Environmental Programs Plan 2019

MERIDIAN IDAHO
Public Works Department

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1.0 Introduction

The City of Meridian has transitioned in the last 25 years from a small productive farming community to one with a diversified economy, increasing population, and rapidly changing landscape. With a 2018 non-census population estimate of 106,410, Meridian is now the second largest city in the state and among the fastest growing cities in the country. To ensure that we protect and capitalize on the qualities that make Meridian a premier community in which to live, work and raise a family, it is vital that the City remain a leader in environmental protection, resource conservation, and sustainable and resilient development.

Clean water, clean air, and the amenities that only a healthy environment can provide are prized by business leaders and residents. Increased regulations and the threat of a changing climate further the need for an Environmental Programs Plan to guide and improve environmental programs and services for our citizens and operations. The Environmental Programs align with goals and objectives of the City Comprehensive Plan and City Strategic Plan.

The Environmental Programs Plan outlines strategies and concepts in five program areas:

- Stormwater Coordination
- Waterways and Irrigation
- Floodplain Administration
- Education and Outreach
- Sustainable Operations

Environmental Programs are designed to address issues of pollution, ensure compliance with state and federal regulations, protect health and safety, provide effective outreach, and identify operational efficiencies through sustainable practices. The City Strategic Plan objectives 4.E.2 and 4.E.3 help guide initiatives in Sustainable Operations on page 22 and Community Outreach on page 17. Environmental Programs are implemented by the Public Works Department through the Environmental Programs Coordinator within the Business Operations Division.

This plan describes existing program areas in stormwater, waterways, floodplain, and education by outlining objectives, regulatory activities, daily ongoing business needs and long term community and strategic initiatives. The Sustainable Operations section is outlined through sustainability in practice, objectives, actions and performance measures. The plan is intended to emphasize completion of various initiatives over the next two years, while other long term goals will be continuously operated and improved upon. See **Appendix 'A'** for a table of initiatives and timelines.

2.0 Stormwater Coordination

Summary

Stormwater is rain or melting snow that does not infiltrate into the ground, but rather travels across landscapes such as construction sites, parking lots, roofs, and roadways accumulating pollutants such as trash, oil, fertilizer, and sediment. The polluted water can enter the storm drains and flow untreated to our local creeks, canals, and ultimately the Boise River. Stormwater runoff left unmitigated can impair water quality and degrade our streams and rivers.

The Environmental Protection Agency under the Clean Water Act regulates stormwater runoff from three potential sources: municipal separate storm sewer systems (MS4s), construction activities, and industrial activities.

The storm drain system (MS4) in the City of Meridian is owned and operated by the Ada County Highway District (ACHD), who own and maintain the roadway system. ACHD has been issued a Phase II National Pollutant Discharge Elimination System (NPDES) MS4 Permit (No. IDS-028185) for the cities of Eagle, Meridian, and urbanized Ada County. ACHD's Phase II MS4 permit stormwater management program consists of control measures in six areas: public education, public involvement, illicit discharge, post construction runoff control, construction site runoff control, and pollution prevention.

City-owned property and facilities keep stormwater runoff onsite through retention and infiltration facilities — thus preventing stormwater discharges to our local waterways. Because of this, Meridian currently does not require coverage under an MS4 NPDES Permit.

Under the EPA NPDES Construction General Permit (CGP), Meridian has the regulatory responsibility to ensure that all City owned projects which disturb one (1) acre or more of land satisfy CGP coverage requirements. Further, Meridian requires that all City owned projects, regardless of size, meet minimum erosion and sediment control provisions including utilization of Best Management Practices (BMPs), monitoring dewatering operations, and construction site management in order to ensure that pollution prevention is effectively occurring on all City job sites.

The City of Meridian's Construction Storm Water Management Program (CSWMP) outlines the stormwater pollution prevention procedures required to be implemented for City-owned construction projects and describes how the City addresses its construction activities to reduce the discharge of pollutants from construction sites.

Objectives

- Protect receiving water quality from being negatively impacted by polluted stormwater runoff.
- Ensure City operations remain in compliance with NPDES and Idaho Pollutant Discharge Elimination System (IPDES) stormwater permit programs.

Regulatory Activities

- Review and approve Stormwater Pollution Prevention Plans (SWPPPs) and Erosion and Sediment Control Plans for City-owned construction projects.
- Submit Notice of Intent (NOI) to obtain CGP coverage with EPA for individual projects.
- Coordinate with Public Works Inspectors and contractors onsite for SWPPP compliance.
- Update policy and procedures based on changes to federal, state, and local rules and regulations.
- Ensure Public Works staff is adequately trained on elements of the Construction Stormwater Management Plan (CSWMP) and stormwater BMPs.

Ongoing Business Needs

- Provide Responsible Person training/certification in-house:
    - Saves operational resources through reduced course and registration fees for over 20 inspectors engineers, project managers and select operations employees every three years.
    - Allows for Meridian-specific procedures to be included in training.
- Over 45 dust and stormwater complaints were received by the Environmental Programs Coordinator between January 2017 and October 2018. Many times multiple complaints are received on the same construction project.

Community and Strategic Initiatives

- Evaluate mechanisms to alleviate dust and erosion/sediment control problems and complaints from construction sites.
    - May include greater coordination with Community Development Department, building permit procedures or ordinance change.

3.0 WATERWAYS & IRRIGATION

Summary

Waterways in Meridian consist of irrigation canals, drains, laterals, ditches and natural streams. Several irrigation districts operate canals, drains and laterals within the City of Meridian including the Pioneer Irrigation District, the Settlers Irrigation District, the Nampa and Meridian Irrigation District, Boise Project Board of Control, and others.

Meridian's surface water conditions stem back to action taken by the US Bureau of Reclamation by granting the right to divert water from the Boise River for irrigation purposes. Known as "The Boise Project," this program provides irrigation water to about 224,000 acres in southwestern Idaho and eastern Oregon. The Bureau of Reclamation contracted for the construction of a series of canals, drains, sloughs, irrigation ditches and the channelization of natural creeks in the Treasure Valley.

Although located in the high desert, over 24 miles of intermittent and year-round streams are found within Meridian City Limits. A portion of the Boise River also flows through the Meridian Area of Impact. There are currently four creeks considered tributaries to the Boise River and mapped by FEMA as Special Flood Hazard Areas in Meridian City limits: Fivemile, Eightmile, Ninemile and Tenmile creeks. These streams are unique because they are dual-purpose waterways that have been heavily altered from their natural state for use as irrigation drainage facilities. These waterways have been channelized and widened allowing them to carry larger flows. Several other irrigation canals and ditches cross and divert water through much of the creeks' historical drainage areas.

Meridian's waterways are also increasingly valued for their aesthetic beauty, wildlife habitat, flood attenuation and, with adjoining pathways as corridors for recreation and alternate means of transportation.

Meridian's Environmental Program faces many surface water management challenges and opportunities, and will continue to require interfacing with City leadership as well as many outside stakeholders. Groups such as the Idaho Water Users Association (IWUA) who represent primarily agricultural interests will continue to require significant outreach efforts to achieve common goals for all interested parties and foster support of the surface water protection and improvement.

City projects intersecting a waterway may require verification and approval from one or more of the following agencies: USACE, IDEQ, IDWR and Irrigation Districts. City Project Managers are responsible for obtaining all necessary agency approvals during design. The Environmental Programs Coordinator is responsible to provide review comments and approvals and verify that all surface water related agencies have provided approvals of design packages. The review and submittal procedures are detailed in SOP PW-13 *Surface Water Review of Capital Projects*.

Objectives

- Protect and enhance waterways as natural resources while maintaining community safety.
- Support Public Works Department on federal, state and irrigation district regulation related to waterways, and their impacts on City projects.

Regulatory Activities

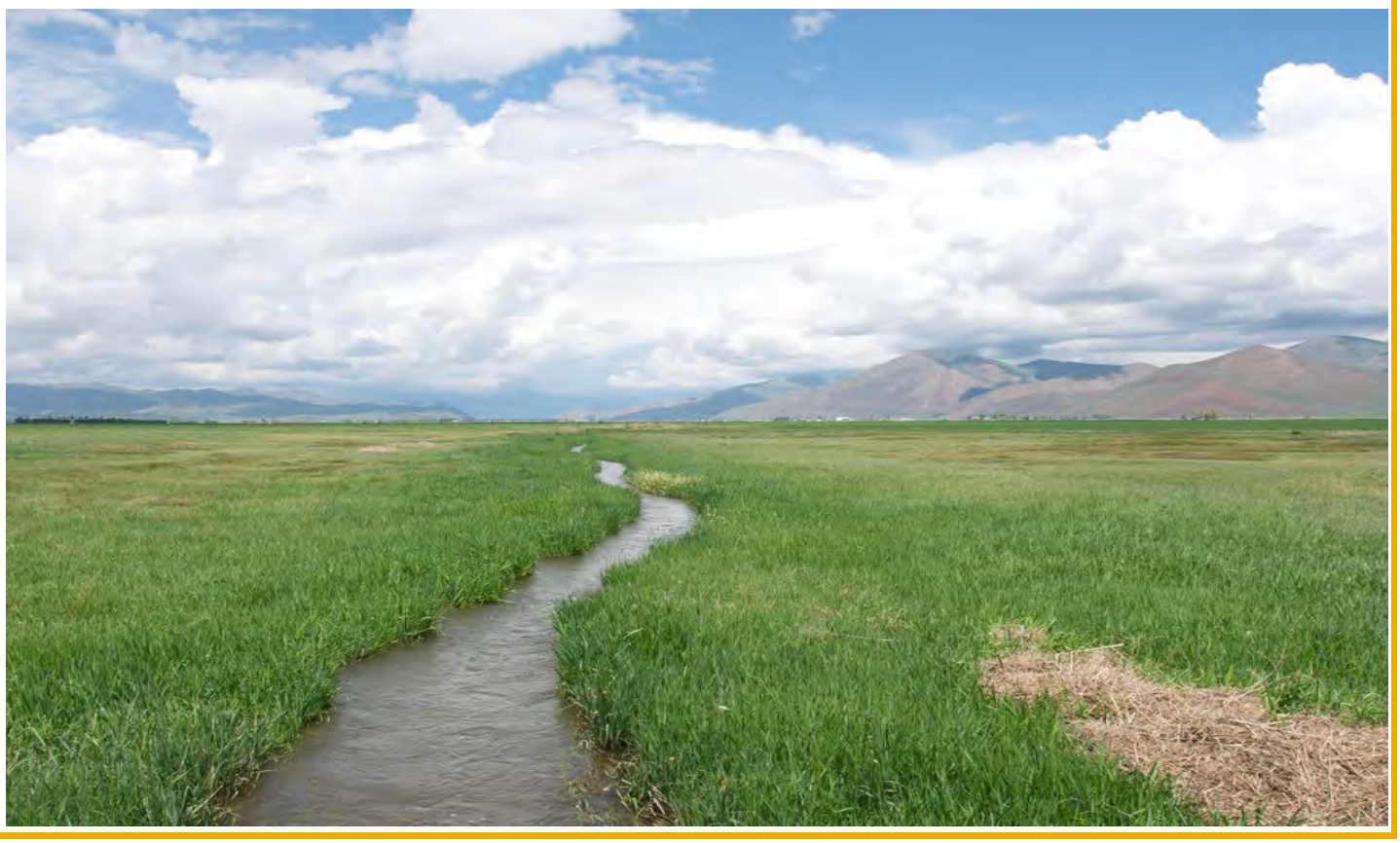
- Review of capital projects for waterway Army Corps of Engineers/IDWR permit compliance and irrigation district project agreements.
- Master license agreement implementation.

Ongoing Business Needs

- Floodplain mitigation and stream restoration.
- Coordination off public concerns and complaints.

Community and Strategic Initiatives

- Evaluate beneficial use of recycled water as irrigation delivered through existing ditch and canal systems.
- Work toward master license agreement with all irrigation districts.
- Develop stakeholder engagement encouraging irrigation district participation in hazard mitigation planning.



4.0 Floodplain Administration

Summary

The City of Meridian has been a member of the National Flood Insurance Program (NFIP) since 1992 and regulates development in flood-risk areas. Floodplains play an important role in reducing flood risks as well as the frequency, severity, and duration of flooding. Floodplains also recharge our groundwater supply and provide habitat for plants and animals. A great example of this is the Fivemile Creek restoration project, which helped the habitat between the creek and the land flourish.

Flood events typically occur in the early spring when rain and rapid snowmelt combine. Meridian has experienced such flooding events in 1963 and 1982.

As a participating community in the NFIP, Meridian establishes Floodplain Overlay Districts and regulates all development in those Districts through Meridian City Code Title 10 Chapter 6. Development includes activities such as grading, filling, building structures, and even storage of materials. The purpose of floodplain management is to protect life-safety, guide development in the flood-prone areas consistent with the requirements for the conveyance of flood flows, and minimize the expense, risk and inconveniences to individual property owners and the general public caused by flooding.

Meridian currently maintains good standing in the NFIP by meeting or exceeding minimum floodplain development standards. Additionally, Meridian is a member of the Community Rating System (CRS). This NFIP program rewards communities that adopt standards above the minimum requirements by providing property owners discounts on flood insurance premiums.

Meridian currently has about 655 structures located within 570 acres of the Special Flood Hazard Area. When modifications are made to these existing structures that may be determined to be a substantial improvement, they are required to eet current floodplain design standards. As our population and build out continues to grow, we will have continued challenges to manage the floodplain and ensure that homes and lives are safe from flooding hazards.

The Environmental Programs Coordinator acting as the City's Floodplain Administrator, takes the lead role in developing and maintaining of the City's section of the Ada County Hazard Mitigation Plan. coordinating with FEMA and Idaho Department of Water Resources on new rules, regulations and Community Assistance Visits (CAVs), and implementing the Flood Damage Prevention Ordinance.

4.1 FLOODPLAIN CRS MAINTENANCE & HAZARD MITIGATION

Summary

The National Flood Insurance Program's Community Rating System (CRS) credits community efforts beyond those minimum standards by reducing flood insurance premiums for the community's property owners. The CRS is similar to, but separate from, private insurance industry programs that grade communities on the effectiveness of their fire suppression and building code enforcement efforts.

The CRS provides credit under 19 public information and floodplain management activities described in the CRS Coordinator's manual. Based on the total number of points the community earns, the CRS assigns one of ten classes. The discount on flood insurance premiums is based on this class.

Meridian is currently certified as a Class 8 community allowing for a 10% discount on flood insurance for properties in the Special Flood Hazard Area.

Objectives

- Reduce flood damage.
- Increase flood insurance awareness.
- Encourage a comprehensive approach to floodplain management.
- Maintain CRS rating through annual program maintenance and reporting.

Ongoing Business Needs

- Prepare Meridian's annual progress report as part of the Ada County Hazard Mitigation Plan.
- Track changes in the number of structures and map revisions in the Special Flood Hazard Area.
- Prepare annual CRS recertification package.
- Maintain inventory of Elevation Certificates and review certificates to ensure they are free of errors.
- Implement education and outreach programs targeted to professionals in real estate and insurance industries, property owners in the Special Flood Hazard Area, and the general public.
- Serve as a resource for community inquiries on floodplain issues and log communication contacts.

Community and Strategic Initiatives

- Evaluate costs and benefits of upgrading CRS rating to policyholders, community, and watershed.
- Coordinate with internal departments in determining feasibility of achieving CRS credits for programs not currently implemented.

4.2 Floodplain Development Permitting

Summary

Any development or substantial improvement that occurs within a designated floodplain overlay district requires a floodplain development permit. This permit ensures new developments and improvements include measures to protect against the impact of flooding. This helps the City mitigate flood risk and protects land and citizens in Meridian. Failure to properly permit development in the floodplain could result in the inability of citizens to obtain flood insurance policies. Floodplain development permitting procedures are detailed in SOP PW-8 *Floodplain Development Review of Building Permit Applications.*

Objectives

- Ensure development is conducted in accordance with Meridian's Flood Damage Prevention Ordinance.
- Maintain good standing in the National Flood Insurance Program.
- Provide customer service and guidance in the development process.

Regulatory Activities

- Attend pre-application meetings.
- Review development permit applications.
- Issue floodplain permits.
- Coordinate review of floodplain studies supporting development.
- Ensure all other necessary permits are obtained (CGP, 401, stream alteration).
- Inspect development under construction and coordinate with building inspectors.
- Review elevation certificates to ensure they are free of errors.
- Maintain records of floodplain developments.
- Review Letter of Map Revision submittals and certify as community official.

Ongoing Business Needs

- Educate Building Inspection staff on floodplain development inspection needs.
- Update floodplain ordinance to reflect new FEMA maps and clean up language.
- Present floodplain program to City Council and prepare flood damage prevention ordinance updates.

5.0 Education and Outreach

Summary

Building environmental awareness in our community is paramount to achieving many of the goals of the Environmental Programs Plan. The City of Meridian is committed to providing opportunities for the community to engage in and support educational efforts that lead to a better understanding of our environment. Environmental education and outreach requires collaboration between Environmental Programs and the Communications, Water, Wastewater, and Engineering Divisions of the Public Works Department to formulate the educational content and provide the best delivery methods to inform our community.

Education and outreach programs currently exist in the form of the Environmental Programs webpage, Wastewater Resource Recover Facility (WRRF) Interpretive Center, environmental awards, and targeted outreach efforts in floodplain and solid waste. The Meridian City Council recognized the importance of education and outreach and has incorporated it into the City Strategic Plan.

City Strategic Plan Objective 4.E.3: *Participate in and foster community based sustainable programs, projects and services. In order to promote environmentally sustainable programs, projects and services that benefit our citizenry, it is necessary to increase the community's knowledge, skills, and attitudes about sustainability, resulting in more people who incorporate environmental sustainability into their lifestyle.* The table below illustrates current community based environmental programs and baseline participation.

Education and Outreach Objectives

- Actively engage, educate, and motivate residents and community stakeholders to become environmental stewards and make positive behavior changes.
- Leverage City resources by combining efforts with regional education and outreach partners.

Community Partner	Environmental Program	Baseline Participation
HOAs	Trash or Treasure	5 HOAs 2018
ACHD	Stormwater Education/Outreach	133 storm drains marked 2018
Meridian Co-Op Gardeners	Community Garden	33 families, 5 group tours 2017
Idaho Power	Energy Efficiency	5,600 households energy efficiency kits
Partners for Clean Water	Stormwater Education/Outreach	Advertising/Media
Boise Watershed	Environmental Education	All 2nd Grade students in West Ada School District
West Ada School District	Environmental Education	Classroom presentations
Watershed Watch	Citizen Water Quality Monitoring Event for Boise River Watershed	177 volunteers, 18 trainers 2018
Republic Services	Recycle a Bicycle	32 bikes refurbished and distributed in 2018
Solid Waste Advisory Committee (SWAC)	Hefty Energy Bag Launch	1,500 households in 2018
University of Idaho	Designing a water conserving landscape class	28 attendees

5.1 Interpretive Center and Environmental Awards

The Wastewater Resource Recovery Facility (WRRF) contains an informational and educational Interpretive Center in its Administration building. The interpretive displays are utilized in facility tours and available for viewing by anyone that visits the WRRF during regular business hours. The Interpretive Center consists of interactive visual electronic exhibits covering the history of sanitation, wastewater facility processes, and videos on drinking water supply, well drilling, and source water protection.

FY 2018 Interpretive Center Visitation		
Groups	Type	Attendance
7	School/Scouts	131
6	Professional	18
1	Public Works Week	60

An evaluation will be conducted to determine community needs of the interpretive center along with the effectiveness of current exhibits and use of the space to determine whether future improvements and changes should be made.

The Environmental Excellence Awards program allows the City to recognize businesses, individuals, and organizations for their innovation in and commitment to environmental stewardship, helping make Meridian a sustainable, healthy, and premier community.

Nominee's efforts in environmental stewardship must go above and beyond minimum standards required by law.

Award winners are selected by the Environmental Excellence Award Committee from nominations received in various categories.

- Businesses – Located in or operating within the City of Meridian
- Individuals – Current Meridian resident(s)
- Organizations – Located in or operating within the City of Meridian

The Environmental Excellence Award Committee is made up of representatives from: Community Development, Public Works, Mayor's Office, and the Solid Waste Advisory Committee.

Recipients of the award are recognized with a plaque and presentation at the City Council meeting nearest Earth Day in the given year.

The Environmental Excellence Awards Program is guided by a framework document developed by the Environmental Excellence Award Committee in 2017.

5.2 Community Efforts & Initiatives

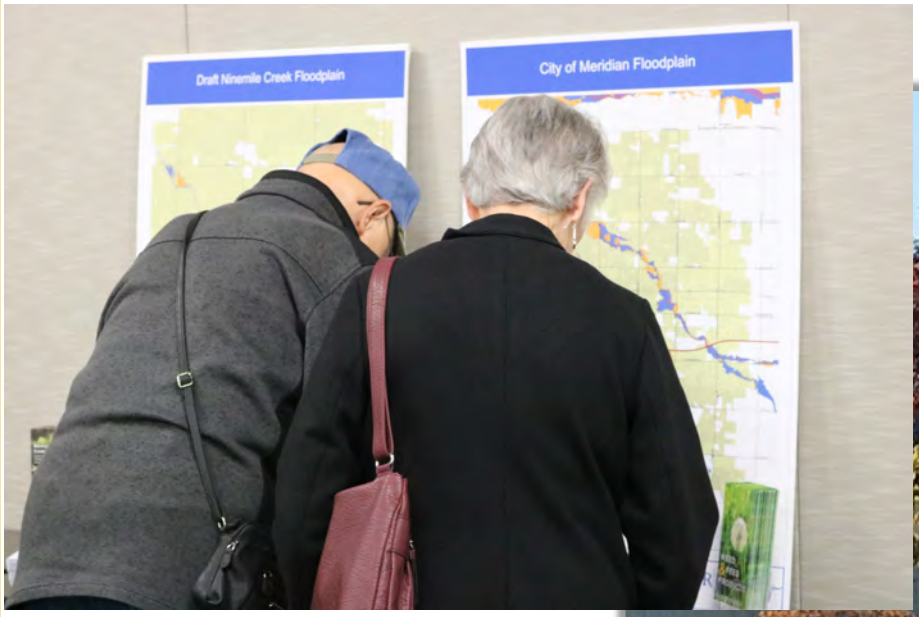
The Public Works Department responds to requests for direct outreach on various environmental topics from teachers, scouts, religious and other civic organizations based on needs of the community in alignment with staff availability. Environmental outreach and partner collaboration will continue to evolve with community and city needs

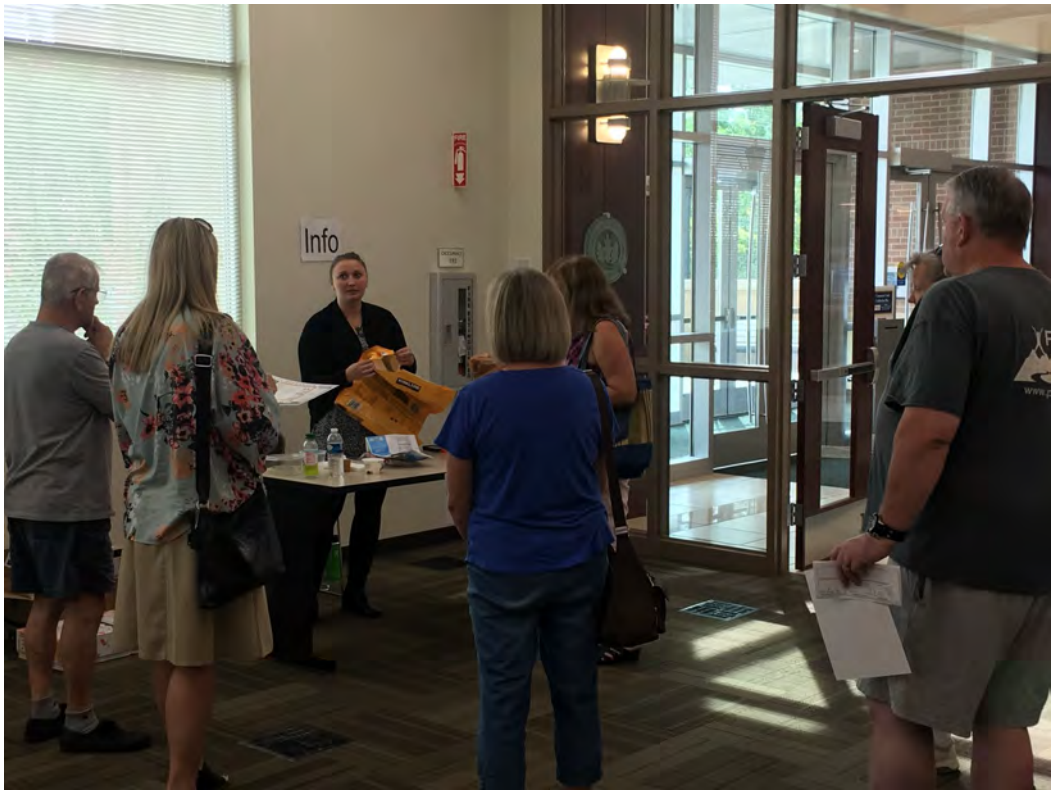
Ongoing Business Needs

- Continue promoting sound environmental practices of the community through promotion of the Environmental Excellence Awards.
- Continue floodplain booth and interactive educational activity at the Public Works Week Expo.
- Continue targeted outreach for floodplain property owners, insurance, and real estate businesses.
- Continue working with Public Works Communications Specialist to provide social media outreach on Meridian's residential recycling program, water conservation, and flood preparedness.
- Work with Public Works Communications Specialist and IT to refresh environmental programs web pages.

Air Quality

- Respond to excessive dust complaints through education and collaboration with IDEQ
- Continue anti –idling campaign through signage at city facilities.





Community and Strategic Initiatives

- Coordinate stakeholder workgroup with educators and service organizations to determine education and outreach needs (including WRRF Interpretive Center exhibits) and develop plan for how to meet that demand.
- Organize sustainability-themed classes and promote through Parks and Rec Activity Guide.
- Conduct community survey to gauge community knowledge, understanding, and concern regarding environmental issues in Meridian.
- Investigate grant and donor partnerships to refine, develop and maximize Interpretive Center exhibits and space.
- Identify opportunities and develop partnerships to promote sustainable programs initiated by multiple groups such as homeowners associations, schools, and other organizations and businesses.
- Work with Solid Waste Coordinator to develop a comprehensive residential and commercial waste reduction and recycling education and outreach program.

Air Quality

- Evaluate using IDEQ's Air Quality Index (AQI) forecast and burn conditions for air quality advisory and burn ban ordinance outreach.
- Collaborate with Treasure Valley Tree Canopy Network on air quality related projects.

6.0 Sustainable Operations

Focuses

This chapter is developed with a specific focus on internal City operations in three key areas:

- Energy Efficiency and Conservation
- Water Conservation
- Solid Waste, Waste Reduction, and Recycling

Introduction

City leadership recognizes the importance of sustainability in the 2016 Strategic Plan by endorsing strategic goals to advance sustainable and environmentally healthy practices throughout the City — both internally and within the community. The City's Strategic Plan supports an approach seeking the triple bottom line of sustainability: solutions that are socially responsible, environmentally sound, and financially prudent. The Public Works Department is tasked with implementing sustainability initiatives advancing towards this strategic goal.

The demands of growth on budgets, infrastructure, and staffing underscore the need for a comprehensive and clear plan toward more sustainable and resilient City operations in the future. The Public Works Department has developed this Sustainable Operations Plan to serve as a roadmap to improve operational efficiency, fiscal responsibility, and better utilization and management of resources.

The Plan is developed with a specific focus on internal City operations in three Key Areas:

- Energy Efficiency and Conservation
- Water Conservation
- Solid Waste, Waste Reduction and Recycling

Public Works will utilize a Sustainable Operations Team made up of a diverse cross section of staff expertise to further develop and implement sustainable operations efforts and programs.

A sustainable operations focus encourages staff to find efficiencies in processes offering operational cost savings and environmental benefits. Efforts are made to proactively identify, evaluate and implement practices that improve energy efficiency, improve water conservation, reduce solid waste impacts, and improve effective resource recovery.

Through implementing this program, the City strives to be the West's premier community by integrating innovative sustainable practices throughout its operations and facilities, thus ensuring a healthy environment and resource preservation now and for succeeding generations.

Section 6.0 highlights initiatives and needs of the three key areas and is laid out as follows:

- Objectives
- Actions
- Performance Measures

6.1 Sustinable Operations Team

Summary

Establishing a Sustainable Operations Team ("Energy Committee") is an important first step in establishing the sustainable operations program and ultimately reducing resource related operational costs. Giving a diverse Public Works team ownership of energy management and resource conservation will improve buy-in from those groups whose decisions and actions impact the City's resource usage.

Public Works Energy Committee Members

A diverse cross-functional team is critical to finding opportunities for reducing energy use, water use and resource waste. At a minimum, the Sustainable Operations Team requires team members from Wastewater Operations, Water Operations, Engineering, and Facilities. Oversight of the team will be through Business Operations, with Environmental staff leading initiatives. Additional efforts by Business Operations will help evaluate cost-benefit payoffs and return on investment analyses. External stakeholders will be asked to assist with technical input to the Team based on their respective areas of expertise.

Objectives:

- Identify, develop, and implement reliable and cost effective measures which improve operating costs, energy efficiency, and conservation practices.
- Guide development of subsequent sustainable operations strategies.

Schedule

The Energy Committee will meet to identify and develop opportunities within each operational section. The Committee will also work with external stakeholders to identify additional opportunities in City operations.

Resources

Eight staff members will attend bi-monthly meetings with some residual time spent to produce work products.

Performance Measures

- Energy Committee is established and meetings are held on recurring cycle.
- New opportunities and projects are identified, evaluated, and prioritized.
- Success stories of existing and ongoing sustainable operation projects are shared and promoted.

Actions

- Characterize current state of energy efficiency and status of previously considered projects, as well as current incentive applications and utility hosted training programs.
- Develop methodologies to benchmark, monitor, and report energy usage in an on-going basis.
- Identify energy efficiency goals and implementation strategies to effect improved operations with reduced costs and increased sustainability.
- Review and guide the Meridian Water Conservation Plan update.
- Assist in identifying and implementing solid waste reduction opportunities.

6.2 Energy Effeciency and Conservation

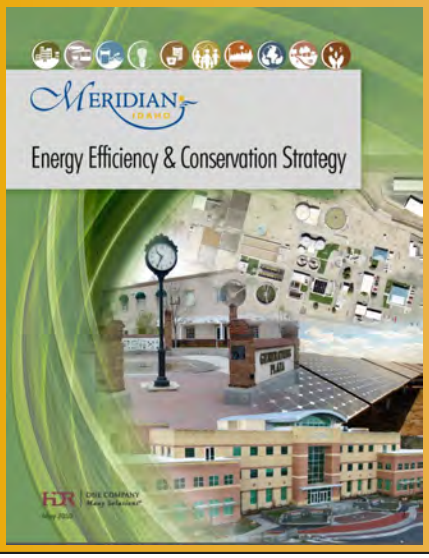
Benchmark and Monitor

Summary

Identifying opportunities for energy efficiency is difficult without the ability to understand where and how energy is used. A baseline energy use profile is a critical basis for goal setting and provides conditions against which the successes of strategies adopted can be measured. The Environmental Programs Coordinator with assistance from the Sustainable Operations Committee will update and measure existing energy use establishing baselines.

Sustainability in Practice

- A city wide baseline energy inventory for the year 2008 outlined consumption and cost parameters across various City facilities as part of the Energy Efficiency and Conservation Strategy completed in 2010. (HDR 2010)
- A system wide energy evaluation analyzed energy consumption at sewage lift stations from 2008 to 2012. This evaluation revealed lift stations were efficiently conveying sewage flows. (JUB 2012)
- An energy benchmark report was produced in 2013 for the Water Division administrative office. (Clima-Tech 2013)
- Public Works staff participated in a Wastewater Energy Efficiency Cohort sponsored by Idaho Power from 2014 to 2016 – part of this process included a baseline energy model for the WRRF.
- Public Works staff participated in a Municipal Water System Optimization Cohort sponsored by Idaho Power from 2016-2018. Part of this process established a water system energy model from baseline energy use recorded 2013-2015.



Objectives

- Update and establish current energy usage patterns throughout Public Works operations and City facilities.
- Develop consistent methods to monitor and track energy usage across the Department and its facilities.
- Monitor and report energy usage to establish trends and measure efficiency efforts.

Actions

- Determine what methods are in use to monitor energy usage across the Department.
- Integrate tracking methods into one consistent and constant tracking effort.
- Establish baseline energy usage based on utility billing and additional monitoring if available for building facilities.
- Establish baseline energy usage for Water operations based on utility billing and energy model developed for water supply optimization cohort.
- Establish baseline energy usage for Wastewater operations based on utility billing and energy model from wastewater energy efficiency cohort.
- Establish baseline energy usage for Streetlights.
- Research and evaluate energy management software applicable to Public Works operations for ongoing energy use tracking.
- Develop energy usage goals as a target range to measure success.

Performance Measures

- Accurate characterization of current energy usage to serve as baseline to define efficiency goals.
- Energy use tracking solution is in place, including ability to measure progress.
- Energy consumption reduction methods are implemented and goals are achieved.

6.2 Energy Effeciency and Conservation

Reduce Energy in Wastewater Utility

Summary

Wastewater is an energy intensive operation. Pumps, motors, and other equipment operate 24-hours-a-day, seven-days-a-week to meet regulatory requirements, customer demand, and environmental regulations. The Wastewater Resource Recovery Facility is the largest user of electricity and natural gas in the City's operations costing approximately $650,000 annually for electricity and natural gas. Reduction of energy use can be done through equipment upgrades, procurement of efficient equipment, improved construction and operation practices, and conservation measures. With significant infrastructure development and growth, including energy efficiency within capital projects is also critical to reducing Meridian's energy use and related costs.

Sustainability in Practice

Equipment and processes at the WRRF facility are being optimized for energy efficiency and energy conservation as the facility undergoes expansion and upgrades. The following projects are examples where energy has been conserved and harvested:

- Heating with digester gas (15.6 MMscf/yr recovered)
- Turboblower Upgrade 1,168,485 kWh/yr savings $79,456/yr*
- UV Disinfection Upgrade 159,084 kWh/yr savings $10,817/yr*
- UV Building Upgrade 8,177 kWh/yr savings $556/yr*
- In addition, many motors and pumps have been upgraded to Variable Frequency Drives (VFDs)

*assuming $.068/kWh

Objectives

- Reduce energy-related operating costs from electrical and gas utilities by implementing efficient equipment and processes where feasible and practical.
- Summarize energy efficiency projects completed or underway.
- Develop a prioritized list of project and improvement opportunities.
- Consider energy reducing efforts in Capital projects, as feasible.

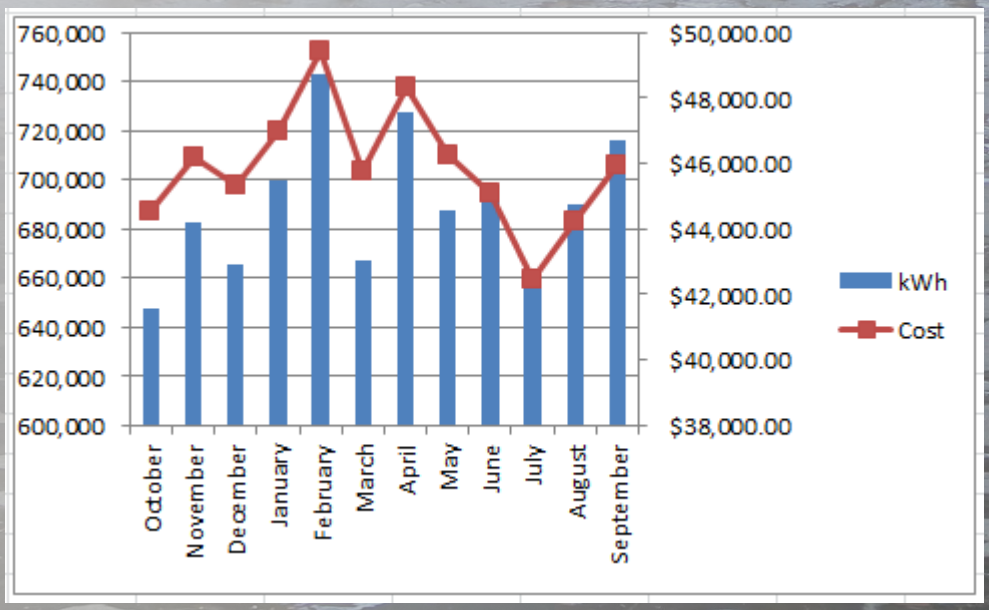
Actions

- Develop and maintain inventory of energy efficiency improvements competed or underway including costs and energy saved.
- Develop process to evaluate energy efficiency in the process of design, construction, and purchase of applicable wastewater equipment and services.
- Develop a prioritized list of energy efficiency improvement opportunities which yield reduction of baseline energy usage and cost savings.
- Use Energy Committee to evaluate the need for energy efficiency audits.
- Determine feasibility of biogas/methane heat and power cogeneration.

Performance Measures

- New opportunities for saving energy are identified.
- Reduction of relative energy usage and energy related costs.

WRRF Electricity Use FY2018 $550,523 (includes fees)



6.2 Energy Effeciency and Conservation

Reduce Energy in Water Utility

Summary

Supplying water to City customers is an energy-intensive process, and electricity is a significant share of overall water system operating costs. The City of Meridian spends approximately $445,000 annually on electricity for pumping and distributing potable water (Idaho Power billing records, 2018). Energy efficiency in the water supply infrastructure can yield important water and energy savings. Reduction of energy use can be done through equipment upgrades, procurement of efficient equipment, improved construction and operation practices, and resource conservation measures. With significant infrastructure development and growth, including energy efficiency efforts within capital projects is critical to reducing Meridian's energy use and related costs.

Sustainability in Practice

With energy savings built into design and a relatively new water distribution system, Meridian's water system is relatively energy efficient. The following projects illustrate recent energy savings.

- HVAC Upgrades 19,850 kWh/yr savings $1,469/yr
- Pump upgrades to VFD 145,878 kWh/yr savings $10,795/yr

Objectives

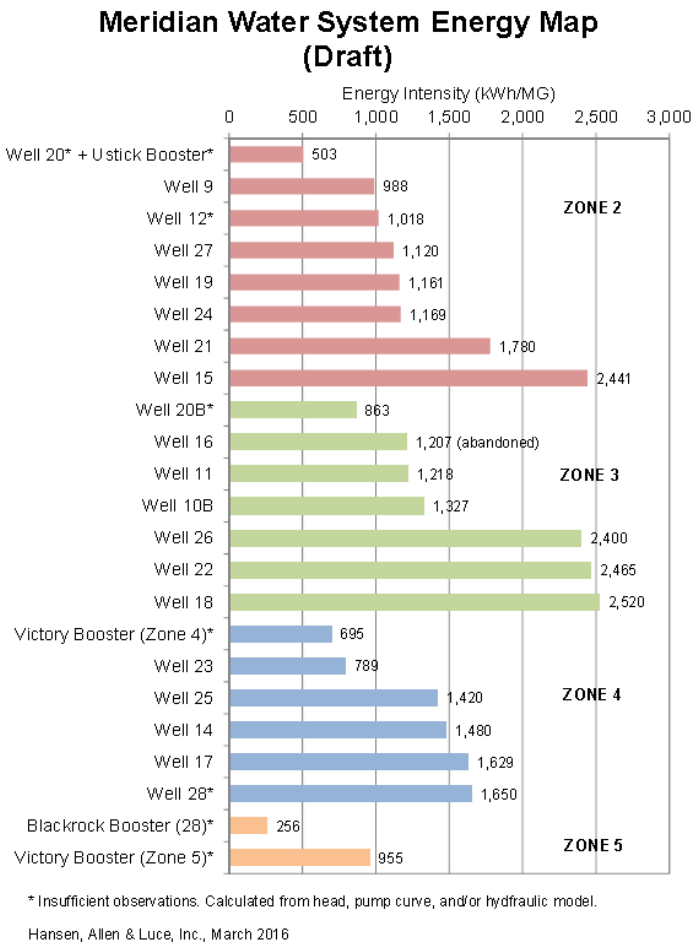
- Reduce energy related operating costs where feasible and practical.
- Summarize energy efficiency projects completed or underway.
- Develop a prioritized list of improvement opportunities.
- Consider energy reducing efforts in Capital projects, as feasible.

Actions

- Develop process to evaluate energy efficiency in the process of design, construction and purchase of applicable water equipment and services.
- Incorporate energy efficient design standards into all water capital projects where feasible.
- Identify and mitigate unnecessary wasted water demands.
- Compare energy used to pump water between zones with water quality issues to installing and maintaining water quality solutions such as filtration.

Performance Measures

- New opportunities for saving energy are identified.
- Reduction of relative energy usage and energy-related costs.



6.2 Energy Effeciency and Conservation

Reduce Energy in City Facilities

Summary

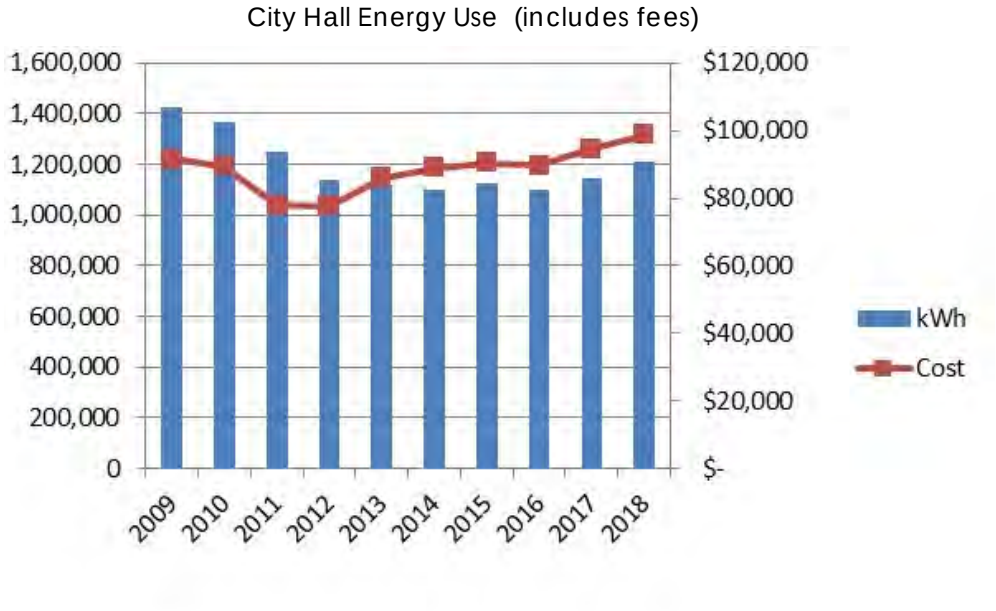
Meridian is committed to constructing and maintaining energy efficient buildings for municipal operations. The City of Meridian spends approximately $162,929 on electricity and $60,560 on natural gas annually at City Hall, Fire and Police buildings (Idaho Power, Intermountain Gas billing records, 2018). A focus on reducing Meridian's building energy use can both save money and promote the City as an example for the community on building resilient and efficient facilities. Reduction of energy use can be done through equipment upgrades, procurement of efficient equipment, improved construction and operation practices, and resource conservation measures.

Sustainability in Practice

City Hall is a great example of a high performance building — achieving a LEED silver rating for new construction. LEED certification verifies sustainable strategies in five areas: sustainable site development, water savings, energy efficiency, materials and resources selection, and indoor environmental quality. City Hall also received the Energy Star award from EPA for continued energy efficient performance and optimization.

Other high performing buildings receiving Idaho Power new construction rebate incentives include the WRRF Administration building, UV disinfection building, the WRRF Lab, and the Public Safety Training Facility.

Some buildings have also undergone energy efficiency retrofits include: Police Station lighting upgrades, Water Administration HVAC controls, and City Hall HVAC controls.



Objectives

- Reduce energy related building operating costs where feasible and practical.
- Summarize energy efficiency projects completed or underway.
- Develop a prioritized list of improvement opportunities for future new and retrofit projects.

Actions

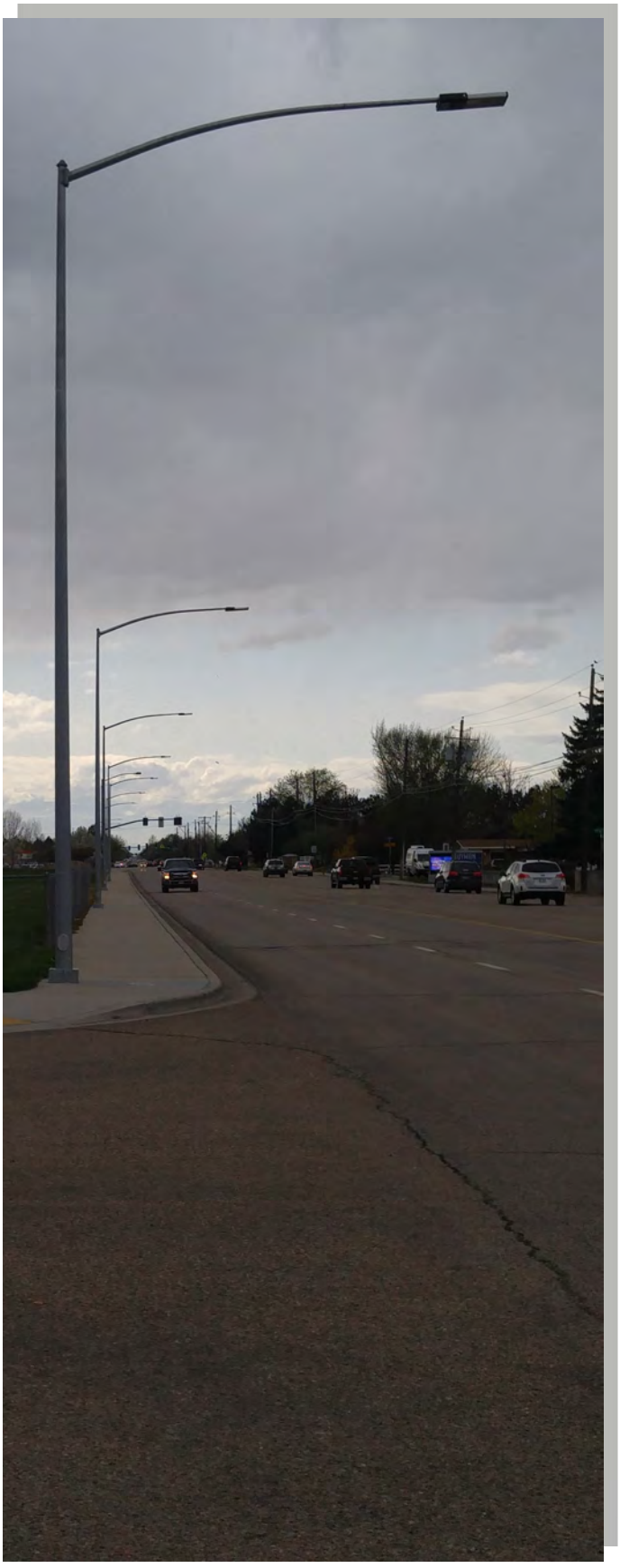
- Evaluate utilization of energy management systems in municipal buildings to track and reduce energy costs for lighting, heating and cooling.
- Evaluate City Hall lighting retrofit feasibility.
- Evaluate and implement behavior based energy savings opportunities such as: changes in individual or organizational behavior such as turning off lights, temperature control, and adjusting electronics power settings.
- Establish target energy reduction levels based on best practices, example projects, and historical data.

Performance Measures

- Increased awareness of behavior based energy conservation measure results.
- Meet or exceed target reduction levels of energy usage and related costs.

6.2 Energy Effeciency and Conservation

Reduce Energy in City Streetlights



Summary

The City of Meridian spends approximately $350,000 annually on electricity to power over 7,200 street lights maintained by the City, local homeowners associations, and Idaho Power (Idaho Power billing records, 2018). The City pays electricity on street lights owned and maintained by HOAs and Idaho Power. Electricity rate schedules vary according to ownership, meters, bulb type, and maintenance agreements.

Technology used in street light lamps is rapidly improving. Newer high-efficiency LED street lamps last longer, are capable of emitting more light, require less maintenance, and use about half the energy of older HPS units. Significant reduction of energy use can be achieved over time through the upgrade of older HPS fixtures to energy efficient LED fixtures.

Streetlight Ownership December 2018	HPS	LED
City of Meridian	4797	1101
HOA	877	0
Idaho Power	437	0

Objectives

- Reduce energy used and electricity cost in street lighting where feasible.
- Assist Engineering in identifying alternate funding sources other than General Fund dollars (partnerships, grants, etc.).

Sustainability in Practice

Streetlight specifications in the Meridian Design Standards were changed in 2016 to require the use of photocells and energy efficient LED fixtures in all newly constructed street lights. When a roadway is widened or modified as part of development, older High Pressure Sodium (HPS) street lights are upgraded to LED lamps and fixtures.

In FY 2018 alone, 584 new LED street lights were installed as a result of development. Not all of these new lights are reflected in the inventory below.

Actions

- Update plan for phased approach of LED lighting upgrades.
- Update return on investment to retrofit HPS streetlights.
- Identify and evaluate grant funding opportunities for lighting retrofits.
- Establish calendar of annual grant cycles that pertain to street lighting.
- Submit applications for grant funding.

Performance Measures

- 200 HPS light fixtures retrofitted to LED fixtures within four years.
- 10% reduction of energy usage of existing street lights within four years.
- Identify four grant funding opportunities within four years to accelerate retrofit program.

6.3 WATER CONSERVATION

Summary

Meridian relies on groundwater as the single source for all potable water. By monitoring water levels at several of its wells, the City has not found any statistically significant decline indicating water is being used faster than natural recharge is occurring. The City is producing water at a sustainable rate. However, increased demand, drought conditions, or a change in water supply management practices could create possible shortages in the future. Preparing water conservation programs now will help ensure Meridian has an adequate water supply as we continue to grow.

Sustainability in Practice

A Water Conservation Plan Working Group composed of citizens, business representatives, environmental organizations, and City staff developed a Water Conservation Plan in 2011. The plan identifies past, current, and future water conservation actions and goals designed to promote environmentally and economically sound use of available water resources.

Idaho's first Class A wastewater re-use program was started by the City of Meridian in 2009 and currently supplies reclaimed water to some customers through a network of "purple pipe" — offsetting the demand upon the City's potable water supply. The success of the reclaimed water program presents an innovative and strategic opportunity in the development of Meridian's water conservation program.

Actions

- Update Water Conservation Plan.
- Review and update water conservation education/outreach materials and kits.
- Evaluate expansion and alternative uses of reclaimed water.
- Evaluate operational changes that may conserve water.

Objectives

- Preserve, protect, and extend the useful life of the City's water supplies.
- Maximize alternate sources as appropriate, such as reclaimed water, to preserve domestic potable supply.
- Promote environmentally and economically sound use of available water resources.

Performance Measures

- Reduce per-capita water usage in a fiscally sound manner.
- Extend the life of current water sources and distribution systems and delay the need for additional wells to be brought on line.


RECLAIMED WATER
The Right Water for the Right Use
WE ARE
USING WATER
WISELY
MERIDIAN
IDAHO
DO NOT DRINK
FROM THE IRRIGATION SYSTEM

6.4 Solid Waste Recycling, & Waste Reduction

Summary

City operations generate a significant amount of waste through general facility use and operation of our public works utilities that is recycled or disposed at our local landfill. The City recognizes the need to evaluate our waste stream to ensure a best use of our natural resources and environment using the practice of reduce, reuse, and recycle. Understanding our waste stream characteristics and accurate volume measurement is an important first step in identifying and evaluating waste reduction measures. Waste generated through City operations can be reduced through preferred purchasing and efficiently managing materials with recoverable value that can be reused or recycled.

Sustainability in Practice

Meridian buildings and facilities offer an assortment of recycling bins in public areas, common areas, and individual offices. Information Technology has implemented a program to reduce paper and printing through expanded use of electronic documents and default double-sided printing on network printers.

Objectives

- Increase waste reduction and recycling awareness among employees.
- Reduce amount of materials with recovery potential from being landfilled.

Actions

- Establish a baseline of PW operations waste and recyclables volume.
- Provide education and outreach to employees on waste reduction/ recycling options.
- Identify materials that are to be reduced and recycled and conduct a targeted waste reduction campaign.
- Evaluate green purchasing practices.
- Evaluate biosolids disposal alternatives.

Performance Measures

- Reduction in the amount of waste sent to landfill.
- Increase the amount of recoverable or recyclable materials.

6.5 Sustainable Operations Strategic Plan Integration

City Strategic Plan Objective 4.E.2 Develop Citywide Internal Sustainable Programs

To guide the incorporation of sound environmental principles and practices into the daily operations of the City as well as expand the community's understanding and support for sustainability initiatives in three components: economic vitality, environmental integrity and social equity.

The Sustainable Operations Team proposes and evaluates sustainability initiatives and recommends projects for detailed feasibility and triple bottom line analysis. The table below describes existing sustainability initiatives and projects identified by the Sustainable Operations Team for detailed analysis. The City Strategic Plan's goal is to increase public understanding of Meridian as a community that is improving its environment through sustainable initiatives and programs.

Sustainability Program	Strategy Description	Program Status	Recommended For Detailed Analysis?
City Hall Lighting Retrofit	Replace fluorescent lighting with energy efficient LED.	Under Review	Yes
Post Aeration Blower Retrofit	Assess feasibility of adding VFD to post aeration blower.	In Progress	Yes
Street Light Retrofit	Replace High Pressure Sodium lights with energy efficient LED.	In Progress	Yes
Biosolids Landfill Alternatives	Assess feasibility of landfill disposal alternatives including beneficial use of biosolids.	Under Review	Yes
Biogas Energy Use	Assess feasibility of utilizing biogas currently flared to atmosphere for Combined Heat Power (CHP) or Renewable Natural Gas (RNG).	Under Review	Yes
Water System Efficiency	Water System Optimization Cohort participation evaluated Meridian's water system for energy efficiency and determined it is the most efficient water system in the region.	Complete	No
Homecourt Lighting Retrofit	Parks Department Homecourt facility replaced fluorescent lighting with energy efficient LED	Complete	No
Utility Lighting Upgrade	Convert lighting in various water and wastewater facilities internal and external to energy efficient LED	In Progress	No

7.0 IMPLEMENTATION

To successfully protect our environment and promote sustainable initiatives, the Environmental Programs section of the Public Works Department provides leadership in policy, program development and implementation. The Environmental Program accomplishes its work through supportive alignment with various divisions and departments throughout the City and collaborative partnerships with stakeholders and community partners to achieve our City's vision of making Meridian a premier place to live, work and raise a family.

This plan will guide the direction of Environmental Programs through documenting ongoing actions, new initiatives and creating performance metrics to be accomplished. A detailed table accompanies this plan outlining timeline and responsibilities of key actions and initiatives described in this plan. The Environmental Programs Coordinator is tasked with keeping this plan and the accompanying table up-to-date through an annual addendum. The Environmental Programs Plan is subject to modification with the intent to adapt it to changes in the City's priorities and alignment with the City's Strategic and Comprehensive Plans.

Next steps after plan adoption:

- Providing updates to City Strategic Plan database.
- Prioritize strategies and resource needs to develop appropriate budget and staff resources.
- Coordinate with stakeholders internal and external.
- Review progress and update the Plan accordingly.

See **Appendix 'A'** for a table of project initiatives and timelines.

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