection lines and landfill gas lines. Each phase will have these necessities. The estimates for the construction of each expansion after NRC4 goes up; the Department is inclined to believe that the materials for these expansions will increase as time goes on.

NRC3

The NRC3 is the current phase of the North Ravine Cell being developed. The project began in July 2018 and is slated to finish in January 2019.

The total project will cost approximately \$13 million to complete, including engineering and additional infrastructure, in addition to the building of the cell. The cost for this addition includes more infrastructure to incorporate leachate reinjection into the new section of the cell. The theory states that with leachate reinjected into the landfill, the decomposition of the waste will speed up and the quality of the landfill gas will increase, allowing for more power to be generated. The infrastructure associated with this expansion has not been included in the previous expansions, and most will be utilized for future expansions.

NRC4

Phase 4 of the NRC will begin in 2023. The engineering is estimated at \$2 Million. The construction is estimated at \$9.5 Million.

NRC5

Phase 5 of the NRC will begin in 2028. The engineering is estimated at \$2 Million. The construction is estimated at \$10.5 Million.

NRC6

Phase 6 of the NRC is scheduled to begin in 2033. The engineering is estimated at \$2 Million. The construction is estimated at \$11.5 Million.

NRC7

Phase 7 is scheduled to begin in 2038. The engineering is estimated at \$2 Million. The construction is estimated at \$12.5 Million

NRC8

Phase 8 is scheduled to begin in 2043. The engineering is estimated at \$2 million. The construction is estimated at \$13.5 Million.

NRC9

This phase is scheduled to begin in 2047. The engineering is estimated at \$2 Million. The construction is estimated at \$14.5 Million

There will be additional phases of this expansion, however they will be added at a later time.

Vehicle Replacement

Vehicles, like all machinery, wears out and needs to be replaced. The Department anticipates replacing vehicles regularly, while they may not be replaced annually, there may be years where more than one may be replaced, or years where nothing is replaced. To responsibly plan for these replacements, the Department will assume that one each year will be replaced. The average cost of a vehicle is anywhere from \$35,000 to \$50,000, depending on the type and durability of the vehicle

Gas Wells

In Fiscal Year 2019 there will be seventy-one vertical wells drilled into the Hidden Hollow Cell. These wells will add increased efficiency in capturing Landfill Gas, thus decreasing the impact of the landfill gas on the subterranean aquifer and the ambient air. Additionally, these wells will increase the efficiency of capturing the landfill gas for utilization in the onsite generators, allowing any unused gas to be processed in the flare. This project is estimated at \$896,000.

Horizontal gas collectors

The division, as a standard operation plan, installs horizontal collector pipes for Landfill Gas extraction. These pipes are put in as the landfill is being filled to reduce the need for vertical wells once the landfill is completed. Each year the division spends approximately \$250,000 for pipe and other materials to expand the gas field. The added benefit of this undertaking is that onsite County staff are able to dig and install these lines, saving the cost of outside companies performing the same work.

Leachate reinjection lines

Leachate is a natural byproduct of decomposition in landfills. The Resource Conservation and Recovery Act (RCRA) part D landfills, which directs municipal solid waste landfills, like the Ada County Landfill, requires that leachate lines are installed in all new landfills. Each new phase of the landfill will have leachate lines installed in them and leachate return lines will be included in expansion of the North Ravine Cell, starting with NRC3. By reinjecting leachate back into the

landfill there will be an increase in landfill gas production and quality. Additionally, there is increased decomposition speed, with the end result being that the waste will decompose more quickly, increasing space in the landfill. The lines from the leachate ponds are being installed with the current expansion of the NRC3 project. These lines will be able to reinject the leachate into the landfill and will be controlled to determine where the lines are injected. The leachate reinjection lines will occur with each expansion of the North Ravine Cell, starting in Fiscal Year 2018, in perpetuity until the landfill has reached its capacity. There is not an additional cost for this infrastructure as it is part of the current phase development.

Scrubber Media Change out

With the purchase of the Hydrogen Sulfide (H²S) Scrubbers in 2014 the Department understands that there are specific maintenance operations that need to be adhered to in order to maintain functionality and efficacy of the system. Landfill gas is primarily a 50/50 mix of H²S and Methane (CH₄). The H²S Scrubbers have a media in them that take the H²S out of the landfill gas, as it is not very flammable. Methane (CH₄) is highly flammable and is what is sent to the onsite engines to generate power. The scrubbers remove the less combustible material out of the gas and leaves the CH₄. The media must be changed approximately once per year. There are six H²S scrubber tanks and each change out costs the division approximately \$82,000 per tank. The division does not run all the tanks at once, but can switch between the six tanks and run as few or as many as desired. So the cost is not all six tanks at once, but can vary depending on the use. Historically, the Department has changed the media in two tanks per year.

Engineering In House

The Department utilizes a third-party engineering firm for all projects associated with operation, compliance and development of the landfill. These contracts vary in cost each year depending on the utilization of the firm for different projects through the year; however in Fiscal Year 2018, the Department spent \$1,458,970.37 for engineering services. The Department is investigating the possibility of hiring a full time landfill engineer as opposed to contracting with an engineering firm. Ultimately this could save the department millions of dollars each year. The Department will begin to investigate this in Fiscal Year 2020.

LFG Generators

The Department, in an effort to reduce the environmental impact of the Landfill, promotes the use of landfill gas to generate electricity. In Fiscal Year 2019, the Department is conducting a study to determine the feasibility to adding additional generators to the landfill gas structure. The amount of landfill gas that is currently being generated from the Hidden Hollow Cell, and landfill gas becoming more potent from the North Ravine Cell, require that the County increase the capabilities to burn the landfill gas. The Department has budgeted \$3 Million for new engines for electricity generators from landfill gas, though the timeline for this project has not been determined and will depend on the feasibility study that is to be conducted in Fiscal Year 2019.

Additional Flares

Currently the landfill has two stack flares to control what landfill gas is not burned in the engines. Landfill gas must be maintained and controlled in order to protect not only the air around the landfill, but also the water table that runs underneath the landfill. Depending on the outcome of the feasibility study being conducted will determine the capacity of the expanded generator field. Even with the installation of more engines there will be a need for additional stacks for the flares to effectively control the landfill gas. There is not currently a cost associated with this project, and there is not a timeline associated with this project.

Condensed Budget

Historically the budget that is submitted by the Department has included 111 line items. These line items were inflated to maintain the long term obligations for the expansion, closure and post closure of the landfill. In Fiscal Year 2019, the staff is working on condensing the landfill budget from 111 line items to closer to 70 line items. This condensation will allow for fiscal transparency and efficiency. There is not a cost associated with this project as it is part of administrative duties. Staff will have the first draft completed when the budget for 2020 is submitted.

Road Repair or Replacement

The division replaced the entrance road in 2014 after thirty years. It is the understanding that the road will last at least another fifteen years and will require repair or replacement somewhere around 2029. There is no cost associated with this expense yet.

Sinkhole by HHW Facility

The repair of the sinkhole by the HHW facility will need to be completed in 2019

There is not a cost associated with this repair as of yet.

Conclusion

Solid Waste Management is a flexible industry and often times the operations of a landfill require not only short term planning, but long term planning, including what to do when the current site no longer functions as a viable option for landfilling municipal solid waste. The staff for Solid Waste Management are dedicated and determined to fulfill the mission statement for the Department, while investigating new and innovative technologies to increase efficiencies in the disposal of Municipal Solid Waste in Ada County.

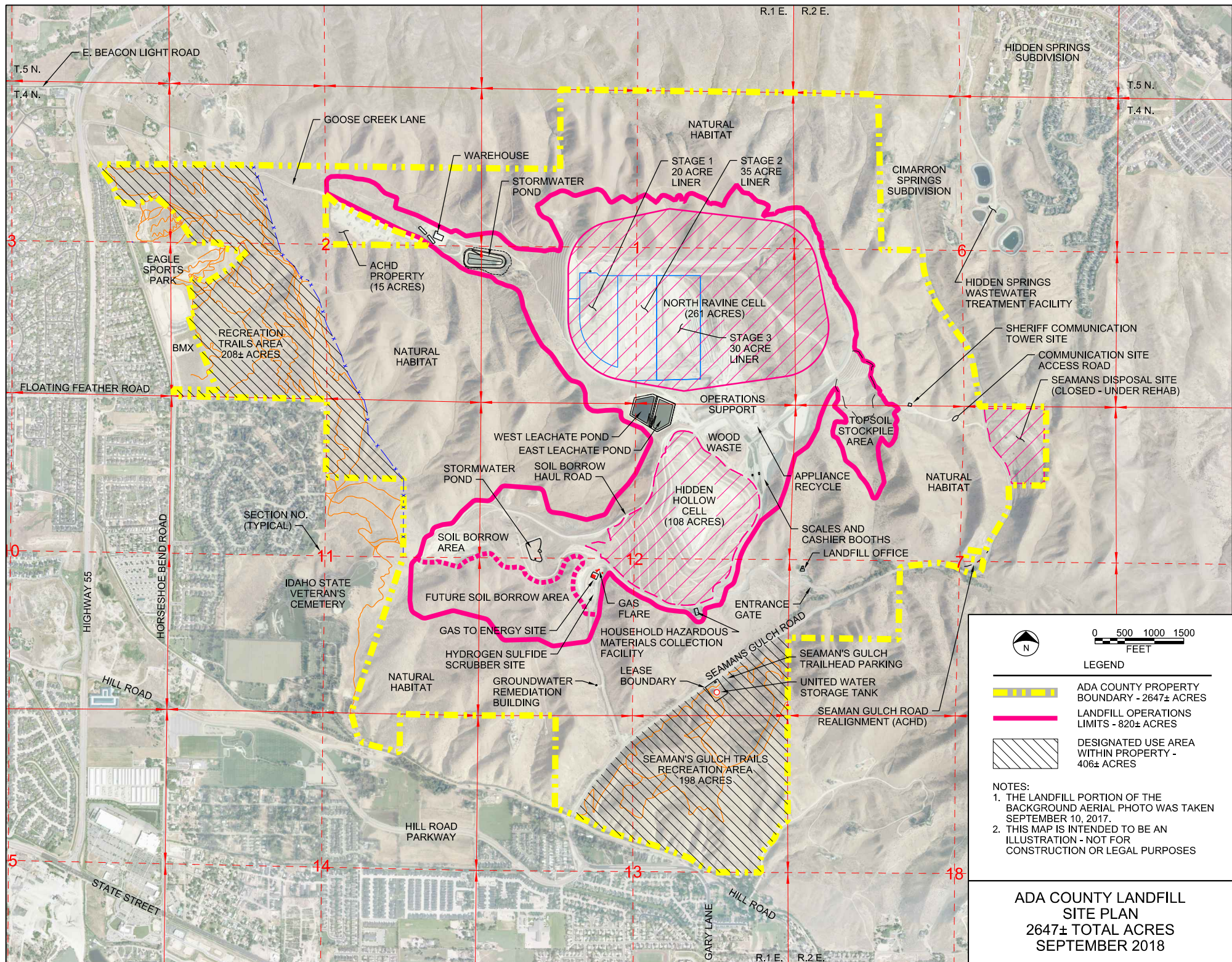
As time continues to progress and the timeline for the life of the landfill diminishes, the staff will continue to educate and encourage the residents of Ada County on the benefits of waste reduction and diversion programs to allow the landfill to be useful for as long as possible.





APPENDIX

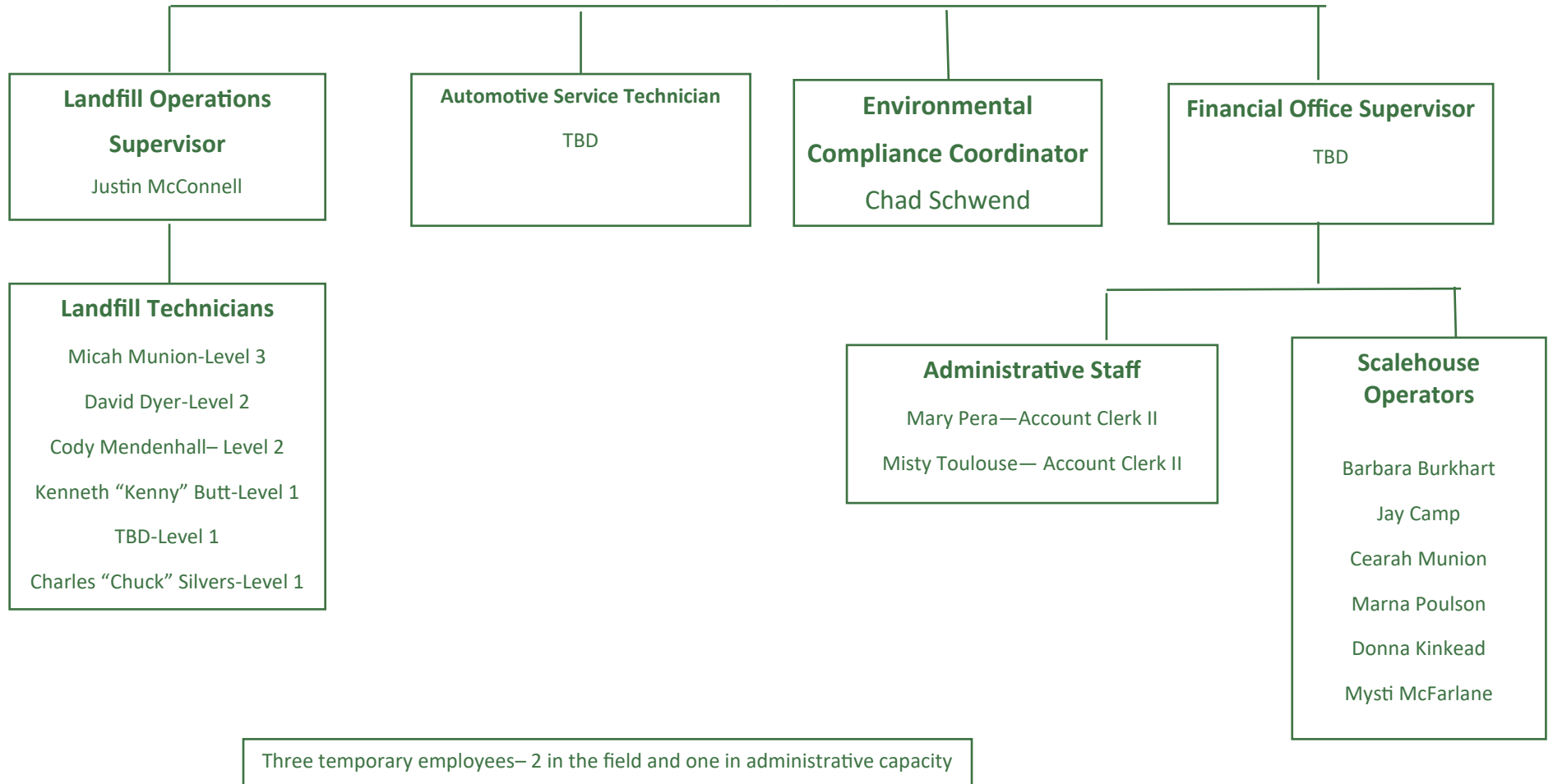
1. Site Map
2. Department Organizational Chart
3. Master Plan timeline





Director
Kurt Hunt

Deputy Director
Theresa Rademacher



[illegible]