

INTERNAL POLICIES AND PRACTICES WORKING GROUP

WORKING GROUP MEMBERS

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A tremendous amount of energy conservation and emissions reduction potential exists in the way the nearly 450 City employees go about their work every day. The following Internal Practices & Policy (IPP) strategies intend to further integrate green practices into City operations so that reducing energy and material consumption, reducing the cost of doing business, and healthy, happy employees are the workplace norm. Internal Policies and Practices strategies are a cost effective foundation for emissions reduction and can be implemented rather quickly. Savings tend to decrease over time without centralized support and consistent follow up, training and feedback. Therefore, staff assigned to champion and oversee efforts is essential to long-term success.

Internal Policies and Practices Completed Actions

Table 3-4 below lists actions already taken by the City within the scope of the Internal Policies and Practices working group categories. It is important to recognize these projects and programs and they be kept in place as we pursue greater reductions in operational costs, energy use, and emissions.

Table 3-4: Internal Policies and Practices Completed Actions

Action	Year Implemented
Formation of City Green Team	2008
Green Team Initiatives and Green Policy	2009
Administrative Rule 11: City Fleet Vehicle Use	2010

Internal Policies and Practices Strategies

Table 3-5 below summarizes the Internal Policies and Practices working group strategies. Further details are described in the narratives below.

Table 3-5: Internal Policies and Practices Strategies

Strategy	Implementation Cost	Est. Annual Dollar Savings	Annual Avoided Emissions (mtCO2e)	Simple Payback (yrs)
EMPLOYEE COMMUTE				
IPP-1 Employee Commuting Incentive Program	Unknown	\$0	31	--
IPP-2 Flexible Work Scheduling	< \$1000	Indeterminable	31	Unknown
IPP-3 Rideshare Scheduling plan for employees	< \$1000	\$0	62	--
EMPLOYEE CULTURE				
IPP-4 Conservation and Sustainability in Work Plans and Annual Review	Unknown	Indeterminable	Indeterminable	--
IPP-5 Fostering Sustainable Workplace	Unknown	Indeterminable	Indeterminable	--
IPP-6 Include Conservation and Sustainability in Job Descriptions	Unknown	Indeterminable	Indeterminable	--
IPP-7 Include Sustainability in Employee Orientation	Unknown	Indeterminable	Indeterminable	--
PRODUCTS, PROCUREMENT, & FACILITIES				
IPP-8 Green Purchasing Policy	Unknown	Indeterminable	Indeterminable	--
IPP-9 LEED for New Construction and Major Renovations Policy	\$43,500	\$25,438	119	< 2
IPP-10 Paper and Printing Policies	< \$1000 - \$9,500	\$58,000 - >\$170,000	0.5 -1.4	< 2 months
IPP-11 Reduce Electronics Energy Use	< \$1000	\$3,350	14.5	0.3
IPP-12 Waste Stream Reduction Policy	< \$1000	Indeterminable	Indeterminable	--

“ The City now owns and manages approximately 3,800 acres of open space that provides many ecological benefits, including floodwater storage, contributing to clean water and air, wildlife and bird habitat, carbon storage, and the cooling influence of trees during the summer months, as well as providing scenic beauty and many health and recreation benefits to our citizens. ”

- JACKIE CORDAY,
Open Space Program Manager



IPP-1 Employee Commuting Incentive Program

RECOMMENDATION

Provide incentives to City employees who find alternatives to single-occupancy vehicle commuting. Formalize easy enrollment in Missoula in Motion's Way to Go! Club.

Strategy	Implementation Cost	Estimated Annual Energy Savings			Estimated Annual Dollar Savings	Annual Avoided Emissions (mtCO ₂ e)	Simple Payback
		Therms	kWh	Gallons of Fuel			
IPP-1	Unknown	--	--	0	\$0	31	--

BACKGROUND

Currently, all City employees receive a Mountain Line bus pass and have the opportunity to enroll in Missoula In Motion's Way to Go! Club (WTG!C). The WTG!C is an incentive program for commuters that employees can opt into.¹ By formalizing enrollment for City employees during orientation (as part of the sustainability portion) participation becomes more the norm. Additionally, the City should conduct a survey of employee commuting behavior to have baseline data to help determine the effectiveness of incentives. Insight into the commuting habits and preferences of employees can inform the City's implementation of measures that will simultaneously meet employee needs and reduce the overall contribution to transportation-related emissions. Incentives could come directly from Missoula in Motion or could include other department prizes and/or cash. These incentives should be City-specific (i.e. different from the current WTG!C prizes) and should be developed with employee input. Interest in and desire for different types of incentives could be included in the survey mentioned above to most effectively motivate employees to participate.

Realizing a conservative 5% increase in sustainable commuting (29 employees) from this strategy would result in approximately 300 vehicle miles avoided every work day. This equates to 3,470 gallons of fuel² and, collectively, \$12,000 in savings for those employees. This would avoid 31 mtCO₂e in commuting-related emissions for the City. Since the cost and fuel savings are realized by City employees, they are not included in the table below. The associated emissions do fall under the scope of the City and are therefore included.

This project would reinvigorate the City's' relationship with Missoula in Motion, which will lead to future synergy and collaboration on other transportation-related projects.

References

1. Missoula In Motion: <http://missoulainmotion.com>
2. Assuming 21.3 mpg. FuelEconomy.gov - average combined fuel economy of 2008 name brand midsize, wagon, and truck vehicles.

Department

- > Human Resources
- > Planning and Grants
- > Bike/Ped Office

Strategy Target

- > Reduce emissions associated with employee transportation
- > Better tracking of employee commute mode

Related Strategies

- > Fostering Sustainable Workplace
- > Incorporate Sustainability in Employee Orientation
- > Employee Commuting Incentive Program

Timeline

- > First year: conduct commute survey; enroll in WTG!C as part of orientation (strategy concurrent with implementation of sustainability training during orientation).

Potential Partners

- > Missoula In Motion
- > Mountain Line
- > MRTMA
- > Missoula Parking Commission

Potential Funding Sources

- > None identified.

IPP-2 Flexible Work Scheduling

RECOMMENDATION

Adopt a formal policy for flexible work scheduling for employees to allow for sustainable commuting.

Strategy	Implementation Cost	Estimated Annual Energy Savings			Estimated Annual Dollar Savings	Annual Avoided Emissions (mtCO2e)	Simple Payback
		Therms	kWh	Gallons of Fuel			
IPP-2	< \$1000	Indeterminable ⁴	Indeterminable ⁴	-- ⁴	Indeterminable ⁴	31	Unknown ⁴

BACKGROUND

Current City of Missoula Personnel Policy¹ allows for departments to adopt flexible scheduling plans subject to approval by the Mayor’s Office and ensuring citizen access required by state law. Adopting a formal policy on alternative scheduling (including telework and flex time for sustainable commuting) could lead to increased savings in personnel expenses from increased productivity and retention of employees and potential reduction in greenhouse gas pollutants from employee transportation and facility heating/cooling/lighting.

The recently passed Telework Enhancement Act (2010) established the following guidelines for federal employees:

- Designate a senior manager to coordinate the agencies’ telework program
- Determine eligibility of employees, notify them of their eligibility status, and enter into written agreements with them for those who wish to telework
- Develop and implement telework training programs for managers and employees

The Act then went on to encourage local governments to do the same.²

Telecommuting reduces overhead costs for the employer, reduces costs incurred by the employee, and increases employee satisfaction.³ Associated avoided emissions are mostly from trip reduction.³ If 5% of Missoula’s City employees telecommuted each work day, the City could avoid 31 mtCO2e of emissions from trip reduction alone,³ saving City employees approximately \$11,000 per year, collectively. The City would also experience reduction in energy use, but those costs still exist in the employee’s energy bills. These considerations should be further researched and should be discussed in the Policy.

Department

> Human Resources

Strategy Target

> Reduce emissions associated with employee transportation and heating/cooling of facilities.

Related Strategies

- > Rideshare Scheduling for Employees
- > Employee Commuting Incentive Program

Timeline

> Less than 2 months

Potential Partners

- > Missoula County
- > Mountain Line
- > MRTMA
- > Missoula in Motion

Potential Funding Sources

> None needed.

Compatibility of transit and work schedules is one potential obstacle to increased bus ridership and other sustainable commuting methods. By creating a formal policy that allows for flexible schedule to accommodate transit schedules, it is possible that more City employees would ride the bus. This same flexibility could apply to carpools and vanpools.

A flexible schedule policy would allow for employees to arrive/depart at designated times based on when their bus or carpool arrives and departs (not necessarily from 8 a.m.-5 p.m.).

While many employees and supervisors may have an understanding that the employee works ‘around the bus schedule,’ formalizing the policy will make the practice less ambiguous and more in line with other City personnel policies. This would also apply to telecommuting.



“There is tremendous potential in 450 City employees. Simple actions can often lead to big reductions in energy consumption and cost, as well as happier, healthier employees.”

- GAIL VERLANIC

References

1. Missoula County Personnel Policies (2007) Section 216 and 217
<http://www.co.missoula.mt.us/hr/employees/policies/MCPERPOL2007PROTECTEDFINALwithCOVER.pdf>
2. Telework Research Network. “The State of Telework in the US”. 2011 paper. <http://www.workshifting.com/downloads/downloads/Telework-Trends-US.pdf>
3. ICLEI – CAPPA v1.5 © 2010. “Promote Telecommuting”. Used 21.3 mpg average fuel economy (FuelEconomy.gov. Avg. combined fuel economy of 2008 Ford Focus, Subaru Outback, and Ford F150).
4. Fuel and cost savings associated with this strategy are realized by the employee, and not the City. As such they are not included in the table here. As mentioned in the narrative, the City would experience lower energy costs from reduced use of space conditioning and electronics. However, the associated emissions may still fall within the scope of the City’s greenhouse gas inventory. This should be further researched in the future, and consistent with Missoula’s Greenhouse Gas Inventory.

IPP-3 Ride Share Scheduling Plan for Employees

RECOMMENDATION

Designate an online rideshare matching service. Train and encourage employees to use service.

Strategy	Implementation Cost	Estimated Annual Energy Savings			Estimated Annual Dollar Savings	Annual Avoided Emissions (mtCO2e)	Simple Payback
		Therms	kWh	Gallons of Fuel			
IPP-3	< \$1000	--	--	0	\$0	62	

BACKGROUND

Because of the traditional 8am-5pm nature of employment for many City employees as well as the downtown location of City Hall (where many employees work or could catch a bus to their final destination), ridesharing is a very viable alternative to driving alone to work. Currently, ridesharing is formally supported by the Missoula Ravalli Transportation Management Association (MRTMA) who coordinates car and vanpools.¹

Ridesharing is limited primarily by the difficulties of linking people together. Some people are hesitant to ride with someone they do not know. The next “hurdle” is matching interested people together. There are many online options^{2a,b,c} but they are only as successful as the number of people registered with them. The City should designate an online rideshare matching service and then direct City employees.

The City could also ask employees who are interested in participating in a rideshare to send their starting location to a centralized person who could map all the interested parties and then the City could facilitate “introductions.”

Realizing a 10 percent reduction in commute vehicle trips due to implementation of this program would save approximately 6,551 gallons of gasoline and avoid emitting 62 mtCO2e per year. This would save those employees over \$22,000, collectively.^{3,4} Cost and fuel savings are realized by City employees, not the City itself so are not included in the table here.

References

1. Missoula Ravalli Transportation Management Association <http://www.mrtma.org/>
2. a. GoLoco. <http://www.goloco.org/>.
b. Zimride. <http://www.zimride.com/>
c. iCarpool. <http://www.icarpool.com/>
3. ICLEI – CAPP v1.5 © 2010. “Promote Carpooling and Vanpooling”. Fuel economy input: 21.3 mpg. (FuelEconomy.gov - average combined fuel economy of 2008 name brand midsize, wagon, and truck vehicles.).

Department

> OPG – Missoula in Motion

Strategy Target

> Reduce emission associated with employee transportation

Related Strategies

> Employee Commuting Incentive Program
> Fostering Sustainable Workplace
> Sustainable Commute Infrastructure

Timeline

> Three months

Potential Partners

> Missoula Ravalli Transportation Management Association
> Missoula in Motion
> ASUM Transportation
> EPA

Potential Funding Sources

> EPA Grants for rideshare

IPP-4 Conservation and Sustainability in Work Plans and Performance Reviews

RECOMMENDATION

Develop and add conservation and sustainability components to work plans and performance reviews.

Strategy	Implementation Cost	Estimated Annual Energy Savings			Estimated Annual Dollar Savings	Annual Avoided Emissions (mtCO2e)	Simple Payback
		Therms	kWh	Gallons of Fuel			
IPP-4	Unknown	--	--	--	Indeterminable	Indeterminable	--

BACKGROUND

Work plans serve as the road map and establish expectations for most City employees throughout the year. While work plan procedure may vary according to position and department, conservation and sustainability components should be considered when plans are developed and inserted where appropriate.

This practice integrates conservation and sustainability thinking, planning and communication into every stage of an employee’s career as well as their duties and tasks during each project’s succession. Finally, it opens and fosters an important dialogue between Supervisor and Staff.

Important complements to Work Plans in the City are Performance Reviews. Performance Reviews serve as a formal Supervisor/Staff check-in and are an important accountability tool to those work plans. As such, conservation and sustainability checks should be added to the Performance Review process. Details should be developed by Supervisors to fit certain situations and employees, but should at minimum include dialogue about individual work plan goals, the City’s Green Policy, departmental goals as discussed in the “Fostering Sustainable Behavior” strategy, and City initiatives.

Adding Conservation and Sustainability components to both Work Plans and Performance Reviews ensures that these actions are integrated into day-to-day activities and integrated into all stages of work planning and review.

Department

- > Human Resources
- > All Departments

Strategy Target

- > Increase sustainable behavior of City employees. Integrate Conservation and Sustainability into all aspects and phases of work planning and review.

Related Strategies

- All, especially:
- > Fostering Sustainable Workplace
 - > Include Sustainability in Employee Orientation
 - > Incorporate Sustainability into Job Descriptions

Timeline

- > Implement in next work plan/ review cycle. It is important that all training needs are identified and met before performance reviews.

Potential Partners

- > Sustainable Business Council
- > ICLEI

Potential Funding Sources

- > Strategy requires no funding

IPP-5 Fostering Sustainable Workplace

RECOMMENDATION

Coordinate and complete an assessment of sustainability efforts in each Department. Develop plans for improvement and encouragement.

Strategy	Implementation Cost	Estimated Annual Energy Savings			Estimated Annual Dollar Savings	Annual Avoided Emissions (mtCO2e)	Simple Payback
		Therms	kWh	Gallons of Fuel			
IPP-5	Unknown	--	--	--	Indeterminable	Indeterminable	--

BACKGROUND

In 2009, the City of Missoula adopted a green policy that listed 25 recommended action items that reduce environmental impacts from City employees. In order to follow up on progress and build on the Green Policy, each department should undergo an assessment or review current actions and efforts. The check in will involve 3 steps:

1. Departments and individuals should provide input and data to identify successes, as well as barriers, and those areas where greatest improvements can be made.
2. Departments will develop departmental targets and goals.
3. Departments will develop regular tracking and reporting methods.

Consistent follow up will ensure that goals are being met, employee motivation and awareness remains high, and ongoing innovations and solutions can be deployed. Achievements and best practices should be shared and celebrated across City departments.

Success of strategies of this nature rest largely on having an in-house person directed to facilitate steps and consistent follow up as part of their job duties. Therefore, it is recommended that a staff member is dedicated to coordinate these efforts.

Potential employee actions which could be addressed include:

- City of Missoula’s Green Policy
- Commuting & work travel
- Waste Stream (Trash/Recycling)
- Green Purchasing & Procurement
- Energy use

Department

- > All
- > Human Resources

Strategy Target

- > Increase sustainable behavior of City employees

Related Strategies

All, especially:

- > Include Sustainability in Employee Orientation
- > Incorporate Sustainability into Job Descriptions
- > Work Plan Integration and Annual Review

Timeline

- > Can begin immediately

Potential Partners

- > Sustainable Business Council
- > ICLEI
- > Consulting firms which help foster sustainable office behavior;
- > Energy reporting and monitoring consultants;
- > Missoula County;
- > University of Montana

Potential Funding Sources

- > Energy Savings reinvested
- > FTE investment
- > Federal, State or local grants

IPP-6 Include Conservation and Sustainability in Job Descriptions

RECOMMENDATION

Develop and add conservation and sustainability components to all job descriptions.

Strategy	Implementation Cost	Estimated Annual Energy Savings			Estimated Annual Dollar Savings	Annual Avoided Emissions (mtCO2e)	Simple Payback
		Therms	kWh	Gallons of Fuel			
IPP-6	Unknown	--	--	--	Indeterminable	Indeterminable	--

BACKGROUND

Fostering sustainable behavior in City offices can be made easier by ensuring that new employees already have such knowledge. Including conservation and sustainability components to job descriptions is already a growing trend in businesses large and small.¹ One company, Clean Clothes, Inc., “start(s) at the beginning by screening new employees for their knowledge about organics and organic cotton. As a result, they have a corporate culture that attracts employees who are environmentally aware.”¹ In addition, current employees’ job descriptions will be updated as part of the Work Plan Integration and Annual Review strategy.

Developing and adding conservation and sustainability components to job descriptions will increase the likelihood that the City employees will participate in existing and ongoing efforts to reduce costs and environmental impact. “Engaged employees are a business’ prime resource in cutting costs and finding innovative ways to reduce the firm’s environmental and social impacts.”¹

Department

- > Human Resources
- > All

Strategy Target

- > Support and strengthen the commitment to sustainability in City offices

Related Strategies

All, especially:

- > Fostering Sustainable Workplace
- > Sustainability in Employee Orientation
- > Work Plan Integration and Annual Review.

Timeline

- > Can begin immediately, and update future position descriptions on an on-going basis

Potential Partners

- > None identified.

Potential Funding Sources

- > Strategy has no cost.

References

1. Woofter, Jennifer. “How to Approach Employee Education on Sustainability.” 2009. <http://sustainabilityconsulting.wordpress.com/2009/04/08/resources-how-to-approach-employee-education-on-sustainability/>

IPP-7 Include Sustainability in Employee Orientation

RECOMMENDATION

Add a sustainability component to employee orientation. Ensure existing employees receive the same information prior to implementation.

Strategy	Implementation Cost	Estimated Annual Energy Savings			Estimated Annual Dollar Savings	Annual Avoided Emissions (mtCO2e)	Simple Payback
		Therms	kWh	Gallons of Fuel			
IPP-7	Unknown	--	--	--	Indeterminable	Indeterminable	--

BACKGROUND

The most effective way to shift employee behavior is through early acculturation in which any new employee understands the expectations of the office culture. Employees introduced to concepts of sustainability and the expectations of the City of Missoula in their orientation have a better chance of accepting these expectations and incorporating them into their daily habits.

All new employees receive some orientation to the City’s policies and procedures. During the orientation process, new employees will be informed of the City’s environmental and sustainable values as well as ways to incorporate those values into their daily work routine. Further, employees should understand how these expectations will be evaluated in their performance review.

Many organizations include a sustainability component in their new employee orientation.^{1a,1b,2,3,4} Webinars, videos, brochures, or slideshows highlighting steps the City has taken and opportunities for involvement should be developed. The orientation should address this Conservation & Climate Action Plan, including the memo describing the City’s Green Policy;⁵ commuting & work travel; waste stream (trash/recycling), and green purchasing & procurement. Mayor and department head input and review is crucial.

Before initiating this strategy, existing employees and department heads should receive this information. This will avoid any disconnect between current and new employees regarding these issues, and will allow current staff to act as guides and mentors for new employees.

References

- Association for the Advancement of Sustainability in Higher Education.
 - New York University - Sustainability in New Employee Orientation. <https://stars.aashe.org/institutions/new-york-university-ny/report/2011-01-31/3/19/116/> (contact to ask about a web-based learning module).
 - Portland State University – Sustainability in New Employee Orientation. <https://stars.aashe.org/institutions/portland-state-university-or/report/2011-02-11/3/19/116/>
- Frederick County, Maryland Sustainability Action Plan: http://www.frederickcountymd.gov/documents/County%20Manager/Sustainability/Publications/Sustainable%20Action%20Plan%20for%20County%20Ops_Final.07.23.10.PDF
- Woofter, Jennifer. “How to Approach Employee Education on Sustainability.” Strategic Sustainability Consulting’s Blog. Poster: April 8, 2009. <http://sustainabilityconsulting.wordpress.com/2009/04/08/resources-how-to-approach-employee-education-on-sustainability/>
- Stratos, Inc. “Sustainability Integration into Business Processes.” July 2007. <http://www.docstoc.com/docs/2409690/SUSTAINABILITY-INTEGRATION-INTO-BUSINESS-PROCESSES-A-Study-of>
- Memo from Mayor John Engen to ALL City, OPG & Health department employees, regarding “New Green Policy for all City of Missoula, OPG, and Health Department employees.” February 25, 2009.

Department

- > Human Resources
- > Mayor’s Office

Strategy Target

- > Increase awareness and foster sustainable behavior of City employees

Related Strategies

- All, especially:
- > Include Conservation and Sustainability in Job Descriptions
 - > Work Plan/Annual Review Integration
 - > Fostering Sustainable Workplace

Timeline

- > Less than 1 month (immediately after Department Assessment and Improvement initiated)

Potential Partners

- > Missoula County
- > University of Montana
- > Consulting firms which help foster sustainable office behavior

Potential Funding Sources

- > Unknown, but should not cost much if the training is done by existing staff; most effective training would be by a Sustainability Coordinator

IPP-8 Green Purchasing Policy

RECOMMENDATION

Adopt a formal “Green” Purchasing plan for the City. Establish a system to track products and savings. Inform other departments with regular reports.

Strategy	Implementation Cost	Estimated Annual Energy Savings			Estimated Annual Dollar Savings	Annual Avoided Emissions (mtCO2e)	Simple Payback
		Therms	kWh	Gallons of Fuel			
IPP-8	Unknown	--	--	--	Indeterminable	Indeterminable	--

BACKGROUND

The City of Missoula purchases a large volume of products each year. Establishing a comprehensive green purchasing or environmentally preferable purchasing plan for city departments can identify and reduce the environmental impact of purchases and maximize resource efficiency.^{1a,b} A green purchasing policy allows the city to set standards for purchasing that take into account social equity, environmental harm and fiscal criteria. In addition to the cost and energy benefits, adopting an environmentally preferable purchasing plan or green purchasing policy would demonstrate the City’s commitment to sustainability.

An environmentally preferable product is one “that has a reduced negative effect or increased positive effect on human health and the environment when compared with competing products that serve the same purpose.”^{1b}

This takes into consideration factors such as packaging, raw materials, recycled content, energy efficiency, locality of business, etc.^{1b,2} The Policy should be all inclusive, covering any and all items that the City purchases. This includes: electronics such as computers and printers/copiers, office supplies such as pens and paper, and other items such as water coolers and furniture. This has the potential to:

- Reduce hazardous materials management costs (e.g. using less-toxic products)
- Reduce operational costs (energy savings from efficient equipment)
- Reduce disposal costs (hazardous and solid waste) by generating less waste and using longer lasting products
- Reduce repair and replacement costs when using more durable and more repairable equipment
- Reduce employee safety and health costs at the facility (and liability) by improving the work environment and minimizing risks to workers
- Reduce material and energy consumption

Department

- > All
- > IT Department, to help establish central repository

Strategy Target

- > Reduce contribution to secondary impacts

Related Strategies

- > Paper and Printing Policy
- > Fostering Sustainable Workplace
- > Work Plan Integration/Annual Review

Timeline

- > 1 year, for research on products and adoption of policy before implementation

Potential Partners

- > Missoula Office City
- > Other local office supply businesses

Potential Funding Sources

- > Self-funded through energy savings

IPP-8 Green Purchasing Policy Continued

The City of Missoula does not have one central ordering location for all departments to use, so sharing of information will be essential to a successful implementation of this strategy. Establishing a central repository for information, potentially web based, would allow easy access for all departments and staff.

Savings and avoided emissions vary greatly with types of product and the degree to which they are implemented, so estimates are not made here.



References

1. ResponsiblePurchasing.org.
 - a. City of Berkeley. Green Purchasing Policy. 2004. http://www.responsiblepurchasing.org/UserFiles/File/Office%20Electronics/Policies/City_of_Berkeley_CA_Green_Purchasing_Policy_2004.pdf
 - b. City of Seattle. Sustainable Purchasing Policy. 2003. http://www.responsiblepurchasing.org/UserFiles/File/Computers/Policies/Seattle_Purchasing_policy_2003.pdf
2. City of Portland. Sustainable Procurement Policy. September 2010 Update. <http://www.portlandonline.com/shared/cfm/image.cfm?id=204110>

IPP-9 LEED for New Construction and Major Renovations Policy

RECOMMENDATION

Create and adopt a policy that all future City of Missoula new construction and major renovation building projects attain Leadership in Energy and Environmental Design (LEED) certification. The policy should include a minimum level of LEED certification over a certain square footage or cost.

Strategy	Implementation Cost	Estimated Annual Energy Savings			Estimated Annual Dollar Savings	Annual Avoided Emissions (mtCO2e)	Simple Payback
		Therms	kWh	Gallons of Fuel			
IPP-9	\$43,500 ¹⁰	4,760 ⁹	213,950 ⁹	--	\$25,438 ⁹	119 ⁹	< 2

BACKGROUND

In 2000, the U.S. Green Building Council (USGBC) established the LEED® green building rating system as a way to define and measure green buildings. LEED is an internationally recognized green building certification system, providing third-party verification that measures how well a building or community performs across established metrics.¹ Green facilities save tax-payer dollars, reduce resource consumption and greenhouse gases, and create demand for local green products and services.²

LEED for New Construction and Major Renovation certification is designed to guide and distinguish high-performance commercial and institutional projects. It certifies the design and construction activities of both new buildings and major renovations to existing buildings (affecting over 50 percent of the building).³ When included in the pre-project planning and budgeting stages, green building designs can be included while remaining within the original budget, and often for less (excluding additional certification and documentation costs).^{8,9,10} If the renovation scope does not involve significant design and construction activities, such as envelope modifications or total interior reconstruction, LEED for Existing Buildings: Operation & Maintenance certification will be the more appropriate rating system.³

In comparison to the average commercial building:

- Green buildings use 26% less energy
- Green buildings have 13% lower maintenance costs
- Green buildings have 27% higher occupant satisfaction
- Green buildings have 33% less greenhouse gas emissions⁴

Important Facts:

- Buildings account for 39% of the CO2 emissions per year, more than either the transportation (33%) or the industrial fields (29%).
- In comparison to the national building stock, the average LEED certified building uses 24% less electricity and saves 13.86 million metric tons of CO2 emissions annually.⁵

Department

- > Facilities Maintenance
- > Finance
- > Administrative Leadership Team
- > All departments and staff as necessary

Strategy Target

- > Increase energy efficiency
- > Conserve water
- > Reduce waste
- > Use environmentally responsible products
- > Contribute to building occupant and visitor health
- > Create demand for local green products and services
- > Reduce Greenhouse Gas Emissions
- > Reduce Operations and Maintenance Costs

Related Strategies

- > LEED EBOM Policy
- > Numerous MCCAP strategies across all working groups

Timeline

- > 6 months

Potential Partners

- > U.S. Green Building Council

Potential Funding Sources

- > No funding need for policy creation

Why Build Green in the Public Sector?

Lead by Example. Promote local market transformation by using best practices in construction, operation and maintenance of government owned or leased buildings.

Reduce Operations and Maintenance Costs Over the Life of a Building. Energy and water efficient design paired with green operations practices reduce operations and maintenance costs over the entire life of the building.

Extend Infrastructure Capacity. Green buildings lessen the demands on infrastructure through waste and stormwater management efforts.

Reduce Staff-related Overhead and Relocation Costs.

Improved indoor air quality, natural light and flexible design can contribute positively to staff satisfaction and productivity, reduce absenteeism, improve employee retention and reduce the costs associated with employee relocation.⁶

LEED is a useful public policy tool as outlined below. Many LEED rating systems can complement existing state and local green building policies and initiatives.

- LEED is transparent and reduces technical and administrative uncertainties.
- LEED saves time and resources by providing a comprehensive set of tools for application and use.

- LEED provides a consistent tool for quantifying and benchmarking green building program outcomes.
- Third-party certification through GBCI avoids the need to establish local certification bodies.
- LEED is revised regularly to continually improve performance thresholds and to stay current with changes in building technologies and markets.
- Government entities can participate in and influence the development of LEED through membership in USGBC.⁷

It should be noted that adding new buildings inherently increases the City's greenhouse gas footprint, unless the buildings are designed to have net-zero emissions. Thus, this strategy will not directly reduce the City's current emissions. One of the many benefits of a LEED certification is that certified buildings emit less greenhouse gases than non-certified buildings. As such, emissions from this strategy are better described as "avoided" emissions as opposed to "reduced" emissions.

References

1. <http://www.usgbc.org/ShowFile.aspx?DocumentID=5486>. Roadmap to Green Government Buildings. U.S. Green Building Council, Inc. (USGBC). Page 3-4.
2. <http://www.usgbc.org/ShowFile.aspx?DocumentID=5486>. Roadmap to Green Government Buildings. U.S. Green Building Council, Inc. (USGBC). Page 2.
3. <http://www.usgbc.org/ShowFile.aspx?DocumentID=5486>. Roadmap to Green Government Buildings. U.S. Green Building Council, Inc. (USGBC). Page 14.
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10. Nusca, Andrew "LEED Certification: What it costs" SmartPlanet.com. The value shown in the table is for registration/certification and compliance costs only, but does not include documentation costs which represent staff/consultant time. As noted in the background, additional construction costs are minimal, and often less expensive when included early in the planning process.^{8,9} <http://www.smartplanet.com/blog/smart-takes/leed-certification-what-it-costs/7973>.

IPP-10 Paper and Printing Policy

RECOMMENDATION

Reduce paper use across City offices via duplex printing, green printing software and increased use of electronic files.

Strategy	Implementation Cost	Estimated Annual Energy Savings			Estimated Annual Dollar Savings	Annual Avoided Emissions (mtCO2e)	Simple Payback
		Therms	kWh	Gallons of Fuel			
Duplex Printing	< \$1000	--	--	--	\$171,000	1.4 ¹⁰	< 1 month
GreenPrint Software	\$9,500	--	--	--	\$58,000	0.5 ¹⁰	< 2 months
Electronic Files	< \$1000	--	--	--	\$135,000	1.1 ¹⁰	< 1 month
IPP-10 ¹²	\$10,000	--	--	--	\$115,000	0.95	1 month

BACKGROUND

The average American office worker uses 10,000 sheets of paper annually and wastes ~14% of those sheets.³ At an average cost of 6 cents/sheet³ the City of Missoula’s average office worker could be wasting up to \$85 annually or \$48,000 across all employees. Excessive printing is an issue in every office. The following strategies will reduce paper use and associated costs:

Duplex Printing. Duplex printing is the technical term for printing on both sides of the paper. Although this is currently used, it is not the default printing setting on City printers. All City printers should default to duplex printing, which could increase duplex printing by 50%,² saving tens of thousands of sheets annually. Duplex printing has a large environmental impact, but since the cost of paper is much lower than the cost of ink, toner, etc. the cost savings are not significant.¹ Larger savings would be realized by avoiding printing altogether by using electronic files, as noted below.

Green Printing Software. The City of Missoula should implement software, such as Green Print,⁷ that “checks” printing jobs to ensure there are no unnecessary pages printed with a document. For example, web pages regularly print unwanted sheets with very few characters on them. This software avoids those sheets and educates the user on ways to reduce the overall use of paper.⁹ The City of Portland implemented the Green Print system, reduced printing costs \$620,000 annually.⁶

Electronic Files. The actual cost of printing documents is high when staples, tape, paperclips, toner, paper, labor, folders, and storage space are considered. Using electronic files more often would reduce the need for those items, drastically reducing the cost of documents and employee time. This change will require information technology updates as municipal operations interacts frequently with the public. Using PDF viewing software, such as Adobe or Bluebeam PDF Revu,⁴ employees will still have the ability to annotate and make edits to files, as well as share them electronically.

Department

- > Human Resources
- > Building Maintenance
- > IT Department

Strategy Target

- > Reduce costs and emissions associated with paper use and waste

Related Strategies

- > Green Purchasing Policy
- > Employee Orientation
- > Fostering Sustainable Workplace

Timeline

- > One month to confirm changing settings

Potential Partners

- > Green Print
- > Missoula County
- > Allied Waste

Potential Funding Sources

- > None identified.

Ink Efficient Fonts. Using certain font types can save large amounts of money by conserving ink and toner use. EcoFont, for example, boasts 28% savings in printer and toner use¹¹ by including unnoticeable white dots in the font to reduce the amount of ink needed in each character.

Paper Recycling. The City of Missoula recycles office paper. However, the City could improve the rate of paper recycling. The average office employee discards 1.5 pounds of paper daily,⁸ or 97.5 tons annually for the City of Missoula. This is equivalent to 1,600 trees or 18.8 million tons of air pollution mitigated. Improving the rate of recycling would make a significant dent in reducing waste from City operations. Presently, workers must take paper from their workstations to centralized recycling locations. Reducing the distance to recycling locations is an effective means of improving the rate of recycling.⁵ Other measures include additional signage and employee orientation for recycling.



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11. EcoFont.com <http://www.ecofont.com/en/help/ecofont/faq/0030.html>
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12. Implementation cost is the total estimated cost for all three listed costs. The annual dollar savings and estimated avoided emissions presented in this row of the table are the mean of the highest and lowest estimates.

IPP-11 Reduce Electronics Energy Usage

RECOMMENDATION

Conduct an audit/assessment of City electronics. Adopt energy conservation policies related to use of electronics by City staff.

Strategy	Implementation Cost	Estimated Annual Energy Savings			Estimated Annual Dollar Savings	Annual Avoided Emissions (mtCO ₂ e)	Simple Payback
		Therms	kWh	Gallons of Fuel			
IPP-11	< \$1,000	--	33,500	--	\$3,350	14.5	< 4 months

BACKGROUND

Electronics left on all day use large amounts of energy while sitting idle and unused. Annually, these small loads produce significant energy waste. Policies that establish default power settings can help reduce this waste and save significant amounts of money by having the electronics automatically go into “sleep,” or “energy saver” mode when not in use,¹ and turning them off completely at night and over weekends.

Even when shut down or turned off, many electronics still use energy. Standby loads (called “ghost” or “phantom” loads) are small amounts of energy used by electronics even when off or not in use.^{1,2,3} This includes chargers and power supplies (e.g. for laptops, cell phones), items with a display clock (e.g. microwaves), and items with a small light or display screen (e.g. laptop computers, copiers/printers, computer monitors). Since these items are already off, the only way to avoid this energy waste is by unplugging the items. Having staff unplug every item in the office at night might be burdensome. By using certain types of power strips this process can be made easier or even automatic. There are many different types of power strips that have energy savings features, including timers (to be set to only be on from 7 am to 6 pm, for example),⁴ and even remote controls,⁵ that pay for themselves in a matter of months. These should be purchased and installed in all offices and kitchens throughout City buildings.

A conservative estimate of 1% savings in annual electricity use in Municipal buildings would result in over 33,500 kWh and \$3,300 in energy savings.⁷ This would amount to approximately 14.5 metric tons of avoided emissions annually.

The City should first conduct an audit/assessment of electronics throughout offices, kitchens, and conference rooms to see which items could have settings reconfigured and where items such as power strips can be installed. Using a Kill-o-Watt⁶ for the audit/assessment will help collect data on energy use for each item being investigated. This device displays the amount of real-time electricity the machine is using. These should also be available for employees to borrow and use at home.

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Department

- > All
- > IT to help implement changes

Strategy Target

- > Reduce emissions associated with energy use

Related Strategies

- > Green Purchasing Policy
- > Fostering Sustainable Workplace
- > Work Plan/Annual Review Integration

Timeline

- > Four to six months for adoption of policies, integration of default settings, and installation of power strips/etc.

Potential Partners

- > None identified at this time.

Potential Funding Sources

- > None identified at this time. Low associated cost may remove need for outside funding.

IPP-12 Waste Stream Reduction Policy

RECOMMENDATION

Develop and adopt a waste stream reduction policy.

Strategy	Implementation Cost	Estimated Annual Energy Savings			Estimated Annual Dollar Savings	Annual Avoided Emissions (mtCO2e)	Simple Payback
		Therms	kWh	Gallons of Fuel			
IPP-12	< \$1,000	--	--	--	Indeterminable	Indeterminable	--

BACKGROUND

Each year millions of pounds of used materials are thrown into a landfill, generating large amounts of greenhouse gases. Many of these materials could be recycled or reused, or even avoided in the first place. According to the EPA, “waste prevention often results in substantial savings through reduced purchasing costs and more efficient practices. It also can reduce waste disposal costs. In addition, waste prevention has environmental benefits, including reduced energy consumption and pollution, conservation of natural resources, and extension of valuable landfill capacity.”^{5a}

The City should perform a waste audit^{1,2} to identify materials that should be recycled, as well as materials that could be purchased differently to reduce waste. Once a waste audit is completed, a comprehensive recycling strategy should be developed for items that can be recycled. This strategy should include methods for sourcing and tracking amounts of waste generated and materials recycled, which could include joining the EPA’s free “WasteWise” program, which provides educational and technical assistance as well as helps track and report on waste reduction progress.⁵ The policy should especially include methods for properly recycling electronics, or “e-waste”, now one of the largest sources of waste in our waste stream.³ Any funds generated from recycling should be used to further fund recycling efforts.⁴ Materials that should be purchased differently should be incorporated into the green purchasing strategy.

Benefits of waste reduction efforts include:

- Reduced disposal costs (hazardous and solid waste) by generating less waste and using longer-lasting products
- Reduced costs associated with employee safety and health at the facility with reduced potential liability by improving the work environment and minimizing risks to workers
- Reduced material consumption which would also reduce related purchasing costs

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Department

> All

Strategy Target

> Reduce contribution to secondary impacts

Related Strategies

- > Green Purchasing Policy
- > Fostering Sustainable Workplace
- > Paper and Printing Policy
- > Employee Orientation
- > Work Plan/Annual Review Intergration

Timeline

- > Less than one year
- > Potential Partners
- > Allied Waste
- > EKO Compost
- > University of Montana
- > EPA WasteWise Program

Potential Funding Sources

> Initial funds will probably have to come from the city. However, once a recycling program is started, any money made from the program should be used to further recycling efforts