



Materials Management Plans

In the current economic environment—where sustainable practices are a driving force in growth and development while ever increasing materials and logistics costs are forcing companies and organizations to constantly evaluate their processes—a key to success for companies and organizations will be eliminating or reducing their municipal solid waste while extracting maximum value from the waste they generate.

Implementing an effective Materials Management Plan (MMP) helps achieve these goals. An MMP manages the recovery of materials from the waste stream as opposed to producing new materials. Having an MMP also minimizes the amount of waste and recyclables delivered to disposal or resource recovery facilities.

An example of successfully deploying these strategies is evident in the results that Wal-Mart has been able to achieve. In 2011, Wal-Mart U.S. prevented 80.9 percent of the waste generated by its stores, clubs and distribution centers nationwide from going to landfills.¹ This is equivalent to preventing more than 11.8 million metric tons of CO2 emissions annually, or taking more than two million cars off the road.

It is important to note that setting specific, attainable goals is key to success. For example, Miller Coors set a target of achieving 50 percent landfill diversion by 2015. As of 2011, they had already surpassed their goal with a 55 percent landfill diversion rate.²

Materials Management Plans will vary widely depending on the composition of the waste stream. Examples of primary material categories and sub-categories are:

MATERIAL	EXAMPLE(S)
Paper	Old corrugated cardboard (OCC) Kraft paper White office paper Newspaper High grade office Mixed paper Paperboard Compostable paper
Plastics	#1 PET #2 HDPE #3-#7 plastics Rigid plastics Plastic films
Glass	Clear, green, and brown servicerware Stoneware Glassware Ceramics
Metals	Ferrous and non-ferrous food and beverage Packaging, including aluminum

Organics	Yard waste Food waste Land clearing debris
Consumer Products	TVs Computers Handheld e-waste Textiles Mattresses
Wood	Treated wood Untreated wood Painted wood Pallets Sawdust
Construction Materials	Sheetrock Concrete Brick PVC Pipes
Hazardous Materials	Fluorescent lamps and ballasts Thermostats Lead acid batteries/alkaline batteries Oils Cleaners Pesticides Paints Fuels Pharmaceuticals

Why a Materials Management Plan?

The U.S. Environmental Protection Agency (EPA) has been tracking and recording the generation and disposal of municipal solid waste (MSW) since 1960. This information is used to measure the success of recycling and waste reduction programs in the United States. Over the past few decades, MSW generation has changed substantially. It has increased from 151 million tons annually in 1980, to 250 million tons in 2010. Commercial and institutional waste comprises approximately 40 percent of total MSW generation in the U.S., ranging from 23 percent in small suburban areas to more than 50 percent in large metropolitan cities.³

With increased populations comes increased waste generation. While landfills are currently necessary, continuing to landfill the majority of our waste is not a sustainable option for the long term. It takes up land space, creates greenhouse gases, and requires transportation from potentially distant sites. Commercial and institutional entities need to employ alternative options such as recycling, composting, and sustainable supply chains.

Benefits of Strategic Planning

While landfills have been a vital component of waste disposal strategies in the U.S., there are several benefits to establishing an MMP. There has been a shift in American culture and the overall number of landfills has been on the decline for several years. Landfills must meet strict federal environmental standards. In addition, it can take up to five years or more from the time a landfill site is purchased until it is operational due to design restrictions, permitting and public hearings. Since 1990, the total number of tons of MSW going to landfills has dropped by 10 million. The recovery rate of recyclables and compostables has increased to 34 percent, from 15 percent in 1990. This change reflects an increase in infrastructure and market demand for recovery.⁴

By sending materials to a recycling facility or Materials Recovery Facility (MRF), costs can be lower than sending the materials to a landfill for disposal. In addition, some materials that are recycled are eligible for rebates, depending on volumes, commodity type, and market conditions. Moreover, additional resources are needed to create new products when materials are not recycled.

Approaches such as Corporate Social Responsibility and the Triple Bottom Line have become more of a focus. The lack of an MMP may also send an unfavorable message to shareholders and stakeholders regarding environmental and community responsibilities. Sustainability is clearly becoming part of the core culture of the U.S., as demonstrated by the increase in recycling rates. Recycling rates have increased from 9 percent in 1980 to 34 percent in 2010.⁵ In a challenging economic environment, businesses that have a focus on landfill diversion could have a competitive differentiation in the marketplace.

Employee satisfaction is another element to consider. Studies show that employees who feel they have an environmental and social impact while on the job are twice as satisfied as those who do not.⁶

Establishing a Materials Management Plan

The EPA defines MMP as “an approach to using and reusing resources most efficiently and sustainably throughout their lifecycles while seeking to minimize materials used and all associated environmental impacts.”⁷ This definition is general and can be applied by cities, counties, and states, as well as public and private companies of all sizes. Depending on the specific needs, a more targeted strategy is necessary to ensure success. The Sustainability Services group from Waste Management. has developed a more strategic framework for creating and implementing a MMP. The process ensures that all factors are addressed and allows for customization and modification.

The following flow-chart highlights the different stages of developing an MMP:



Appointing a team to establish sustainability goals and develop a program to achieve those goals is the first step of a successful MMP.⁸ The team of stakeholders should be comprised of representatives from diverse departments to ensure that every aspect of the operation is considered. This will foster ownership and promote widespread buy-in while creating a shared vision.

Once the program has been outlined, it is critical to evaluate the waste stream and determine the material composition. This can be accomplished through a site assessment, a visual waste assessment, or a comprehensive waste composition study. These studies allow the team to establish operational protocols for the collection, conveyance, and removal of residual waste materials and recyclable materials. These assessments should also identify points of generation, capture and conveyance opportunities, and removal options.

Before landfill diversion and recycling programs can be developed, the site assessment and waste stream assessments will provide the details needed to create customized waste prevention strategies. The waste prevention strategies developed should include procurement strategies that promote waste reduction by using reusable or more easily recyclable packaging.

Solutions can vary by materials, regions and markets. To maximize the program, partner with local vendors to capitalize on the landfill diversion and recycling options available. To achieve the program goals, it may be necessary to work with multiple vendors. A consultant may assist in ensuring that every possible option is explained, and the best option is selected. In some cases, a consultant can assist with the development of new services when volumes justify the service.

Once the MMP is developed and the services are established, the key to success is participation. It is critical to develop and implement educational and training programs for employees and new hires. A priority of the education and training program must be communicating goals and updating staff about achievements and opportunities.

Continuously monitoring and evaluating the program will help ensure that goals are met or exceeded and allow for program modifications that promote its success. Goals should be assessed in a systematic and comparable method allowing for forecasting and the establishment of new goals or the modification of existing goals.

Conclusion

Waste Management Sustainability Services (WMSS) consultants assist companies in all phases of the development and implementation of a waste stream Materials Management Plan. The Consultants can assist with:

Performing Waste Composition Studies, Waste Assessments and Site Assessments.

Baselining waste stream composition and volumes.

Setting obtainable goals in a phased approach.

Evaluating and implementing the best possible diversion strategies.

Initiating collection and conveyance process.

Education and training of employees.

Planning for future monitoring and evaluation.

Expanding to other sustainable solutions – GHG emissions, energy consumption, certifications, etc.

When engaged in the initial MMP planning stages, WMSS consultants can help to create goals, timelines and to identify potential roadblocks and how to avoid them. In addition, WMSS consultants can design implementation and monitoring programs, leaving companies and organizations free to concentrate on their core business.

Sustainability will be a driving factor in the growth and viability of companies as we enter the second decade of the millennium, and the cornerstone of these initiatives will be landfill diversion and recycling. We have seen recycling rates increase from nine percent in 1980 to 34 percent in 2010 and rates are expected to continue to rise.⁹

References

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