U.S. Department
of Transportation

**Federal Transit
Administration**

THE 'WHAT' AND 'WHY' OF AN

Environmental and Sustainability Management System (ESMS)

FTA ESMS RESOURCE SERIES

A transit agency's role is to provide the public with reliable mobility. In doing so they are responsible for operating efficiently and being good stewards of the limited public resources entrusted to them. Goals on sustainability, reduced environmental influences, and increased efficiency are set by each agency. However, deciding on and finding the right tools to achieve these goals can be a challenge. An ESMS is such a tool that organizations around the world have employed to achieve their sustainability and environmental goals. This white paper covers what an ESMS is and why it is useful in order to help an agency decide whether or not to embark its implementation.

What Is an ESMS?

An ESMS is a set of management processes and procedures that allows an organization to analyze, control and reduce the environmental influences of its activities, products and services, and operate with greater efficiency and control. An ESMS is useful for organizations of any size in both the public and private sectors.

What Does an ESMS Ensure?

1. A disciplined methodology to environmental management
2. Information for senior management to build success over the long term
3. Identification of options for contributing to sustainable development

How Does an ESMS Support the Organization in Its Environmental Pursuits?

The purpose of an ESMS is to support the organization in meeting and fulfilling both requirements and internally set goals specific to its sector or the services it provides. Often the requirements or goals do not have a set way to be met, requiring a customizable or flexible approach. The ESMS framework is flexible in that it allows the organization to specify which goals or requirements to focus on and is not prescriptive in how the system is set up for achievement. In other words, an ESMS is a process tool that helps an organization to identify and meet priorities.

An ESMS supports the organization in its pursuit to:

1. Safeguard the environment by eliminating, preventing, substituting or mitigating adverse environmental features or characteristics with known environmental influences associated with the organization. **This is achieved by identifying the features or characteristics and establishing controls to mitigate the influences on the environment.**
2. Address and take actions regarding potential adverse effects of environmental conditions at or associated with the organization. **This is achieved by identifying the cause(s) and taking remedial action.**
3. Fulfill legal, statutory and regulatory commitments. **This is achieved by performing assessments, developing processes and establishing goals, targets or metrics to meet the obligations.**
4. Communicate environmental information to those interested in your ESMS. **This is achieved through effective communication programs.**
5. Set and achieve targets and metrics associated with objectives and goals. **This is achieved through the development and implementation of a system of processes and controls.**

How Can ESMS Be Used in Achieving Sustainability Goals?

Sustainability is defined as:

"development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

– World Commission on Environment and Development, 1987

THREE PILLARS OF SUSTAINABILITY

Sustainability programs comprehensively address three critical parts of the world we live in that include the economy, the environment, and society. These parts are described as "pillars" that work together to achieve or support the defined purposes of sustainability. Utilizing the three pillars as part of your ESMS can help your organization achieve its goals.

1 **Economic** – An ESMS helps transit agencies improve operations through efficiency and best management practices thereby saving taxpayer dollars.

2 **Environmental** – Transit agencies can eliminate or minimize risk to the environment by using an ESMS to identify product substitutions, waste reduction/ minimization strategies or best management practices.

3 **Social** – Transit systems that utilize ESMS can improve the quality of life of citizens by establishing commitments such as reducing environmental influences and engaging their surrounding communities.
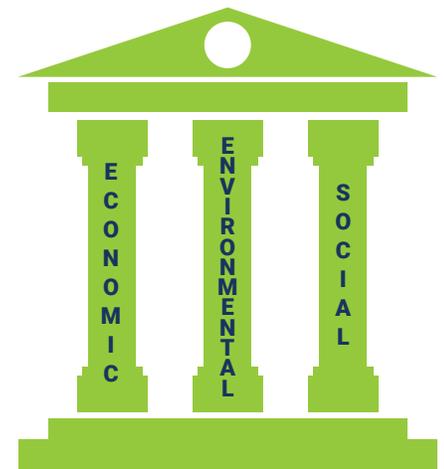
What are the Environmental Benefits of an ESMS?

Environmental benefits include, but are not limited to:

1. Reduction in number, type and severity of environmental compliance incidents
2. Improved relationships with state and federal regulators
3. Reduction in waste and pollution
4. Recovered resources
5. Increased fuel economy
6. Enhanced public image with system users and the general public
7. Improved communications and cooperation through training and outreach
8. Reinforcement of environmental processes currently in place
9. Proactive management of environmental issues
10. Captured employee knowledge ("institutional memory")
11. Documentation of standard operating procedures
12. Increased operational efficiencies

*For more information, the FTA website has a repository of final reports documenting transit agency costs and benefits.

What is Needed for a Successful ESMS?

1. **Commitment from all levels and functions of the organization, led by senior management —** For an ESMS to be successful, all members of the organization must be informed, engaged and active participants. The success of an ESMS starts and ends with senior management. The commitment from the senior management team should be communicated and evident at all relevant functions.

2. **Leveraging resources from within and outside the organization —** Organizations can leverage opportunities from units or divisions within the organization including the organization's board of directors (commitment of staff and funding), federal and state funding sources (FTA, DOT, HUD), organization's personnel office (training resources), non-profit organization grants (addressing needs of underserved communities) to prevent or mitigate adverse environmental influences and enhance beneficial environmental influences, particularly those with strategic and competitive implications.

3. **Clear mission and vision —** A clear mission/vision needs to be set by senior management, which is effectively communicated and integrated into its business processes and business priorities to achieve the vision/mission.

4. **Clearly defined roles and responsibilities —** Senior management needs to support the development, implementation, maintenance and sustainability of the ESMS. This includes assigning roles and responsibilities as well as providing the appropriate personnel and financial resources.

How Does an ESMS Work?

PLAN-DO-CHECK-ACT METHODOLOGY

The approach underlying an ESMS is based on distinct activities that produce an iterative process used by organizations to achieve continuous improvement. It can be applied to an ESMS and to each of its individual elements. Many ESMS programs follow the Deming model of **PDCA (plan-do-check-act)**, a continuous quality improvement model consisting of a logical sequence of four repetitive steps for continuous improvement and learning.

SOURCE

FTA – THE 'WHAT' AND 'WHY' OF AN ESMS
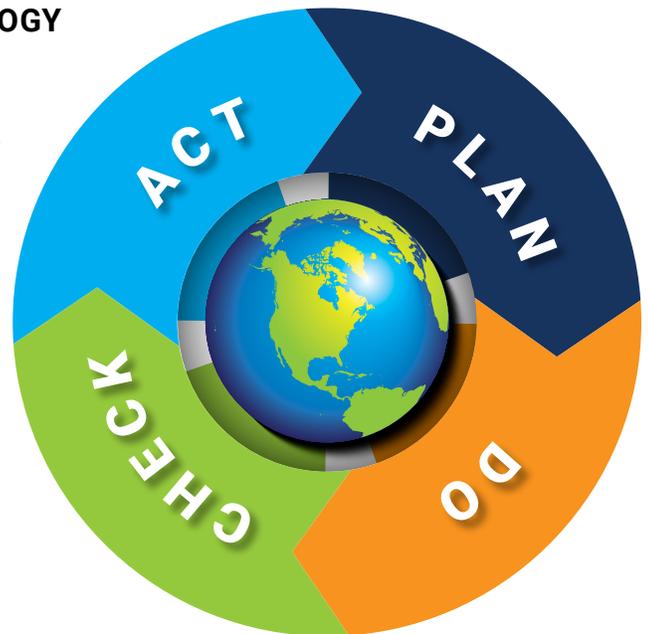
FOLLOWING THE PDCA CYCLE

PLAN (METHODOLOGY)	PLAN (EXAMPLE)
Organizations plan by identifying issues that can affect the ESMS, as well as the issues of those interested in their ESMS and the requirements that need to be met. Organizations establish their scope (physical and organizational boundaries), mission/vision, environmental goals/targets and processes necessary to deliver results to meet goals/targets. Organizations identify the personnel involved with the ESMS. Organizations identify the characteristics and associated influences. Organizations identify legal requirements that need to be addressed. Organizations identify those involved with ESMS.	Agency Y identifies issues and those interested in their ESMS. Agency Y develops the scope (organizational boundaries) of their ESMS. The scope indicates activities, products and/or services that are a part of its scope. The scope of the organization is posted on their website. Agency Y has organizational charts and job descriptions to identify roles and responsibilities. Agency Y inventories environmental influences and identifies emissions as their priority. Agency Y maintains a repository of legal requirements that is reviewed at designated intervals to ensure they are met. They set their mission/vision and target to reduce emissions organization-wide by X% within one year measured against the previous year.
DO (METHODOLOGY)	**DO (EXAMPLE)**
Organizations implement operational planning and controls. This is accomplished through the design of processes, the use of technology, utilizing competent personnel, and tracking metrics.	Agency Y establishes programs such as anti-idling of buses. This will include implementation schedules, action plans, and assignment of responsibility to manage progress. Agency Y develops and implements processes, such as procurement processes, planning for emergencies, design processes, and transportation, delivery and end-of-life treatment processes. Agency Y develops a program to manage their contractors.
CHECK (METHODOLOGY)	**CHECK (EXAMPLE)**
Organizations track the progress of their processes against their environmental mission/vision, environmental targets, and operations. In this phase, the organization checks on the effectiveness of their system through reviews of their system with senior management.	Agency Y conducts assessments, verifies implementation, and reviews program results over a six-month period. Results are reported to management. Agency Y conducts management meetings quarterly to review the effectiveness of the ESMS. Agency Y conducts a review of legal requirements to ensure statutory and regulatory requirements are met.
ACT (METHODOLOGY)	**ACT (EXAMPLE)**
Organizations take actions to improve their ESMS. In this phase, areas for improvement are identified and actions are developed and implemented.	Agency Y, seeing how well their targets are being met, adjusts their targets and expands their idling program to include construction vehicles, supporting continuous improvement and achieving sustainability goals. Agency Y generates actions to correct deficiencies as appropriate to address practices that do not conform resulting from reviews of their ESMS and results from analysis and evaluation.

Final Thoughts

Determining and developing an appropriate set of processes and tools allows an organization to analyze, control and reduce the environmental influences of its activities, products and services, and operate with greater efficiency and control. An ESMS, useful for organizations of any size in both the public and private sectors, is a tool that provides this set of processes. Further, an organization that incorporates the three sustainability pillars with the ESMS plan-do-check-act methodology can realize its goals and a wide-range of environmental benefits.

If you are ready to get started, please reference the FTA ESMS RESOURCE SERIES: 9 STEPS TO STARTING A SUCCESSFUL ENVIRONMENTAL AND SUSTAINABILITY MANAGEMENT SYSTEM fact sheet and recorded webinar which will walk you through the steps for building an ESMS.

For more comprehensive information on the components of an ESMS, it is recommended you take the FTA online introductory ESMS course available through the National Transit Institute.

FTA has also offered an ESMS training and technical assistance institute that provides guidance and tools to successfully develop, implement, maintain and sustain an ESMS for your organization. Refer to the FTA website for reports from past institute offerings documenting transit agency efforts to develop and implement an ESMS at their facilities.

Additional Resources

- FTA ESMS website
  Provides links to webinars, brochures, and resources from the ESMS Resource Series.
- EPA website
  Provides information and resources related to Environmental Management Systems (EMSs).
- International Organization for Standardization *information, publications and products.*
- American Public Transportation Association (APTA) *sustainability resources.*
- Center for Environmental Excellence by AASHTO
- FTA ESMS Introductory Online Course