FTA ESMS TRAINING & ASSISTANCE

OCTOBER 1, 2013 – OCTOBER 31, 2015

esmsINSTITUTE
environmental & sustainability management system

cota.vt.edu/ems

FTA | United States Department of Transportation
Federal Transit Administration

Foreword

The report summarizes FTA's environmental management systems (EMS) training and technical assistance project. This report includes the results of a two-year effort to implement the international environmental management standard ISO 14001 in public transit agencies in the United States.

Participation included:

- Federal Transit Administration (FTA);
- The Center for Organizational and Technological Advancement (COTA) at Virginia Polytechnic Institute and State University (Virginia Tech); and
- FTA Participating Transit Agencies:
  - Commonwealth Office of Transit Authority, Commonwealth of the Northern Mariana Islands (COTA)
  - City of Fort Lauderdale, Florida
  - Greater Cleveland Regional Transit District, Cleveland, Ohio
  - Golden Empire Transit, Bakersfield, California
  - Hillsborough Area Regional Transit District, Tampa, Florida
  - Kitsap Transit, Bremerton, Washington
  - Lane Transit, Eugene, Oregon
  - Tri Delta Transit, Antioch, California
  - VIA Metropolitan Transit, San Antonio, Texas
  - Valley Transportation Authority, Santa Clara, California

The intent of this training and technical assistance responds to requests from transit industry representatives that FTA establish an EMS training and technical assistance program similar to FTA's successfully concluded Environmental Management Systems Training & Assistance Rounds 1-3 EMS Institutes.

FTA's focus was threefold:

1. To introduce a geographically and size diverse set of public transit entities throughout the US to EMS;
2. To stimulate these agencies into adopting EMS and becoming EMS champions in the universe of public transit agencies; and
3. To develop an EMS training program that would be transit specific.

EMS training and assistance participants included FTA grantees throughout the United States and its U.S. territories. Participating transit agencies ranged from small to medium-sized traditional bus and para-transit operations to large organizations operating buses and commuter rail. As the Round 4 FTA training and technical assistance comes to a close, all participating transit agencies have declared their intent to submit their EMS for ISO 14001 certification.

Acknowledgements

This document was developed under Cooperative Agreement, Project Number VA-26-1011-02, awarded by the Federal Transit Administration (FTA) to the Center for Organizational and Technological Advancement (COTA) at Virginia Tech.

FTA, Virginia Tech and the institute participants would like to thank Erik Johanson, Southeastern Pennsylvania Transit Authority; Jane Sullivan, Champaign Urbana Metropolitan Transit District; and Cris Liban of LA Metro for their generous support of FTA's Round 4 EMS Training and Assistance Institute. All mentioned above are graduates of Round 1 - 3 of FTA's EMS Training and Assistance Institutes. Each generously donated their time, expertise and enthusiasm to the effort to continue proactive EMS education for their fellow transit agencies.

Federal Transit Administration

Antoinette Quagliata, FTA Project Manager and Environmental Protection Specialist,
Office of Planning and Environment

Virginia Polytechnic Institute & State University (Virginia Tech)

W. Robert Herbert, Principal Contractor, COTA Fellow, Primary Lead Instructor
Rose M. Woodford, Project Manager
Harry Gregori, Lead Instructor
Michele Lawton, Lead Instructor

Prepared by:

W. Robert Herbert
Center for Organizational and Technological Advancement
Virginia Polytechnic Institute and State University (Virginia Tech)
110 Shenandoah Avenue
Roanoke, Virginia 24016

Executive Summary

In 2012, the Federal Transit Administration (FTA) placed a notice in the Federal Register inviting transit agencies throughout the United States to apply for the FTA sponsored training and technical assistance for implementing an ISO 14001:2004 based Environmental Management System (EMS). FTA's initiative of EMS training and technical assistance for public transit agencies supported Executive Order 13148 Greening the Government initiative and Executive Order 13274 Environmental Stewardship and Transportation Infrastructure Project Reviews, which directed federal agencies to promote environmental stewardship in the nation's transportation system while streamlining the environmental review and development of proposed transportation projects.

An Environmental Management System (EMS) is a set of processes and practices which enables an organization to reduce its environmental impacts and increase its operating efficiency. Organizations with an ISO 14001:2004 EMS report being able to more effectively manage their environmental obligations. Additionally, organizations report an enhanced ability to analyze, control and reduce environmental impacts, and to operate with greater efficiency and control.

FTA believes that an EMS is a valuable tool. FTA desired to continue its ongoing effort to introduce the doctrine of environmental management systems within the public transit sector. The ISO 14001:2004 standard served as the foundation of EMS training. FTA left the option of ISO 14001:2004 certification to the discretion of each individual agency.

How Were Teams Selected?

After receiving applications and completing interviews, FTA selected ten transit agencies to participate in the training and technical assistance. FTA used a number of criteria to select participants, including:

- Organizational commitment by transit agency leadership to EMS implementation;
- Commitment of 5-person EMS Core team lead by a senior level executive;
- Geographical diversity;
- Previous environmental experiences; and
- Environmental challenges from operations and/or pending capital projects.

FTA believed that organizational commitment to environmental protection and sustainability were the most important elements of the program and additionally that senior management buy-in was crucial to successful EMS implementation.

It was important to the Federal Transit Administration that participating agencies commit to validate quantitative costs and benefits of the EMS implementation.

FTA required transit teams to:

- Track both internal and external costs such as staff dedicated to EMS training and implementation;
- Costs of related consulting assistance and outside training of personnel; and
- Quantitative benefits achieved by measuring environmental objectives and targets.

FTA Assistance

FTA contracted with The Center for Organizational and Technological Advancement (COTA) at Virginia Polytechnic Institute and State University (Virginia Tech) to provide training and technical assistance under a cooperative agreement.

COTA developed a Letter of Agreement with each participating transit agency that outlined the roles and responsibilities of each agency (FTA, Virginia Tech and the transit agency). The Letter of Agreement was counter signed by each transit agency as a condition of participation, prior to any work being performed.

COTA provided training and technical assistance in the form of:

1. Baseline Environmental Review site visit by COTA teaching team to each agency prior to Workshop 1;
2. Four 3-day workshops spaced approximately 3 months apart;
3. Web based EMS library with Word documents that included both templates and completed documents of previously certified ISO 14001 transit agencies;
4. Transit agency guest speakers from FTA Round 1-3 at each workshop who had successfully implemented ISO 14001 based EMS;
5. Quarterly WebEx team conference calls between workshops;
6. EMS gap audit by qualified ISO 14001 Lead Auditor at each agency's home location approximately 3 months after Workshop 4; and
7. One concluding formal EMS audit at each agency's home location to validate the agency's documentation and implementation.

Benefits to Transit Agencies in Adopting an EMS

Benefits of implementing an EMS were reported by each participating transit agency and are documented in individual Round 4 case studies.

Environmental benefits include:

- Reduction in the number, type and severity of compliance incidents;
- Improved relationships with state and federal regulators;
- Pollution and waste quantify reductions;
- Recovered resources;
- Reduction of air emissions; and
- Reduction of amount of oil in both storm water and waste water.

Business benefits reported by transit agencies include:

- Enhanced public image with transit system users and the general public;
- Reduced regulatory oversight;
- Improved employee awareness and efficiency of potential environmental impacts of work activities;
- Reduced environment risks;
- Documented cost savings by way of implementing new operational controls (SOP's) related to identified environmental risks;
- Promoted confidence of the public, customers and other stakeholders that the transit agency personnel were aware, trained and competent related to environmental obligations;
- Improved internal and external communications and cooperation through training and outreach;
- Increased senior management awareness of environmental issues;
- Reinforcement of environmental processes currently in place;
- Proactive management systems for environmental issues;
- Captured employee knowledge ("institutional memory") prior to retirements;
- Documentation of standard operating procedures;
- Institutionalization of best practices in and permanent improvements of on-time performance; and
- Increased fuel economy.

Cost Savings

Cost savings and avoidances are identified in each agency case study.

Federal Transit Administration Effort

Baseline Environmental Reviews: COTA, a US EPA Public Entity EMS Local Resource (PEER) Center began its Round 4 training and technical assistance effort in June 2013 with a one day visit to each participating agency to meet with executive management and the initial core EMS team. The COTA site visit included a presentation of FTA expectations, briefing of workshop(s) curriculum and an environmental audit of the agency's fenceline facility. The fenceline chosen by each participating transit agency typically included a bus and/or rail maintenance facility.

During the Baseline Environmental Review, Virginia Tech took note of:

- Physical improvements (anticipated as well as ongoing);
- Site storm water runoff;
- Hazardous waste disposition;
- Water and energy usage;
- Recycling efforts;
- Waste management;
- Fuel storage; and
- Environmental permitting.

A summary report of the environmental baseline findings was prepared and mailed to each agency by Virginia Tech within two weeks of the baseline site visit. The Baseline Environmental Review conducted at the transit facility became a part of the curriculum for each agency as background material for Workshop #1. The report began to document the agency's Aspects (activities, products and services).

EMS Teaching Workshops

Four 3-day workshops were held over a 10 month period at Virginia Tech's training facility in Roanoke, Virginia.

Workshop # 1: August 5 - 8, 2013

Workshop # 2: November 18 - 21, 2013

Workshop # 3: February 24 - 27, 2014

Workshop # 4: June 9 -12, 2014

Ten transit teams, carefully chosen by FTA, traveled to The Hotel Roanoke & Conference Center, a Virginia Tech owned teaching facility, in Roanoke, Virginia for each of the four workshops. Approximately one-fourth of the 17 elements of

ISO 14001:2004 were presented at each workshop. The instructional concept for the 4-workshop series was to introduce the ISO 14001:2004 Standard; provide transit specific case studies and examples to practice implementation; provide sufficient breakout time to plan homework assignments; and then to release the teams back to their locality for a 3 month implementation period.

The ISO 14001:2004 implementation strategy included selecting agency specific environmental objectives and targets based upon local transit environmental needs. Each transit team had access to COTA web based EMS library. The EMS library included a comprehensive set of worksheets, procedures and operational controls for implementing an ISO 14001:2004 EMS. The web based EMS library included detailed sample EMS procedures for each section of ISO 14001:2004. All documents in Web library were offered in unprotected Word format which were easily modified to meet specific user needs. Additionally, the electronic library contained Best Management Practices from transit agencies participating in Round 1-3 FTA EMS Institutes.

Training in Roanoke, Virginia was reinforced by regular WebEx meetings and supported by conference calls with the 10 EMS teams and the FTA project manager. Conference calls aided the transit teams to identify challenges teams might be having in completing upcoming workshop homework. Virginia Tech was consistently available to coach participants by phone, WebEx or email during the duration between workshops. As a condition of participation, all teams were required to:

- Schedule and hold regular weekly agency EMS meetings between workshops to insure completion of homework;
- Maintain good meeting minutes to document decision making;
- Regularly brief senior management on the progress of their EMS;
- Complete assigned workshop homework prior to returning to next workshop; and
- Attend an individual comprehensive 1 hour review of the completed homework led by one of the EMS lead instructors prior to the commencement of the next workshop. This pattern was adhered to throughout each of the four workshops.

Post Workshop Activities

Workshop 4 final homework assignments were to be completed and submitted to COTA for review by the end of August 2014. COTA scheduled a one-day site visit to each agency to conduct an ISO 14001:2004 Gap Audit. Approximately three to four months after the Gap Audit, COTA returned to each agency to conduct a formal two-day ISO14001:2004 EMS Final Audit. A certified ISO 14001:2004 auditor verified and documented the degree to which each transit agency had an EMS in place in conformance with the audit criteria set out in *ISO 14010, Guidelines for Environmental Auditing - General Principles of Environmental Auditing and ISO 14011, Guidelines for environmental auditing - Audit procedures - Auditing of environmental management systems.* Final scoring from the COTA EMS Final Audit for each agency is provided at the end of each case study.

The ten transit agencies produced an EMS case study documenting the organization's efforts related to their obligations.

Case studies include:

- Profile;
- Fenceline;
- Core Team;
- Key Drivers for Adopting an ESMS;
- Significant Aspects and Impacts;
- Objectives and Targets;
- Benefits of Adopting an ESMS;
- Resources committed to the development of EMS;
- Cost Savings and Avoidance;
- Next Steps; and
- Management Commitment.

Executive Summary

What is an EMS?

An Environmental Management System (EMS) is a set of processes and practices that enable an organization to reduce its environmental impacts and increase its operating efficiency. Organizations with an EMS report being able to more effectively manage their environmental obligations. Additionally, organizations report enhanced ability to analyze, control and reduce environmental impacts, and to operate with greater efficiency and control.

Additional benefits include cost savings over time, reduced insurance premiums, and improved internal and external communications with interested parties. An EMS integrates the environmental ethic into business operations and environmental stewardship becomes part of the daily organizational responsibility.

An EMS is appropriate for organizations of varying size in public and private sectors. From start to finish, a two-year timeframe is suggested for the EMS implementation process. FTA realized that agencies could not dedicate their EMS teams full time to the implementation of the management system. However, the process can be shortened or extended based upon the organizational culture and needs.

FTA transit participants utilized the 17 elements of ISO 14001:2004 International Standard. Working definitions of the 17 elements are as follows:

1. **Environmental Policy:** Statement by the organization of its intentions and principles in relation to its overall environmental performance. The Environmental Policy is the driver for implementing and improving the organization's environmental management system so that it can maintain and potentially improve its environmental performance. The Environmental policy is signed by the CEO or General Manager.

2. **Environmental Aspects:** Elements of an organization's activities, products and services that can interact with the environment. Consideration should be given to normal and abnormal operations within the organization and to potential emergency conditions.

3. **Legal and Other Requirements:** Element is heavily focused on all regulatory obligations legislated by local, state and federal environmental enforcement agencies as well as other requirements that subscribe to industry codes of practice and agreements with public authorities.

4. **Objectives, Targets and Programs:** Element requires that once the agency's aspects have been deemed significant, to consider setting objectives and targets or Operational Controls that are measurable and in concert with the Environmental Policy, applicable legal requirements and the principle of continual improvement.

5. **Resources, Roles, Responsibility and Authority:** Element requires organization to define, document and communicate roles, responsibility and authorities to implement the EMS. Roles refer to appointing a specific management representative(s) who has responsibility for ensuring the ongoing implementation of the EMS as well as reporting the performance of the EMS to top management.

6. **Competence, Training and Awareness:** Element requires the organizations identification of training needs and requires that all personnel who work for, or on behalf of the organization, who may impact the environment in regards to their environmental duties and activities, receive specific and appropriate training.

7. **Communication:** Element requires organization to insure that procedures be established and maintained that assure good internal communication between the various levels and functions of the organization as well as receiving, documenting and responding to relevant communications from external interested parties.

8. **Documentation:** Element requires the agency to establish and maintain information in paper or electronic format to describe the management system.

9. **Control of Documents:** Organization is required to establish and maintain procedures for controlling all documents and assure that documents can be located, periodically reviewed, revised and approved by authorized personnel.

10. **Operational Control:** Element requires the establishment and maintenance of documented procedures to cover operations where the absence of procedures could lead to deviations from the environmental policy and the objectives and targets.

11. **Emergency Preparedness and Response:** Element requires the establishment and maintenance of procedures to identify potential for and response to accidents and emergency situations and periodically test the procedures where practicable.

12. **Monitoring and Measurement:** The organization establishes and maintains documented procedures to monitor and measure the key characteristics of its operations and activities that have a significant impact on the environment. The organization commits to monitor the calibration and maintenance of its equipment and ensures procedures are in place that requires periodic evaluation of compliance with environmental legislation.

13. **Evaluation of Compliance:** Consistent with its commitment to compliance, the organization shall establish, implement and maintain a procedure for periodically evaluating compliance with all legal requirements.

14. **Nonconformity, Corrective Action and Preventive Action:** The organization establishes and maintains procedures for defining responsibility and authority for handling and investigating nonconformances and taking action to mitigate any impacts caused. Additionally, the element requires a further review to identify opportunities for preventive actions to eliminate reoccurring nonconformances.

15. **Control of Records:** The organization is required to develop procedures that will establish and maintain the identification, maintenance and disposition of environmental records, training records, and the results of audits and reviews.

16. **Internal Audit:** The internal EMS audit evaluates the adequacy of documents, procedures, programs, and records and reviews the implementation, integration, and consistency of procedures and programs. It looks at the organization's planned activities for meeting its objectives and targets, its control of significant aspects, and pollution prevention accomplishments. Internal audit looks for evidence of management's commitment to the environmental policy and the EMS, and awareness and competency among employees. Finally the audit has a look at how the organization is fulfilling its commitment to continual improvement. Results of internal audits are part of, not a substitute for the management review process.

17. **Management Review:** The EMS core team ensures the management review addresses the possible need for changes to policies, objectives and other elements of the EMS, in light of EMS audit results, changing circumstances and the commitment to continual improvement. Senior management must be informed on the progress of objectives and targets as well as results of internal EMS audits. Senior management will then review the recommendations from the EMS Team for suitability, adequacy and effectiveness. The frequency of Management Review is recommended quarterly during the first two years of the EMS implementation to keep Senior Management informed and engaged with the process of setting and tracking progress on the Objectives, Targets and Programs and monitoring the results of Audits.

Four Phases of EMS

A four-phased implementation process (four workshop series) was utilized and ultimately provided a successful model for manageable implementation of the EMS elements/requirements. Most environmental management systems are built on the "Plan, Do, Check, Act" model. This model leads to continual improvement based upon:

PLAN
Planning, including identifying environmental Aspects and establishing goals

DO
Implementing, including training and operational controls framework

CHECK
Checking, including monitoring and corrective action

ACT
Reviewing, including progress reviews and acting to make needed changes.

Keys to Successful Implementation

EMS Core Team: FTA required each team to be organized around a minimum of five persons. A number of agencies created sub-teams made of six to eight individuals. Having sufficient manpower to learn the ISO elements and to implement the elements between each workshop was critical to the success of the EMS.

Virginia Tech identified a skill set for an "Ideal EMS Team" and guided the FTA teams to create their teams based on:

- **Senior Executive Representative:** This person should be a member of the executive team with the authority to ensure the core team has access to the resources and support of the organization. The Senior Executive Representative attends the workshops to learn the management system but is not likely to invest the work time between workshops related to the core EMS team.

- **Management Representative:** This person is a top management representative within the organization and has the authority and responsibility to ensure that the EMS is fully implemented through the FTA EMS Institute. This team member will participate in homework and attend the four EMS workshops.

- **Environmental Champion:** This person should be:
  - An excellent communicator;
  - A respected leader;
  - Experienced at delegation;
  - Experienced at implementing change; and
  - Capable of transferring information learned and developed at the workshops back to the facility/department.

- **Operations Manager, Superintendent or Supervisor of the fenceline:** This person should have the following characteristics:
  - Possess strong communication skills;
  - Effective at delegation;
  - Strong knowledge of all facility/department operations;
  - Respected by the organization;
  - Exhibit leadership characteristics; and
  - Possess the management authority to implement changes as necessary.

- **Administrative Assistant:** This person is critical to the success of the core team and must possess the following skill set:
  - Excellent computer skills;
  - Highly organized and project oriented;
  - Diligent in tracking assignments, organizing meetings, creating records and building the infrastructure for the EMS;
  - Effective communication skills;
  - Ability to work with top management; and
  - Ability to keep the core team on schedule and on task.

Executive Summary

Senior Executive Support

The interest and support of senior executive has proven critical to the success of EMS implementation. FTA required a formal commitment by senior management to conduct a quarterly management review of the team's homework prior to returning to Workshops 2-4.

More importantly, FTA required the transit agency senior executive to participate in all 4 workshops as an active member of the EMS team.

Objectives and Targets

FTA urged teams to select measurable objectives and to chart their progress based on valid baseline data. Relevant Objectives and Targets are critical to long term success of the EMS. Senior Management will discuss and approve Objectives and Targets at an early stage, and the team will track the progress of the steps necessary to achieve the objectives through quarterly management review sessions.

EMS Audits

Along with the above, Virginia Tech's auditing the progress of the EMS was without question indispensable in ensuring ongoing progress of the EMS. The result of the audit drives the continual improvement effort that is the centerpiece of EMS. This institute offers a gap audit approximately 3 months after Workshop # 4 and then a formal ISO 14001 EMS audit approximately 3 months after the gap audit. Both audits are conducted at the transit facility home location.

Management Review

Regular participation by Senior Executive in the development and progress of the EMS is vital to its success. FTA required this effort as a condition of participation. FTA believes that senior executive's participation in management review was a crucial factor in the success of the participating agency.

FTA ESMS INSTITUTE
cota.vt.edu/ems

CITY OF FORT LAUDERDALE

City of Fort Lauderdale

Fort Lauderdale, Florida
Case Study

City of Fort Lauderdale

Profile

The City of Fort Lauderdale, the City you never want to leave, is situated in the heart of southeast Florida, centrally located between Miami and Palm Beach. It was incorporated on March 27, 1911, and it encompasses more than 33 square miles with a population of approximately 170,000.

Fort Lauderdale is the largest of Broward County's 31 municipalities and the seventh largest city in Florida. Embraced by the Atlantic Ocean, New River, and a myriad of scenic inland waterways, Fort Lauderdale truly lives up to its designation as the "Venice of America."

An advantageous economic climate is helping the City of Fort Lauderdale establish itself as a world-class international business center and one of the most desirable locations for new, expanding, or relocating businesses. Once known strictly as a tourism-based economy, Fort Lauderdale now supports a diverse range of industries, including marine, manufacturing, finance, insurance, real estate, high technology, avionics/aerospace, and film and television production.

The City of Fort Lauderdale has a budget of nearly $576 million and 2,400 employees who are dedicated to "Greening Our Routine," an internal framework for innovation and change related to sustainability. Like the community-oriented "Green Your Routine," the emphasis is on the triple bottom line: changing how employees think and what they do in their jobs on a daily basis in order to protect the environment, practicing fiscal responsibility, and being accountable to each other as colleagues.

City of Fort Lauderdale

The City of Fort Lauderdale was pleased to be awarded Environmental and Sustainability Management System (ESMS) technical assistance training through the Federal Transit Administration (FTA) and the International City/County Management Association (ICMA), in partnership with Virginia Tech's Environmental & Sustainability Management Institute in 2013. The timing of this award aligned well with the City Commission's approval of Fast Forward Fort Lauderdale: Our City, Our Vision 2035, developed to serve as the City's road map of what our neighbors want their City wants to become.

The Fast Forward Fort Lauderdale vision plan is a fusion of the values and aspirations collected during the Visioning initiative's extensive public outreach efforts, which utilized both traditional and progressive tools of public engagement. One of the overarching themes that surfaced during the Visioning process was "We Are Connected," which outlines aspirations to create a City where people move seamlessly and easily through a safe, multimodal, connected transportation system that puts the pedestrian first and strengthens infrastructure within an environmentally sound environment.

The ESMS framework provides the City with the critical environmental and sustainability foundation and structure to fulfill a number of our residents' goals, such as less dependence on fossil fuels, cleaner air, and decreased carbon emissions, as well as stormwater management and climate change resiliency visionary objectives.

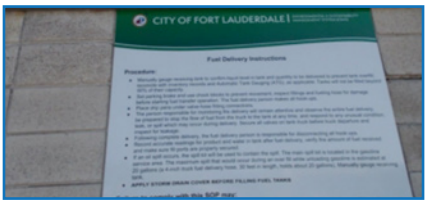
In 2011, the City of Fort Lauderdale went through a substantial departmental reorganization and the Transportation and Mobility Department (TAM) was created to provide a defined focus on public transit, connectivity, and mobility initiatives. This new department raises the profile of transportation policy, planning, and engineering to an executive level position within the organization. As a result, Fort Lauderdale is poised to become a true multimodal City, bringing a variety of transportation options to residents and visitors alike.

Through TAM, the City is championing sustainability and connectivity initiatives, such as complete street designs, citywide greenways and blueways, and trolley and streetcar systems, such as The Wave. Once complete, the 2-7 mile Wave Streetcar will serve as downtown Fort Lauderdale's very own environmentally friendly, electric fixed-rail streetcar system that offers a convenient, sustainable way for people to connect to all that downtown has to offer. Wave riders will also be able to connect to Fort Lauderdale-Hollywood International Airport, Port Everglades, Broward County Convention Center, Broward County Transit services, and the upcoming All Aboard Florida intercity passenger rail service.

City of Fort Lauderdale

The Wave Streetcar system seeks to create a livable community by integrating land use, economic development, and transportation while being environmentally sustainable. The Wave offers a "greener," more walkable downtown with wider sidewalks, shade trees, seating, and lighting, and will contribute to reducing carbon emissions, saving energy, and reducing roadway congesting by getting people out of their cars and onto public transit. The Wave Streetcar is a vital part of Fort Lauderdale's Citywide Vision and Strategic Plan and it aligns with the City's Complete Streets policy, which ranked #1 in Florida and #3 in the nation in 2014. As Broward County seeks sustainable ways to improve transit, the Wave Streetcar is the future of improved countywide transit.

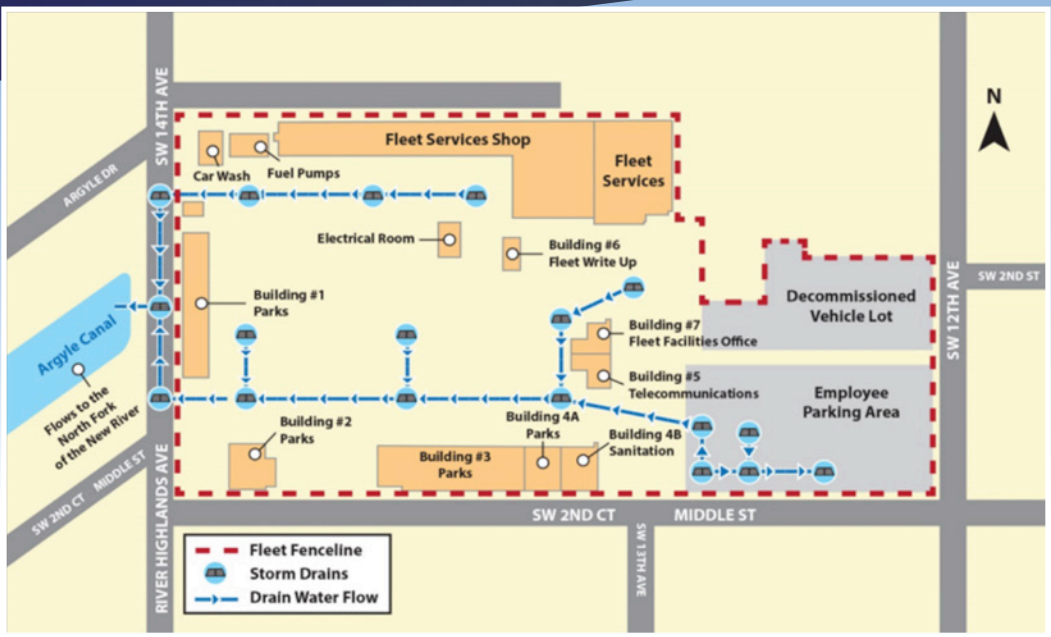
Transportation and Mobility is also taking on numerous sustainable initiatives to reduce the City's overall carbon footprint including reviewing the City's fleet operations, especially with regard to preventing stormwater pollution and reducing fuel consumption, which are two of the City's ESMS significant aspects.



The City of Fort Lauderdale's fleet is comprised of approximately 1,500 vehicles and mobile equipment consisting of everything from automobiles, vans, pickup trucks, bucket trucks, dump trucks, rack trucks, compressor trucks, backhoes, trenchers, loaders, cranes, etc. to Fire-Rescue pumpers and aerial ladder trucks to Police Department marked and unmarked vehicles. The City's fleet has a current replacement cost of nearly $71 million.

The City of Fort Lauderdale's Fleet Services is a division of the Public Works Department and reports to the Assistant Public Works Director of Sustainability. Fleet Services' mission is to "build community by furnishing functional, reliable, and economical vehicles and fleet-related equipment necessary for the conduct of the City's operations." It is the responsibility of Fleet Services to recommend and furnish fuel efficient, functional, and reliable vehicles and equipment necessary to conduct City operations, write the necessary specifications for bidding purposes, assist the Purchasing Department with vehicle and equipment auctions, and to prepare and administer the annual fleet budget, which ranges between $9 and $10 million with an annual capital budget estimated at $5 million. Included in the Fleet budget is approximately $3,375,000 for gasoline and $1,493,000 for diesel fuel.

Fleet Services is tasked with reducing the City's carbon footprint and by working with other staff in the Sustainability Division, employees are exploring the implementation of alternative fuels, such as electric, compressed natural gas, and biofuels.



Fenceline

The maintenance and repair of City vehicles and equipment, privatized since 1981, also occurs within the Fleet Fenceline. Fleet Services is responsible for overseeing the Fleet Management and Maintenance Services contract, which is currently allocated to First Vehicle Services. First Vehicle Services is also responsible for the procurement of all parts and materials, the parts inventory, and the day-to-day management of the City's fuel sites and light duty vehicle car wash.

The City's Fleet Garage is located at 220 S.W. 14th Avenue, Fort Lauderdale, FL 33312. The location is surrounded by a residential neighborhood with waterway access. The Fleet Fenceline houses several City departments, including Parks & Recreation, Public Works, Fire-Rescue, and Information Technology.

The initial fenceline at the Fleet location is very limited in size and scope. The total area of the Fleet Fenceline is 9.3 acres, and it is comprised of 10 buildings totaling 61,351 sq. ft. The location is open 24 hours a day, seven days a week with two shifts in operation. More than 210 employees and contractors are based at this site.

Following an assessment of the fenceline, the Core Team determined that due to the uniqueness of the site, expansion was necessary to encompass the large number of departments, employees, and activities housed within the fenceline. Along with vehicles from various departments (e.g., fire engines, police cars, trolleys, heavy duty dump trucks, etc.), the fenceline also includes workshops for several of departments.

From Left to Right: Alex Scheffer, Diana Alarcon, Susanne Torriente, Mary Ann Johnston, Carlos Berriz, and Jim Koeth

Core Team

The Federal Transit Administration (FTA) Core Team has the overall responsibility of developing, implementing, and maintaining the City's ESMS. Individuals on the FTA Core Team were chosen, in part, because of their ability to successfully implement major initiatives. The Team is comprised of six members representing the City Manager's Office, Transportation and Mobility Department, Public Works Department - Sustainability Division, and the Department of Sustainable Development. This diverse, interdisciplinary team has created a strong bond and continues to foster cooperative spirits across the organization.

FTA Core Team members include:
Susanne Torriente, Assistant City Manager
Diana M. Alarcon, Director, Transportation and Mobility
Jim Koeth, Principal Environmental Strategist, Public Works Department – Sustainability Division
Alex Scheffer, Urban Design Engineer, Department of Sustainable Development
Carlos Berriz, Program Manager, Public Works Department – Sustainability Division
Mary Ann Johnston, ESMS Coordinator, Public Works Department – Sustainability Division

The FTA Core Team established a standing weekly meeting in order to create and develop its ESMS. This provided structure, discipline, and dedication to the effort. Along with the Core Team, additional employees were brought in from both inside and outside the fenceline to create sub-teams to aid in the continuous improvement of the ESMS.

Key Drivers for Adopting an ESMS

The City of Fort Lauderdale's diversity of current service operations, ongoing capital improvement, and expansion projects, as well as planning for the future transit needs of a major metropolitan area, make the implementation of an ESMS an important part of the City's business operations. The City recognizes that a healthy and sustainable environment is important to its economy, its future, and its neighbors. The Sustainability Action Plan (SAP) was developed to improve efficiency, improve quality of life, and foster eco- prosperity and climate resiliency.

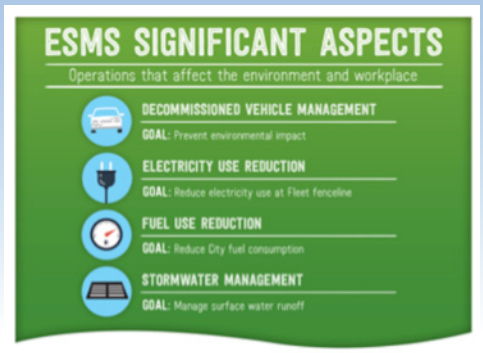
The goal of the SAP is to prepare the City for climate change impacts utilizing existing planning strategies and including adaptation and mitigation strategies. Fort Lauderdale will use the ESMS as its primary tool for applying sustainable principles and practices in its planning, construction, operations, and procurement to protect the environment for present and future generations. The City will do this by:

- Operating and maintaining City vehicles and facilities to ensure they are sustainably sound and minimize negative impacts on the environment;
- Identifying potential environmental impacts generated by City activities and developing mitigation measures to address those impacts;
- Unifying sustainability initiatives on a citywide basis with environmental solutions;
- Reducing or eliminating the use of hazardous materials;
- Reducing consumption of natural resources;
- Improving interdepartmental communication;
- Continually improving operational efficiency;
- Reducing and preventing pollution, especially stormwater pollution;
- Conducting training to raise awareness among employees regarding environmental protection and sustainable practices;
- Conducting job-specific training for all employees and contractors within the Fleet Fenceline whose activities can potentially negatively impact the environment;
- Periodically reviewing and implementing updated environmental protection procedures and practices to ensure that they provide effective solutions for the problems they are designed to prevent or correct;
- Establishing and maintaining an ESMS with environmental objectives and targets that are measurable, meaningful, and understandable; and
- Communicating the goals and progress of this City's ESMS Policy and ESMS as a whole to City of Fort Lauderdale management and staff.

The provision of a framework for integrating environmental stewardship and awareness into daily decision-making and practices, as well as improvement in areas of training and records management, will continue to allow the City of Fort Lauderdale to minimize its impact on the area's unique natural resources.

Significant Aspects and Impacts

The City of Fort Lauderdale's ESMS Core Team identified and prepared a preliminary list of environmental aspects for the Fenceline facility. The preliminary list of environmental aspects was reviewed by a sub-team under a weighted system of ranking the significance of the aspects. The identified environmental aspects and impacts were then evaluated using a scoring matrix, with consideration given to the following criteria:



- Scale, severity, and duration of impact
- Probability of occurrence
- Potential regulatory and legal exposure
- Ease of changing impact
- Effect on public image and interested parties
- Potential savings
- Cost of changing impact

The aspects with the highest score were then identified as the significant aspects of the Fleet Fenceline ESMS program. The significant aspects identified by the Core Team include:

1. Decommissioned Vehicle Management

Draining all fluids from vehicle

SOP for Decommissioned Vehicle Storage

2. Electricity Use Reduction

Before

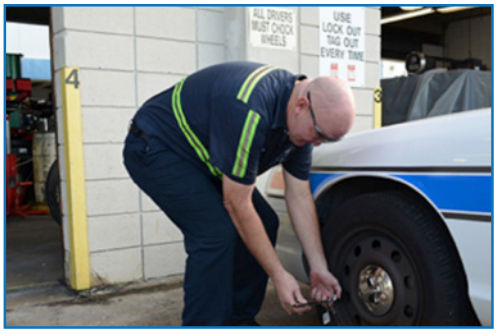
After

Lights off to save electricity

3. Fuel Use Reduction

Before

After



Checking proper inflation to save fuel

4. Stormwater Management

Before

After

Objectives and Targets

Objectives and Targets were developed for the four Significant Aspects in order to improve operational controls, minimize risk, and optimize sustainable practices. The ESMS Core Team worked with subgroups to develop Action Plans for each Significant Aspect as shown in the following table.

Aspect	Objectives	Targets
Decommissioned Vehicles Prevent and mitigate the environmental impacts associated with the storage of decommissioned vehicles and equipment 	Establish policy that reduces fluid and other environmental contaminants spill risk associated with the storage of decommissioned vehicles and equipment by December 1, 2014 Enhance parking lot to reduce the risk of ground water contamination associated with the storage of decommissioned vehicles and equipment by September 30, 2018	Establish policy that reduces fluid and other environmental contaminants spill risk associated with the storage of decommissioned vehicles and equipment by December 1, 2014 Enhance parking lot to reduce the risk of ground water contamination associated with the storage of decommissioned vehicles and equipment by September 30, 2018
Electricity Use Reduction Reduce Fleet Fenceline electricity usage via energy conservation efforts and plans 	Within 10 years after the baseline is established, reduce Fleet Fenceline electricity consumption (kWh) by 20% by year 2020 Energy efficiency training of all on-site Fleet Fenceline staff and contractor staff by December 31, 2015	Establish electricity usage (kWh) baseline by June 2016 Install submeters at Fleet Fenceline by March 2016 Determine staff and contractor (First Vehicle Services) energy efficiency training needs by December 31, 2014
Fuel Use Reduction Reduce fuel consumption and maximize efficiencies in City vehicles and equipment 	Achieve a 20% fuel reduction by 2020	Perform driver energy conservation awareness training program (Defensive Driving/Smith System) commencing June 2015 Implement GPS technology by January 2015 Perform utilization study by October 1, 2014 Conduct a baseline idle study by April 1, 2014

Objectives and Targets

Aspect

Stormwater Management
Managing surface water runoff to limit impacts to receiving bodies of water

Objectives

Reduce and eliminate, whenever possible, pollutants entering the stormwater management system

Targets

Complete stormwater survey and system inventory by April 2015

Determine the source of oil and flow found in drain #4 and eliminate source by March 7, 2014

Repair seawall and assess canal dredging needs by February 2015

Research Areas 14 and 15 to determine if storm drains may have previously been buried by April 1, 2014

Map undocumented storm drains via GIS and add to the stormwater atlas by March 1, 2014

Repair open clean-out near Radio Shop by March 1, 2014

Create more green spaces for water retention by February 1, 2015

Repair all storm drain aprons and install stormwater inlet filters to improve water flow to the catch basins by September 30, 2015

Repair asphalted areas to avoid stormwater pooling by September 30, 2015

Scheduled monthly yard sweep

Scheduled bi-weekly litter collection

Scheduled annual tree canopy maintenance – every April

Scheduled storm drain cleaning – bi-annually

Ongoing inventory management and storage

City of Fort Lauderdale

Benefits of Adopting an ESMS

The City of Fort Lauderdale recognizes that there has been increasing evidence that organizations that adopt environmental and sustainability management systems (ESMS) for their operations can realize significant benefits in terms of improved environmental and sustainability performance including, but not limited to:

- Stronger operational controls can lead to reduction in operating and maintenance costs, as well as reductions in inventory of materials (parts & chemicals);
- Established a framework to expand the ESMS program to other facilities;
- Increased awareness and ownership of the social, environmental, and financial impacts of our actions;
- Better safety and regulatory audit response capability; and
- Improved documentation control and records management.

One result of implementing the ESMS program at the Fleet Fenceline was a cross departmental Mock Diesel Fuel Spill training exercise in early 2015 at the onsite fuel station that included staff from Emergency Management, Environmental Services and Regulatory Affairs, Fire-Rescue, Fleet, HazMat, Information Technology, Parks and Recreation, Police, Public Affairs, Public Works – Sustainability Division and the contractor (First Vehicle Services).

The purpose of the training was to offer a "real-life," hands-on opportunity to practice, monitor, and measure the City's response to a hazardous material incident. More than 400 gallons of non-toxic dyed water was spilled from a truck while teams jumped into action to implement their ESMS spill response plan. Afterward, the teams joined together to discuss lessons learned and review areas for improvement. This collaboration and teamwork will assist the City with continually improving its environmental performance and protecting employees and public safety.

Resources

The number of hours associated with the development and fenceline implementation of the City of Fort Lauderdale's ESMS program is:

ESMS Core Team	3,822 hours
Staff Support	1,242 hours

Cost Savings and Avoidance

At the time of this case study, the City of Fort Lauderdale was in the early stages of implementing its ESMS. While the City has just started benefitting from the implementation of its ESMS, the City, its leaders, and its employees strongly believe there are many quantifiable cost savings yet to be realized.

Aspect	Efficiency	Cost Avoidance/ Savings	Environmental Impact
Decommissioned Vehicle Management 	Decommissioned vehicles and equipment must be removed from Fleet Fenceline within 90 days of decommissioning	The City began auctioning decommissioned vehicles and equipment and has increased revenue by $830,970 since late 2013	Reduced City's solid waste stream by diverting decommissioned vehicles and equipment from landfills/junkyards
Electricity Use Reduction 	Reduce electricity use 20% by 2020 by replacing all fluorescent lighting with LED lights, along with other energy saving activities	In one building in the fenceline, 24 fluorescent fixtures were replaced with LED lights, resulting in an estimated savings of $475.00 per year	Avoided 6,344 pounds per year greenhouse gas emissions
Fuel Use Reduction 	Increased the percentage of hybrid vehicles purchased from 3% in FY13 to 35% in FY14	When compared to the existing vehicles replaced, the City's projected fuel savings is approximately $175,000	Reduced approximately 54,565 gallons of fuel consumed over the life of the vehicles, which equals an estimated decrease of 1 million pounds of CO_2
Stormwater Management 	Community Investment Plan budgeted amount of $75,000	Risk reduction and preventative measures	Increased stormwater pollution prevention efforts by installing gate valves at the outfall site of the Argyle Canal

Next Steps

The Core Team will continue to refine the ESMS process within the Fleet Fenceline with a focus on further expanding employee participation. Along with the recent general awareness training for more than 210 employees within the fenceline, the team will begin to implement specific training based upon the site's significant aspects and objectives, targets and programs. Additionally, the team will work to involve more City departments in the ESMS process.

Recognizing the need to support ESMS efforts within the City, the FY15 budget provided funding for a full-time ESMS Coordinator position, which provides assistance in guiding the fenceline toward ISO 14001:2004 certification. The team will also look for opportunities to expand ESMS concepts developed within the fenceline to other parts of the organization, with a long-term goal of extending the ESMS program to all areas within the City.

The ESMS team strives to:

- Increase awareness of the benefits and use of ESMS and its principles to all City departments;
- Develop and implement policies and procedures related to the ESMS; and
- Develop and maintain better recordkeeping mechanisms.

Management Commitment

"The management team I have assembled in the City of Fort Lauderdale is focused on streamlining City services, initiating strategic management practices and performance measurement systems, and integrating sustainability into City operations. Developing our ESMS and preparing for ISO 14001 certification has created the structure and discipline to achieve these goals."

Lee R. Feldman, ICMA-CM
City Manager

For more information about the City of Fort Lauderdale's ESMS program, please contact:

Mary Ann Johnston, ESMS Coordinator
mjohnston@fortlauderdale.gov
(954) 828-5301

CITY OF FORT LAUDERDALE | ENVIRONMENTAL & SUSTAINABILITY MANAGEMENT SYSTEM (ESMS)

Citywide Environmental and Sustainability Management Policy

The City of Fort Lauderdale Vision Statement is "We are the City you never want to leave," due to the balance of environmental protection, economic development and quality of life. This is embodied in our 2035 Vision Plan: ***Fast Forward Fort Lauderdale: Our City, Our Vision 2035*** and our five year strategic plan, ***Press Play Fort Lauderdale, Our City Our Strategic Plan 2018.***

The mission of the City and our management approach is "We Build Community" through our collaborative efforts in organizing departments and delivering services in and through strategic "Cylinders of Excellence" - Infrastructure, Public Places, Neighborhood Enhancements, Business Development and Public Safety; as well as an Internal Support platform. Our service delivery model follows this approach where the customer is considered a *neighbor* and staff is considered *community builders.*

This Environmental and Sustainability Management Policy for the City stems from our vision, mission, management approach and service delivery model; and provides the framework to:

- Practice "Sustainable Triple Bottom Line" that considers the environment, economy and social equity in all aspects of City's decision-making plans.
- Commit to continual improvement which is consistent with the City Commission-adopted Strategic Plan.
- Commit to pollution prevention, waste reduction, and resource conservation.
- Integrate sustainable practices into daily operations.
- Educate our employees by empowering them through training to promote environmental stewardship and sustainability.
- Set and review environmental objectives and targets.
- Meet or exceed all legal and environmental regulatory requirements.

This policy is documented, implemented and maintained by the City for employees on the City website and at city work sites. This policy is communicated to all persons who work for, or on behalf of, the City of Fort Lauderdale, and is available to the general public at http://www.fortlauderdale.gov/ESMS. It is annually reviewed and, when necessary, periodically revised.

Lee Feldman, ICMA-CM
City Manager

Susanne M. Torriente
ESMS Management Representative

Date: 10/13/2014

Greening Our Routine

Final Audit

This section compares the percentage of requirements met, partially met and not met with respect to meeting the requirements of an ESMS as specified in the ISO 14001:2004 standard. The following scores are the result of the ESMS audit presented in this report:

Percent meeting all requirements **"Overall Score"** **99%**
Percent of requirements **"Met"** **99%**
Percent of requirements **"Partially Met"** **1%**
Percent of requirements **"Not Met"** **0%**

The ISO 14001:2004 standard elements of an EMS		Overall (%)	Met (%)	Partially Met (%)	Not Met (%)
4.1	General Requirements	100	100	0	0
4.2	Environmental Policy Requirements	100	100	0	0
4.3.1	Environmental Aspects Requirements	100	100	0	0
4.3.2	Legal and Other Requirements	100	100	0	0
4.3.3	Objectives, Targets and Programs Requirements	95	91	9	0
4.4.1	Resources, Roles, Responsibility and Authority	100	100	0	0
4.4.2	Competence, Training and Awareness	93	86	14	0
4.4.3	Communication	100	100	0	0
4.4.4	EMS Documentation	100	100	0	0
4.4.5	Control of Documents	100	100	0	0
4.4.6	Operational Control	100	100	0	0
4.4.7	Emergency Preparedness and Response	100	100	0	0
4.5.1	Monitoring and Measurement	100	100	0	0
4.5.2	Evaluation of Compliance	100	100	0	0
4.5.3	Nonconformity, Corrective Action and Preventive Action	100	100	0	0
4.5.4	Control of Records	100	100	0	0
4.5.5	Internal Audits	100	100	0	0
4.6	Management Review	100	100	0	0

FTA ESMS INSTITUTE
cota.vt.edu/ems

GET bus
GOLDEN EMPIRE TRANSIT DISTRICT

Golden Empire Transit District

Bakersfield, California
Case Study

Golden Empire Transit District
Bakersfield, CA

Profile

The southern gateway to the Central Valley, Bakersfield is California's ninth largest city and one of the fastest growing regions in the nation. Bakersfield is a dynamic and diverse community and is the seat of Kern County - the Golden Empire, which generates 76 percent of the state's oil supply and ranks third among all counties in the United States in agriculture-related production. Graced with a wealth of natural wonderlands, recreational playgrounds, and offering a wide array of entertainment, shopping, and dining experiences, the Heart of the Golden Empire is a strategic crossroads, attracting a substantial tourism market annually.

The Golden Empire Transit District (GET) was formed in July 1973 and is the primary public transportation provider for the Bakersfield Urbanized Area. It is the largest public transit system within a 110 mile radius. The District's boundary includes all of the area within the Bakersfield city limits as well as adjacent unincorporated areas. The area within the District's boundaries is 160 square miles. The population of the District is nearly 500,000.

GET's primary mission is to consistently provide safe, accessible, reliable, and affordable public transportation to diverse customers in the greater Bakersfield area and its vision statement is "doing our part to improve mobility and create livable communities by becoming every household's second car."

The District operates 14 fixed routes, 1 limited route, and 1 express route. Service is provided from approximately 6:00AM to 11:00PM Monday through Friday, 7:00AM to 7:00PM on Saturdays, and 7:00AM to 7:00PM on Sundays. Most routes provide weekday evening service. Sunday service is provided on twelve routes. The District also provides paratransit transportation for ADA-eligible persons (GET-A-Lift).

Fast Facts

District Size	160 square miles
District Population	486,214
Number of Buses	88
Number of Para transit Vehicles	19
Bus Stops	1,000
Annual Boardings (FY 14)	6.1 million
Routes	16
Employees	300
Transit Centers	3

Golden Empire Transit District
Bakersfield, CA

Fenceline

GET's fenceline consists of its Administrative and Maintenance headquarters, located at 1830 Golden State Avenue in central Bakersfield, CA. These facilities sit on a ten-acre site and service all of the District's vehicles. The administration building is 10,000 square feet and the maintenance facility is 12,000 square feet. Approximately 118 revenue vehicles and 29 non-revenue support vehicles operate from this location. Completed in 1983, this site includes a CNG fueling station, bus wash, bus yard, light and heavy maintenance bays, parts storage, paint booth, above ground storage tanks, administration building, and public and staff parking.

Core Team

GET's core team is made up of seven members from various departments throughout the agency. They provide leadership, encourage involvement, and foster a cooperative spirit throughout the organization. The team includes the following members (pictured from left to right):

Steven Woods, Deputy Chief Executive Officer
Candra Cheers, Operations Manager
Jill Smith, Customer Service Supervisor
Karen King, Chief Executive Officer
Chris James, Maintenance Manager
Emery Rendes, Transit Planner
Bruce Seibel, Safety/Training Manager

Golden Empire Transit District
Bakersfield, CA

Key Drivers for Adopting an ESMS

GET is committed to environmental wellness. Sustainability practices are integrated into all aspects of our operations through clean technologies, renewable resources and recycling. It is our goal to preserve the health of our planet and the well-being of our community. Programs and initiatives have been implemented to protect the environment, including creation of idling policies and a fleet that is 100% Compressed Natural Gas (CNG).

The District is committed to the ideas and practices of environmental responsibility through measures designed to:

- Meet or exceed local, state, and federal environmental requirements, regulations, and legislations.
- Reduce or prevent pollution at the source whenever feasible and seek methods to dispose and recycle in an environmentally safe manner.
- Effectively communicate EMS performance to customers, contractors, stakeholders, and the general public.
- Pursue the continual improvement of this policy through annual monitoring and review of measurable goals and objectives.

GET will continue to develop environmentally friendly business practices. We encourage our employees to join the District in pursuing the necessary tools, resources, and education to empower environmental awareness and responsibility.

Prior to becoming an ESMS Institute participant, GET had already implemented various environmental-friendly measures within the fenceline. However, a system-wide management plan such as ESMS opens the door to providing formal measurements as well as a formal commitment to environmental sustainability and safety. In 2011, the GET Board of Directors adopted the APTA Silver Sustainability Commitment and the District's staff has been working on several related goals and projects over the past year.

Golden Empire Transit District
Bakersfield, CA

Significant Aspects and Impacts

A sub-team representing maintenance, safety, and training was created to develop an initial list of environmental aspects within the fenceline and develop the matrix for the core team to score. The sub-team reviewed the homework objective to identify all activities, products and services for the Aspects Matrix. A list of over 60 aspects was created. The sub-team reviewed the list for the fence line and indentified the negative or positive environmental impacts for each aspect. Those aspects were then evaluated based on the following criteria:

- Scale of Impact
- Severity of Impact
- Probability of Occurrence
- Duration of Impact
- Potential Regulatory and Legal Exposure
- Ease of Changing Impact
- Effect on Public Image
- Effect on Sustainability
- Concerns of Interested Parties
- Cost of Changing Impact

The core team along with other key agency staff completed this evaluation by rating each of the aspects in a scoring matrix using the aforementioned criteria. The aspects with the highest score were then identified as significant aspects and are listed below.

ASPECT	IMPACTS
Natural Gas Consumption / Engine Emissions / Fuel Consumption	Air
Spill Prevention	Water, ground
Electricity Reduction	Natural resources
Storm Water	Water, ground

Golden Empire Transit District
Bakersfield, CA

Objectives and Targets

Objectives and Targets were developed for the four Significant Aspects in order to improve operational controls, minimize risk, and optimize sustainable practices. The ESMS Core Team worked with subgroups to develop Action Plans for each Significant Aspect as shown in the following table.

ASPECT	OBJECTIVE	TARGETS & TASKS
Electricity Reduction	Electricity reduction by 2% by June 2017 by implementing electricity reduction activities, training employees on electricity reduction awareness and planning for future electricity reduction capital projects.	**Target:** Electricity reduction by 2% by June 2017 **Tasks:** ✦ Develop a scope of work and hire a consultant to perform a facility electricity reduction audit. ✦ Define the electrical consumption baseline from past electrical consumption data. ✦ Develop an implementation strategy from the electricity audit data to implement conservation practices and future capital projects. ✦ Develop an employee training program for electricity reduction. ✦ Train 100 employees on electricity reduction. ✦ Replace all facility lighting with more energy efficient lighting. ✦ Install occupancy sensors to control lights. ✦ Install programmable thermostats. ✦ Install additional skylights in the maintenance building. ✦ Monitor electricity consumption data quarterly and develop reports for the EMS Core Team. ✦ Develop strategy for future electricity reduction capital projects based on motoring data.
Engine Emission Reduction	Reduce engine emissions by 2% during fiscal year 2014-2015, measure cost savings and measurable emissions related to the established reduction target.	**Target:** Reduce engine emissions by 2% by June 30, 2015 Tasks: ✦ Develop a baseline for engine emissions from the past three years of fuel consumption and converting it to emission data. ✦ Conduct an audit of operational activities to gather additional engine emission sources. ✦ Develop a strategy for reducing engine emissions based on the audit. ✦ Prioritize the strategy action items and develop an implementation plan. ✦ Develop training program ✦ Train staff on reducing engine emissions. ✦ Monitor engine emission data quarterly and develop reports for the EMS Core Team. ✦ Replace engine driven CNG compressors with electric drives. ✦ Develop an engine idling reduction policy. ✦ Develop an engine emission reduction strategy for the future and ongoing monitoring.

Golden Empire Transit District
Bakersfield, CA

Benefits of Adopting an ESMS

- Encourages GET to be better stewards of the environment for the local community
- Ensures that all local, state , and federal regulations are met
- Creates a positive public image of GET's commitment to environmental sustainability
- Provides a central and accessible location for documents and records
- The auditing component ensures compliance and continual improvement
- Increased employee and contractor/vendor awareness of environmental/ sustainability issues
- Provides for activities that encourage and enable employee participation with ESMS implementation
- Strengthens the priority of environmental performance, safety compliance, and training at all levels of the organization
- Promotes operational controls that can lead to reduction in operating and maintenance costs
- Establishes GET as the regional leader and example setter for other public transportation providers in Kern County
- Creates the foundation for expansion of the ESMS program beyond the current fenceline
- Elevates awareness of emergency planning and preparation
- Ensures that procedures are reviewed regularly
- Creation of objectives and targets provides for precise measurements and analysis of environmental reduction goals

Golden Empire Transit District
Bakersfield, CA

Resources

The Golden Empire Transit District estimates that the following staff time has been devoted to the training and development of the ESMS during the period between August 2013 and September 2014:

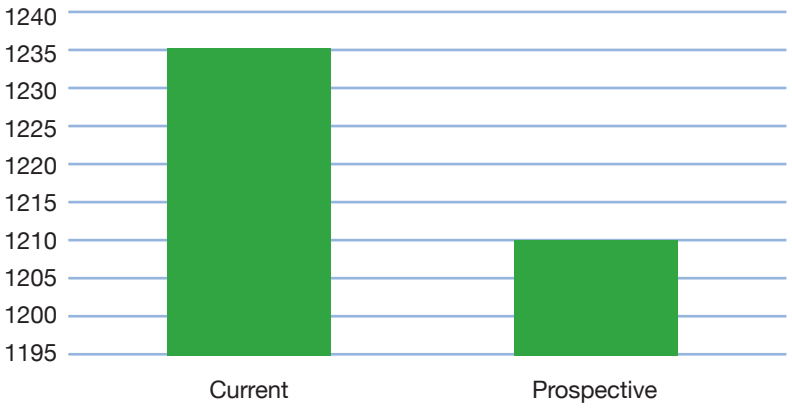
- ESMS Core team:1,228
- Subcommittees and other personnel: 206
- Total: 1,434

Cost Savings and Avoidance

The control and management of the significant aspects are expected to lead to cost savings and avoidance. Strategies used for electricity reduction include an employee training program, replace lighting, install occupancy sensors, install programmable thermostats, and install additional skylights. Engine emission reduction strategies include a training program, replace engine driven CNG compressors with electric drives, and an engine idling reduction policy. The prospective annual returns are shown below.

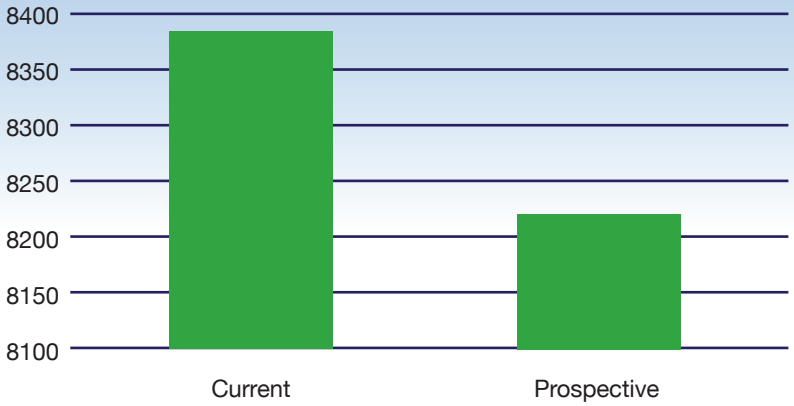
ASPECT	SAVINGS	COST SAVINGS	IMPACT
Electricity Reduction	35,833 kilowatts	$3,942	Reduction of 24.7 metric tons CO2
Engine Emission Reduction	31,629 therms	$22,140	Reduction of 168 metric tons of CO2

Electricity Reduction Metric Tons CO2



Golden Empire Transit District
Bakersfield, CA

Engine Emission Reduction Metric Tons CO2



Engine Emission Reduction = **400,000** Miles/year driven by an average passenger vehicle

Electricity Reduction = **58,810** Miles/year driven by an average passenger vehicle

Next Steps

The next steps GET will take include:

- Obtaining ISO 14001 Certification for the Administrative and Maintenance Facility
- Continue to measure, monitor, and control the significant aspects
- Increase awareness of ESMS to the entire organization
- Conduct employee training
- Continually improve GET's ESMS

Golden Empire Transit District
Bakersfield, CA

Management Commitment

GET's Environmental Policy was approved by the GET Board of Directors on July 15, 2014 as an important step in the District's commitment and successful implementation of the ESMS program. The District has taken a leadership role in environmental stewardship in order to promote public transportation as a green solution in the community.

"The entire Golden Empire Transit District employees and Board of Directors are committed to sustainability and environmental protection in the greater Bakersfield community. To operate most sustainably, we are committed to conducting our operations and activities in an environmentally, socially, and financially responsible manner. We know that the way we operate today can have a long-lasting impact. What we do today matters tomorrow. We care about our planet and we feel a responsibility to leave it to future generations in better shape than we were given it. We make it our business to think green every day. As a participant in the ESMS program, GET is able to share the benefits of our learning and innovation with our stakeholders. It is our resolve to embed environmental performance and sustainability principles within all our management systems, policy and practices. This is our commitment."

Karen King, CEO

For more information about GET's ESMS program, please contact:

Steven Woods
Deputy CEO
swoods@getbus.org
(661) 324-9874

Detailed scoring on next page.

Golden Empire Transit District
Bakersfield, CA

Final Audit

This section compares the percentage of requirements met, partially met and not met with respect to meeting the requirements of an ESMS as specified in the ISO 14001:2004 standard. The following scores are the result of the ESMS audit presented in this report:

Percent meeting all requirements **"Overall Score"** **98%**
Percent of requirements **"Met"** **96%**
Percent of requirements **"Partially Met"** **4%**
Percent of requirements **"Not Met"** **0%**

The ISO 14001:2004 standard elements of an EMS		Overall (%)	Met (%)	Partially Met (%)	Not Met (%)
4.1	General Requirements	100	100	0	0
4.2	Environmental Policy Requirements	100	100	0	0
4.3.1	Environmental Aspects Requirements	100	100	0	0
4.3.2	Legal and Other Requirements	100	100	0	0
4.3.3	Objectives, Targets and Programs Requirements	100	100	0	0
4.4.1	Resources, Roles, Responsibility and Authority	100	100	0	0
4.4.2	Competence, Training and Awareness	100	100	0	0
4.4.3	Communication	100	100	0	0
4.4.4	EMS Documentation	100	100	0	0
4.4.5	Control of Documents	100	100	0	0
4.4.6	Operational Control	100	100	0	0
4.4.7	Emergency Preparedness and Response	88	75	25	0
4.5.1	Monitoring and Measurement	100	100	0	0
4.5.2	Evaluation of Compliance	75	50	50	0
4.5.3	Nonconformity, Corrective Action and Preventive Action	100	100	0	0
4.5.4	Control of Records	100	100	0	0
4.5.5	Internal Audits	100	100	0	0
4.6	Management Review	100	100	0	0

FTA EMS INSTITUTE
cota.vt.edu/ems

RTA

The Greater Cleveland Regional Transit Authority

Cleveland, Ohio
Case Study

Greater Cleveland Regional Transit Authority

Profile

The Greater Cleveland Regional Transit Authority is an independent political subdivision of the State of Ohio created in December 1974. GCRTA began operations in 1975. Its mission is to provide safe, reliable, clean and courteous public transportation. It is governed by a ten-member Board of Trustees that establishes policy and sets direction for the management of the Authority. With the exception of the Internal Auditor who reports directly to the Board of Trustees, the CEO, General Manager/Secretary-Treasurer supervises the Executive Management Team which is responsible for the leadership, functions and day-to-day operations of the GCRTA.

The GCRTA's service area is contiguous with the boundaries of Cuyahoga County--spanning 457 square miles across 59 municipalities, including 38 cities, 19 villages and 2 townships and serving a population of 1.26 million.

Today, the GCRTA is among the nation's largest public transportation systems providing virtually all mass transportation within Cuyahoga County. It is a multi-modal system delivering bus, paratransit, heavy rail, light rail and bus rapid transit services. With an operating budget of $278.7 million, a 1% county sales tax is GCRTA's primary source of funds, covering about 70% of the operating revenue budget with passenger fare collections covering 22%.

Customer-focused leadership and efficient delivery of services earned GCRTA national acclaim when it was named Best Transit System in America in 2007. Its HealthLine, a Bus Rapid Transit System (BRT), was built in a spirit of innovation and community collaboration and has become the world-class standard in bus rapid transit, far exceeding expectations in ridership, economic development and global recognition.

One of GCRTA's visions is to be a champion for sustainable transportation. GCRTA is an environmental steward and partner in key strategic sustainability initiatives currently underway in Northeast Ohio. Development and implementation of an Environmental and Sustainability Management System (ESMS) integrated throughout the Authority is a logical progression as GCRTA aims to create a healthier and more livable environment for its employees and customers while taking steps to reduce pollution and continually improve its environmental footprint on the region.

Greater Cleveland Regional Transit Authority

Greater Cleveland At-A-Glance

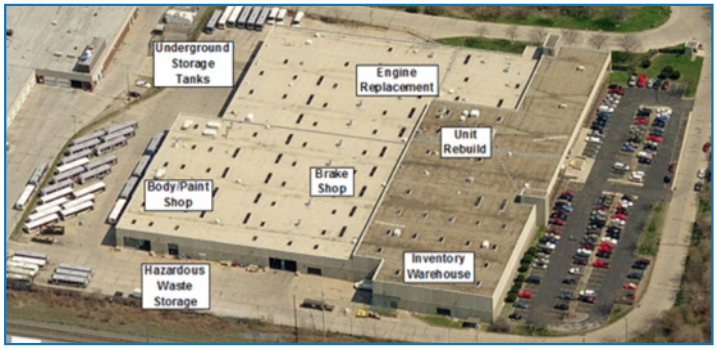
Employees:	2,227
Service Area:	457 sq. miles
Population Served:	1.26 million
Bus Service:	69 routes, 415 buses,6,000 stops, 1,000 shelters, 14.4 million revenue miles 39+ million annual ridership
Bus Rapid Transit (BRT) "HealthLine"	1 route, 23 rapid transit vehicles (RTVs) 59 stations + 3 platform stops 7.1 miles (4.5 miles BRT-only lanes) 5.0 million annual ridership
Rail Services:	4 routes, 108 vehicles, 34.3 route miles of track 18 high + 34 low platform stations 3.2 million revenue miles 8.5 million annual ridership
Downtown Trolleys:	5 routes, 17 vehicles 1.5 million annual ridership
Paratransit Services:	80 vehicles, 67 contracted vehicles 704,504 passenger trips
Park & Rides:	7 facilities 8,855 free parking spaces
Transit Centers:	4
Bridges:	64
Tunnels:	2
Programs:	Commuter Advantage: 13,896 U-Pass: Universal RTA Ready to Ride: 33%
Connecting to Customers:	Website: 4.4+ million visitors E-Newsletter: 7,204 subscribers RTAnswerline: 532,500+ calls NextConnect: 1,817 subscribers Commuter Alerts: 3,059 subscribers Online Store: $296,998 in fare media sold Facebook: 14,000+ fans like us Twitter: 3,992 persons follow us @GCRTA You Tube: 24 videos/5,000+ views LinkedIn: Company Profile

*2013 Data

Greater Cleveland Regional Transit Authority

Fenceline

The Greater Cleveland Regional Transit Authority's (GCRTA) Central Bus Maintenance Facility (CBMF) is located at 2500 Woodhill Road in Cleveland, Ohio. The site encompasses a total of 18 acres. This facility provides maintenance support to GCRTA's fleet of 415 big buses and 80 Paratransit buses. Currently, 167 employees work at this facility.



Operations within the CBMF fenceline consists of:

- Administration
- Facilities Maintenance
- Fleet Planning and Engineering
- Inventory
- Brakes, Body and Paint Shops
- Electronic Repair
- Engine Replacement and Unit Rebuild

All of these operations take place within this two-story building comprising an area of 229,072 square feet.

Greater Cleveland Regional Transit Authority

GCRTA CORE TEAM (Left to Right): Steve Peganoff, Ron Baron, Maryann Merce, Kari Solomon, Michael Schipper, Kevin Stanley

The GCRTA's Environmental & Sustainability Management System (ESMS) Team is cross functional comprised of members in the following areas of management: bus operations, engineering, facility operations, environmental/safety compliance, sustainability, project controls administration, and management and budget. The Team demonstrates a strong interest and responsibility in reducing GCRTA's use of resources and its impact on the environment.

GCRTA CORE TEAM + RESOURCE STAFF (Left to Right): R.J. Roberto, Sandra Strack, Steve Peganoff, Ron Baron, Maryann Merce, Kari Solomon, Anthony Ghanem, Michael Schipper, George Fields, Kevin Stanley.
Note: Not all resource staff are pictured above.

Core Team

The GCRTA Core ESMS Team consists of:

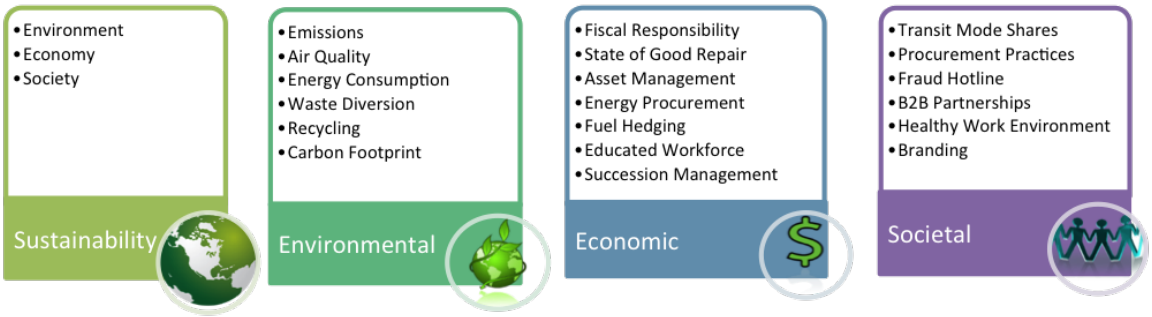
- Michael Schipper, Deputy General Manager – Division of Engineering & Project Management/ESMS Senior Management Representative
- Maryann Merce, Project Assistant - Division of Engineering & Project Management/ ESMS Administrative Associate
- Ronald Baron, Director - Fleet Management - Central Bus Maintenance Facility/CBMF
- Kari Solomon, Budget Management Analyst - Office of Management & Budget/ Sustainability & Performance Excellence
- Steven Peganoff, Manager - GCRTA Safety
- Kevin Stanley, Manager – Equipment/CBMF

Additional staff from other GCRTA departments have participated on sub-teams and/or served as resources during the development phase: Executive, Safety, Legal, Human Resources, Information Technology, Information Systems, Procurement, Marketing, Media Relations, Operations, Engineering and Planning, and Office of Management and Budget.

Greater Cleveland Regional Transit Authority

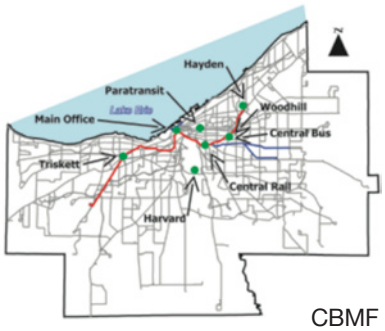
Key Drivers for Adopting an ESMS

As the largest transit authority in Ohio, GCRTA officials recognize that they are fully responsible for the Authority's lasting effect on the community. From the manner in which the Authority conducts its business, to the training and development of an educated workforce, to the construction of major facilities—all impact the organization and the communities it serves. In this spirit of environmental stewardship and vision for a vibrant, healthier region, the Greater Cleveland Regional Transit Authority's Board of Trustees formally adopted a comprehensive Sustainability Policy in 2010, followed by an Environmental Policy and Sustainability Commitment in 2013, which was updated in 2014.



Sustainability

The three pillars of Sustainability—Environment, Economy and Society—are not mutually exclusive and can be mutually reinforcing—and have served as a common ground for many sustainability standards and certification systems in recent years.



GCRTA recognizes that the manner in which it conducts its daily operations today may have lasting impacts for decades and generations to follow. Highlighted in the table above are GCRTA's key drivers for adopting an ESMS—the three pillars of Sustainability. These drivers are: Environmental, Economical and Societal. To this end, the agency has concentrated on the triple bottom line business value that is integrated and linked to social, environmental and economic successes. Its goal is to emphasize continual and measurable improvement in performance and efficiencies throughout its operations by establishing an ISO 14001 compliant Environmental & Sustainability Management System.

CBMF was selected as the pilot facility. Once the ESMS is implemented here, it is GCRTA's intent to replicate the ESMS at its other major facilities. Development and implementation of an ISO 14001 compliant Environmental & Sustainability Management System is important to GCRTA's high-performance culture, focusing on action, accountability and quality management. The ESMS is a logical progression of existing improvement programs such as TransitStat, Partnership for Excellence, LEED Certifications (new construction) and other energy-saving options—such as lighting and energy retrofits and alternate fuels that are already in process today.

Greater Cleveland Regional Transit Authority

Environmental

An ISO 14001 certified ESMS will assist GCRTA in improving its business environment by gaining performance efficiencies by utilizing an environmental value business strategy. Focusing on environmental initiatives in utilizing an environmental value business strategy, such as emissions reduction, air quality improvement, waste diversion and determining and reducing RTA's carbon footprint, it is certain to improve the environment for the community we serve while providing long-term economic benefits to the Authority.

GCRTA is committed to being a champion for sustainable transportation. To protect the environment, reduce pollution, and create a safe and healthy work environment for its employees, it exercises daily due diligence to ensure its operations and workforce comply with all applicable local, state and federal environmental laws, regulations, standards and monitoring requirements.

Economic

Economic initiatives are another key driver to implement an ESMS. GCRTA takes great pride in its integrated performance management philosophy. It has resulted in a performance-driven culture, focusing on action and accountability. "The Partnership for Excellence," a Baldridge program, has provided GCRTA with a solid foundation on which to build a recommended framework for management and leadership, focusing on seven key areas that can be seamlessly integrated into its ESMS: Leadership, Strategic Planning, Customer Focus, Analysis and Knowledge Management, Workforce Focus, Operations Focus and Results. These focus areas are becoming part of the day-to-day management style and culture of the GCRTA.

Fiscal responsibility and prudent use of taxpayer dollars have enabled GCRTA to flourish in an otherwise sluggish and uncertain economy. The Authority has enjoyed a high success rate in applying for many federal and state competitive grants. Recently, major energy and lighting retrofits were completed at several facilities. Funding also allowed GCRTA to reconstruct two key rapid transit stations, construct a second bus rapid transit (BRT) route, and bring our bus and rail facilities and infrastructure toward a state of good repair. Programs such as asset management, fuel hedging and energy procurement, promote operational efficiencies while providing substantial cost-savings. Similarly, procurement of "green" and "energy-saving" products, such as the recent purchase of CNG buses and solar-powered shelters, results in long-term energy savings and improves the Authority's overall carbon footprint.

GCRTA's educated workforce has grown accustomed to operating in a highly-competitive, performance-measured business culture—with a strong financial plan. Workforce transition is another key factor for implementing a standardized management sytem. As "baby boomers" reach retirement age, a potential "tsunami" of retirements is forecasted for the years ahead. As these employees leave, they take with them years of instititutional knowledge. Standardized management systems such as the ESMS play a critical role in capturing this institutional knowledge and enabling new employees to seamlessly transition into vacated positions, backfilling those roles and responsibilities.

Social

Finally, societal implications were another factor to implement an ESMS. ISO 140001 certification of GCRTA's ESMS will enhance its brand identity and provide an increased level of confidence that GCRTA's operations at CBMF are in compliance with federal, state and local environmental standards. From employee training and awareness to procurement practices and contractor management, every facet of CBMF operations is continuallly analyzed and controls put in place in order to reduce the environmental impact of its activities, products and services and allow it to operate with greater efficiency and control.

GCRTA recognizes its role as an environmental steward and partner in key strategic sustainability initiatives currently underway in our region: The Northeast Ohio Sustainable Communities Consortium and Sustainable Cleveland 2019. On the national level, GCRTA is a founding signatory of the American Public Transit Association's Sustainability Commitment and currently holds bronze level status. Our Transit Oriented Development initiatives promote healthy lifestyles by offering customers multi-modal transportation options to achieve a desired work/live/play balance while cultivating public-private partnerships in northeast Ohio.

Implementation of an integrated Environmental & Sustainability Management System will allow the agency to continue the sustainability commitment as it aims to create a safer, healthier and more livable environment for GCRTA employees and customers alike, while at the same time taking steps to reduce pollution and continually improve its environmental footprint. Taking action now will improve and preserve the great quality of living Northeast Ohioans have come to expect and enjoy.

SUSTAINABLE CLEVELAND 2019
TOGETHER, WE'RE BUILDING A THRIVING GREEN CITY ON A BLUE LAKE

SIGNATORY AMERICAN PUBLIC TRANSPORTATION ASSOCIATION
SUSTAINABILITY COMMITMENT

Significant Aspects and Impacts

The ESMS team analyzed CBMF's activities, products and services within the fenceline and identified all possible environmental aspects. The team identified 102 aspects for their impact on the Environment (Water, Air, Waste Management, Ground, Raw Materials) and regulations pertaining to the Aspect (Federal, State, Local, Other).

The Aspects were then evaluated based on ISO 14001 and the ESMS's established criteria with the following considerations:

- Potential for adverse environmental impacts
- Extent of those potential impacts
- Degree to which there were existing environmental controls in place
- Ability of the authority to manage and/or influence those impacts.

The ESMS team completed this evaluation by rating each of these aspects in a risk matrix with ratings (1 to 5) being assigned to the following:

- Environmental Significance
  - Scale: What is the relative size of the impact?
  - Severity: How bad is the adverse environmental consequence caused by the aspect or impact?
  - Probability: What is the likelihood that the aspect or impact will cause an adverse environmental impact?
  - Duration: How long will the environmental aspect or impact persist in the environment?

- Business Significance
  - Potential Legal and Regulatory Exposure: What is the likelihood and severity of incurring fines or civil liability?
  - Ease of Changing Impact: What are the technical difficulties of implementing the change and what will be the impacts to operational procedures?
  - Effect on Public Image: To what degree will the impact negatively influence the public's perception?
  - Aspect Management: Is the Environmental Aspect currently managed and to what degree?
  - Concern of Interested Parties: Consider the concerns of interested parties and cultural changes necessary to implement the change.
  - Cost of Changing Impact: What is the cost consideration of changing the impact?

Greater Cleveland Regional Transit Authority

Significant Aspects and Impacts

Aspects scoring 32 or higher have environmental and other risks that need to be managed better. The five highest scoring were identified as the significant aspects of CBMF's ESMS program. GCRTA's ESMS team focused on these significant aspects during the development and implementation phase:

Lead Acid Battery Management

Waste Cardboard Recycling

Office Paper Reduction & Recycling

Reduction in Consumption of Used Rags

Scrap Metal Recycling

Objectives and Targets

GCRTA's ESMS is designed to control CBMF's five significant aspects. The ESMS Team developed action plans with performance targets to measure progress toward goals set for each. The Action Plans extend through the end of 2015. The following tables highlight specific objectives, targets, performance indicators and action plans for each significant aspect. Performance is tracked on a quarterly basis, including reports to GCRTA's Board of Trustees and Executive Management Team. The action plans are updated on an annual basis.

Lead Acid Battery Management

Objective	Reduce bus battery usage and subsequent disposal through the use of improved maintenance practices and the purchase of Absorbed Glass Mat (AGM) technology batteries by 12/31/15.
Target	✦ AGM Batteries: Equip 50% of the big bus fleet with AGM batteries by 12/31/2015. ✦ Usage: Achieve 100% increase in battery life on AGM equipped buses. ✦ Usage: Achieve 5% reduction in battery replacement rate on flooded cell (current technology on buses.
Performance Indicator	✦ AGM Batteries: Comparison of buses equipped with AGM batteries v. flooded cell using Configuration Tree in Ultramain. ✦ Usage: AGM and flooded cell battery replacement data in Ultramain.
Action Plan	Strategy Procure and install AGM batteries on targeted fleets of buses utilizing Ultramain as a planning and tracking tool. ✦ Re-train Bus Equipment employees on battery related SOPs thereby reducing battery replacement rate by 100% on AGM batteries and 5% on flooded cell batteries.

Greater Cleveland Regional Transit Authority

Lead Acid Battery Management

Action Plan

Task List

- Identify fleets of buses targeted for AGM Battery installation
- Include AGM batteries in upcoming 40' and 60' bus specifications
- Review existing and develop new SOPs related to this action plan
- Determine current battery replacement rate by fleet type per mile run for all fleets.
- Re-train all Bus Equipment Maintenance employees on the use of Charging System Checklist SOP.
- Complete installation of AGM batteries by bus fleet type.
- On a monthly basis, generate reports from data within Ultramain indicating the percentage of buses equipped with AGM batteries and the battery replacement rate by fleet type per mile run for all fleets.
- Prepare and present semi-annual progress reports regarding this action plan for Executive Management review.

Waste Cardboard Recycling

Objective

Enhance and manage the cardboard recycling program.

Target

- Recycling: Increase the amount of waste cardboard recycled by 5% by 2015.
- Recycling: Enhance and manage the cardboard recycling program.
- Baseline: Establish baseline for monthly waste cardboard generated.

Performance Indicator

- Recycling: Perform weekly spot-checks of all waste containers to ensure proper segregation.
- Recycling: Analyze waste collection date to measure effectiveness.
- Recycling: Perform weekly spot-checks of cardboard recycling containers to ensure proper use.
- Baseline: Analyze waste collection data to establish a baseline.

Action Plan

Strategy

- Establish, identify and mark the locations designated for cardboard containers.
- Develop a cardboard recycling SOP for CBMF.
- Conduct training with all CBMF employees regarding the new SOP and their associated role, thereby increasing cardboard recycling collection by 5%.

Waste Cardboard Recycling

Action Plan

Task List

- Develop, review and approve an SOP for cardboard recycling at CBMF.
- Establish, identify, and appropriately mark the location of dumpsters to be used for the purpose of collecting cardboard for recycling.
- Train all CBMF employees who handle and are responsible for the disposal of packaging material.
- Establish a designated pickup day for vendor.
- Establish protocol for verification of the weighing of the cardboard, including the documentation and receipts required for accurate recordkeeping by CBMF.
- Perform weekly spot checks at CBMF cardboard recycling collection points and general trash dumpsters to ensure compliance with Cardboard Recycling SOP.
- On a monthly basis, measure the amount of cardboard recycled at CBMF to determine the effectiveness of action plan.
- Prepare and present semi-annual progress reports regarding this action plan for Executive Management Review.

Office Paper Reduction and Recycling

Objective

Enhance and manage the office paper recycling program and reduce the amount of waste paper generated.

Target

- Recycling: Enhance and manage the paper recycling program.
- Baseline: Establish baseline for monthly waste paper generated.
- Reduction: Once a baseline is established, reduce the amount of waste paper generated by 10% by 12/31/2015.

Performance Indicator

- Recycling: Perform weekly spot-checks of all waste containers to segregation.
- Recycling: Perform weekly spot-checks of paper recycling containers to ensure properly use.
- Baseline: Analyze waste collection data to establish a baseline.
- Reduction: Analyze waste collection data to measure effectiveness.

Office Paper Reduction and Recycling

Action Plan

Strategy

- Establish, identify and mark the locations for office paper recycling containers.
- Develop an office paper recycling SOP for CBMF.
- Conduct training with all CBMF employees regarding the new SOP, as well as the GCRTA Sustainability Policies and Procedures Manual.
- Increasing office paper recycling collection as a percentage of office paper purchased.
- Establish a baseline for office paper waste generation and then reduce the amount of waste office paper generated at CBMF by 10%.

Task Items

- Develop, review and approve an SOP for office paper recycling at CBMF.
- Establish, identify, and appropriately mark the location of waste office paper recycling containers at CBMF.
- Determine current CBMF office paper usage through Procurement/ Inventory
- Train all CBMF Employees on the use of the Office Paper Recycling SOP and the GCRTA Sustainability Policies and Procedures Manual.
- Establish protocol for verification of the weighing of waste office paper, including the documentation and receipts required for accurate recordkeeping by CBMF.
- Establish protocol for verification of the weighing of waste office paper, including the documentation and receipts required for accurate recordkeeping by CBMF.
- Establish a monthly baseline for the amount of waste office paper generated at CBMF.
- Determine current CBMF waste office paper recycling rate (amount recycled/amount purchased)
- Perform weekly spot checks of paper recycling containers to ensure proper use.
- On a monthly basis, measure the amount of office paper recycled at CBMF to determine effectiveness of action plan.
- Prepare and present semi-annual; progress reports regarding this action plan for Executive Management Review.

Greater Cleveland Regional Transit Authority

Reduction in Consumption of Used Rags

Objective	Reduce cloth rag consumption, thereby reducing waste sent to landfill.
Target	✦ Reduce the amount of cloth rages consumed at CBMF by 10% by 12/31/2015.
Performance Indicator	✦ Review monthly rag usage data from Ultramain.
Action Plan	Strategy ✦ Develop an SOP instructing CBMF employees on ways to reduce the consumption of cloth rags. ✦ Conduct training with all CBMF employees regarding the new SOP and their associated role, thereby reducing cloth rag consumption by 10%.
	Task List ✦ Determine average annual cloth rag consumption rate for the past 3 years. ✦ Develop, review and approve an SOP identifying means of reducing cloth rag consumption at CBMF. ✦ Train CBMF employees on their role in the Reduction in the Consumption of Rags SOP. ✦ On a monthly basis, measure cloth rag consumption rate for CBMF to determine the effectiveness of action plan. Prepare and present semi-annual progress reports regarding this plan for Executive Management Review.

Scrap Metal Recycling

Objective	Enhance the scrap metal recycling program.
Target	✦ Increase the amount of scrap metal recycled by 5% by 12/31/2015. ✦ Enhance and manage the scrap metal recycling program.
Performance Indicator	✦ Review monthly rag usage data from Ultramain.
Action Plan	Strategy ✦ Establish, identify and mark locations for the collection of all recyclable scrap metal. ✦ Develop a scrap metal and recycling SOP for CBMF. ✦ Conduct training with all CBMF employees regarding the new SOP and their associated roles

Greater Cleveland Regional Transit Authority

Scrap Metal Recycling

Action Plan

Task List

- Develop, review and approve an SOP for scrap metal recycling at CBMF.
- Establish, identify and mark the location of collection sites to be used for the purpose of collecting scrap metal for recycling.
- Train all CBMF employees who handle scrap metal on the CBMF Metal Recycling SOP.
- Establish a designated pick up day for vendor.
- Establish protocol for verification of the weighing of the scrap metal, including the documentation and receipts required for accurate recordkeeping by CBMF.
- Perform weekly spot checks of scrap metal collection points and general trash dumpsters to insure compliance with Metal Recycling SOP.
- On a monthly basis, measure the amount of scrap metal collected at CBMF (all types) to determine effectiveness of action plan
- Prepare and present semi-annual progress reports regarding this plan for Executive Management Review.

Benefits of Adopting an ESMS

GCRTA takes prides in its integrated performance management philosophy. It views development and implementation of an ISO 14001 certified Environmental and Sustainability Management System as a logical progression in order to continually improve its performance-driven culture, which concentrates on customer-focused leadership, efficient delivery of services, action, and accountability while improving our environmental footprint on the Greater Cleveland region.

GCRTA considers its ESMS as a tool to help manage its environmental impacts efficiently and improve its environmental stewardship across the entire Authority. The ESMS provides both environmental and business benefits.

Environmental benefits include:

- Reduction in the number, type and severity of compliance incidents
- Improved relationships with local, state and federal regulators
- Pollution and waste quantity reductions
- Recovered resources
- Reduction of air emissions
- Reduction of the amount of oil in waste water
- Reduced greenhouse gas emissions and increase energy efficiency
- Reduced water consumption
- Reduced storm water impacts
- Reduced consumption of cloth rags
- Reduced lead acid cell battery consumption
- Increased recycling of scrap metals

Greater Cleveland Regional Transit Authority

Benefits of Adopting an ESMS

Business benefits include:

- Seamless integration with other programs aimed to measure performance and operational efficiencies
- Increased accountability, including but not limited in scope to environmental and sustainability initiatives
- Enhanced public image with the general public
- Reduced regulatory oversight
- Improved employee awareness and efficiency of potential environmental impacts of work activities
- Improved internal and external communications and cooperation through training and outreach
- Reinforcement of environmental and sustainability processes currently in place
- Proactive management systems for environmental issues that can be replicated to GCRTA's other major facilities and key stations
- Captured employee knowledge ("institutional memory") prior to retirements
- Important documentation of standard operating procedures and record keeping
- Institutionalization of best practices and permanent improvements to facility operations
- Increased fuel economy
- Increased management awareness of environmental issues

Resources

The Greater Cleveland Regional Transit Authority has devoted the following staff time to undergo training (including travel cost/time) and develop the ESMS from July 2013 through December 2014.

GROUP	ESTIMATED HOURS
ESMS Core Team	1,468 hours
Other Staff	522 hours
Total	1,990 hours

Cost Savings and Avoidance

The deadline for achieving targets associated with each significant aspect is 12/31/15. While the GCRTA anticipates cost savings and costs avoidance resulting from the control and management of CBMF's five significant aspects, it is still in the process of measuring, monitoring and collecting data required in order to project expected benefit to the Authority's bottom line. Therefore, cost savings and cost avoidance data are projected annual returns. Actual numbers will be available the first quarter 2016.

Greater Cleveland Regional Transit Authority

ASPECT	EFFICIENCY	2014 COST SAVINGS	2014 COST AVOIDANCE	2015 PROJECTED COST SAVINGS/ AVOIDANCE
Lead Acid Bus Battery Management	Reduce bus battery usage and subsequent disposal through use of improved maintenance practices and the purchase of Absorbed Glass Mat (AGM) technology batteries.	$37,000	$27,800	$107,600
Waste Cardboard	Enhance and manage the cardboard recycling program.	$0	$1,600	$1,700
Waste Paper	Enhance and manage the office paper recycling program and reduce the amount of waste paper generated.	$0	$1,600	$1,600
Used Rags	Reduce cloth rag consumption, thereby reducing waste sent to landfill	$1,000	$0	$1,000
Scrap Metal	Enhance and manage the scrap metal recycling program.	$8,200	$9,000	$18,100
Total Prospective Cost Savings & Cost Avoidances		**$46,200**	**$40,000**	**$130,000**

Greater Cleveland Regional Transit Authority

Next Steps

The next steps GCRTA will take include:

- Execute all elements of the ESMS that officially went "live" at CBMF on January 1, 2015.
- Continue to monitor, measure and control CBMF's aspects
- Analyze data collected and provide dashboard/scorecard results to GCRTA employees, customers, stakeholders and the public
- Continue training and development initiatives for CBMF staff, as well as General Awareness training for all GCRTA Staff
- Implement and continue to manage CBMF contractors with respect to ESMS awareness and requirements
- Continue to monitor ESMS roles and responsibilities
- Ensure ESMS Team complies with established review cycles
- Obtain and maintain ISO 14001 Certification for GCRTA's CBMF facility
- Use the ESMS framework to improve environmental compliance and awareness throughout the organization
- Begin ISO 14001 implementation at Hayden and Triskett bus facilities.

Management Commitment

The Greater Cleveland Regional Transit Authority is committed to being a Champion for Sustainable Transportation. We recognize that reducing and, where possible, eliminating the environmental impacts of our activities is an important part of our mission. We recognize that efficient resource use and protection of the environment are vital for the continued success of our operations. We will strive to be a leader among transit authorities in achieving environmental excellence and will work with our employees to follow sustainable principles.

"Seeking ISO 14001 certification will help us continue to implement and improve our Sustainability Program and assist in our goals to improve our business. Focusing on environmental initiatives such as emissions reduction, air quality improvement, waste diversion and determining and reducing RTA's carbon footprint is certain to improve the environment for the community we serve while providing long-term economic benefits to the Authority."

Joseph A. Calabrese
Chief Executive Officer and
General Manager

For more information about Greater Cleveland RTA's ESMS Program, please contact:

Michael J. Schipper, P.E.
Deputy General Manager-Engineering and Project Management
mschipper@gcrta.org
216.566.5084

Detailed scoring on next page.

Greater Cleveland Regional Transit Authority

Final Audit

This section compares the percentage of requirements met, partially met and not met with respect to meeting the requirements of an ESMS as specified in the ISO 14001:2004 standard. The following scores are the result of the ESMS audit presented in this report:

Percent meeting all requirements **"Overall Score"** **99%**
Percent of requirements **"Met"** **99%**
Percent of requirements **"Partially Met"** **1%**
Percent of requirements **"Not Met"** **0%**

The ISO 14001:2004 standard elements of an EMS		Overall (%)	Met (%)	Partially Met (%)	Not Met (%)
4.1	General Requirements	100	100	0	0
4.2	Environmental Policy Requirements	95	90	10	0
4.3.1	Environmental Aspects Requirements	100	100	0	0
4.3.2	Legal and Other Requirements	100	100	0	0
4.3.3	Objectives, Targets and Programs Requirements	100	100	0	0
4.4.1	Resources, Roles, Responsibility and Authority	100	100	0	0
4.4.2	Competence, Training and Awareness	93	86	14	0
4.4.3	Communication	100	100	0	0
4.4.4	EMS Documentation	100	100	0	0
4.4.5	Control of Documents	100	100	0	0
4.4.6	Operational Control	100	100	0	0
4.4.7	Emergency Preparedness and Response	100	100	0	0
4.5.1	Monitoring and Measurement	100	100	0	0
4.5.2	Evaluation of Compliance	100	100	0	0
4.5.3	Nonconformity, Corrective Action and Preventive Action	100	100	0	0
4.5.4	Control of Records	100	100	0	0
4.5.5	Internal Audits	100	100	0	0
4.6	Management Review	100	100	0	0

FTA EMS INSTITUTE
cota.vt.edu/ems

Hillsborough Area Regional Transit Authority

Hillsborough County, Florida
Case Study

Hillsborough Area Regional Transit Authority
Hillsborough County, Florida

Profile

Hillsborough Transit Authority (HART) was created and has been in operation since October 3, 1979; it is located in Hillsborough County, Florida. The members include the Cities of Tampa, Temple Terrace, and unincorporated Hillsborough County. HART's mission is "our team is dedicated to provide excellent customer service while building solutions to support Hillsborough County's needs now and into the future."

The agency is governed by a Board of Directors comprised of twelve representatives appointed by the governing bodies of its member jurisdictions and the governor of the state of Florida. HART works collaboratively with the Metropolitan Planning Organization (MPO) on transportation planning issues in Hillsborough County. HART has a seat on the MPO Board and participates in the public involvement process for the Long Range Transportation Plan update.

HART provides services within a 243 square mile service area in the City of Tampa and Hillsborough County on thirty-six local, circulator and limited express routes and ten express routes with convenient schedules at approximately 3,194 bus stops. Two of the express routes serve adjacent counties: Pinellas County to the west and Pasco County to the north. HART operates service with 187 transit buses and 48 paratransit vans and is the contract operator of the Tampa Historic Streetcar.

HARTs budget is comprised of four major components: Bus Service, Paratransit Service, Streetcar Service and Capital Projects. HART's adopted budget for FY20 is $83,898,391

HART's FY2014 Adopted Budget is composed of the following revenue sources: Ad Valorem (Property Taxes), Fares and Passes, Federal Formula, Other (Federal/State/Local) Grants, and Other Revenue. Operating expenditures are $65,813,577.

Hillsborough Area Regional Transit Authority
Hillsborough County, Florida

Fast Facts

Service Area:	243 Square Miles
Population: Hillsborough Countywide Unincorporated Incorporated	 1,276,410 869,181 (68.1%) 407,229 (31.9%)
Services:	MetroBus; Transit Buses; Paratransit Vans
Routes:	42 Routes ✦ 29 Local ✦ 1 MetroRapid ✦ 7 Express ✦ 5 limited Express Routes
Bus Stops:	3,194
Shelters:	355
Buses:	187
Paratransit:	48
Park and Rides:	21
Facilities:	✦ 21st Avenue Operations and Maintenance Facility ✦ 21 Park and Ride Lots ✦ Marion Street Transit Parkway ✦ Ybor Station ✦ Dick Greco/Southern Transportation Plaza Customer Service at City Hall (City of Tampa)
Transit Centers:	✦ University Area Transit Center (UATC) ✦ Marion Transit Center (MTC)
Transfer Centers:	✦ Britton Plaza ✦ Westshore Plaza ✦ Northwest Hillsborough ✦ West Tampa ✦ NetPark ✦ Yukon ✦ Westfield Shoppingtown Brandon ✦ University Mall ✦ Southshore Regional Service Center
FY2014 Ridership:	✦ Bus and Flex – 14,732,525 ✦ Paratransit – 141,219 ✦ Streetcar – 295,916
FY2014 Weekly Boarding's:	 50,800 passengers on fixed and flex routes; 480 passengers on the paratransit system

Hillsborough Area Regional Transit Authority
Hillsborough County, Florida

HART's organizational goals measure performance in six areas including Mean Distance Between Failure (MDBT), ridership, cost of revenue mile and on-time performance; these performance measures are the same as industry standard measures that are reported via the Federal Transit Administration's (FTA) National Transit Database (NTD). Staff provides regular updates to the HART Board of Directors on the status of these goals on a monthly basis and is in the process of revisiting these goals to include environmental measures in future reporting.

Fenceline

The Environmental & Sustainability Management System (ESMS) Fenceline for Hillsborough Transit Authority is located at 4305 E. 21st Avenue, Tampa, FL 33605. It encompasses a total of 20.57-acres and includes the Administration/ Operations building, two vehicle bus washes, the Heavy Maintenance and Preventative Maintenance buildings which house maintenance bays where oil changes and engine repairs are managed, a body and tire shop, a diesel fuel and CNG dispensing island supported by four 20,000-gallon fuel tanks and CNG compressors and a stores warehouse. There are currently 187 buses (165 diesel, 22 CNG) for fixed and 8 CNG vans for flex routes and 48 CNG paratransit vans being serviced and maintained with approximately 648 employees working at the facility.

Compressed Natural Gas (CNG) Fueling Compressors and Equipment

The HART building areas located within the Fenceline are divided into:

Administration/Operations Building	**24,863 sq. ft.**
Preventative Maintenance Building	**17,741 sq. ft.**
Heavy Maintenance Building	**56,421 sq. ft.**

ESMS Core Team

HART's ESMS Core Team is comprised of varied talents throughout the organization and has been, and is, the linch-pin and foundation of the program. The Core Team is directing the implementation of the project, with several expert in-house sub committees working to on specific tasks and deliverables. The Core Team developed goals and measurements built around the core objectives of sustainability, the ESMS program and the ISO 14001 Standard, and will be accountable for reaching those goals. The ESMS goals will direct training, while focusing and harnessing our collective energies for maximum sustainability results. Broad, general goals and outcomes are outlined further in this Case in each action plan.

The ESMS Core Team was chosen based on the following qualities:

- Commitment to the environment
- Ability to communicate with others
- Field experience and knowledge of the various agency operations
- Creativity and energy
- Open to feedback from all levels of the organization
- Ability to "see the forest through the trees"

Meet our ESMS Core Team
(Left to Right):

Top Row
Thomas Jones, ESMS Coordinator
Lynda Crescentini, Project Manager
Rickey Kendall, Sr. Manager of Risk & Environmental Safety

Bottom Row
Jeffrey Seward, CFO & ESMS Management Representative
Dale Smith, Manager of Facilities

The mission of the ESMS Core Team is to:

- Design and maintain the ESMS and ISO 14001 framework
- Identify objectives through open discussion of issues with each other and employees
- Initiate work groups who help define and achieve targets that support agency sustainability objectives

Key Drivers for Adopting an ESMS

HART is working to protect the environment by avoiding contamination of air, soil, and groundwater and also working to increase the Tampa Bay's ecological lifespan. Public transportation is a vital and integral component of our community. It is inherently one of the greenest forms of transportation and offers a mechanism that can be shared by many travelers who would otherwise travel as a single car rider. In addition, transit agencies typically operate in densely populated regions, with high visibility and broader public exposure. Even though transit vehicles only encompass a small percentage of the total number of vehicles operated in the United States, the type and management of public transit vehicles and fleets have the ability to use alternative fuel sources as they do not need to rely on commercial gas stations. Moreover, green building practices have become more prominent in the transit industry as green building standards, practices and services have become more commonplace. As a transit agency, HART realizes that sustainable systems and applications make effective business, public, and environmental sense by balancing the agency's fiscal, community, and environmental requirements.

As government representatives and public stakeholders, HART understands it has a role and obligation in supporting a sustainable community as we are responsible for listening to the community and supporting its values. Sustainability was established as a priority at HART by committing to, establishing and adopting an ESMS. The ESMS will provide a powerful process for our organization to more effectively achieve and manage our environmental responsibilities, resulting in improvement of our overall environmental performance and reducing unnecessary costs. This validates our commitment to sustainability and positions us well to lead efforts to reverse the damaging effects of environmental degradation and climate change within our jurisdiction, and to influence and encourage others to follow our example.

HART has regulatory authority over many sources of environmental impact, including building codes, air quality monitoring, resource protection, and procurement and transportation policies. The agency can also incentivize sustainable operating practices.

This doesn't suggest we do it all or lead it all — there is a rich palette of opportunities for sharing the effort, and we can use our collective energy and intellect to evolve the best agency solutions. The path to sustainability relies heavily upon the interconnectedness and interdependency of people and systems — and the process will be iterative. We don't have the answers today; we do have the will to discover them over time.

Our strategic initiatives, comprehensive ESMS policies, and business plans give us the tools to navigate, shepherd the discussions and lead with integrity as an organization. We can share what we know, initiate community dialogue and bring those who can help lead the change into the discussion. By doing so, we nurture the environment for change and help facilitate the movement toward a sustainable future.

Hillsborough Area Regional Transit Authority
Hillsborough County, Florida

Key Drivers for Adopting an ESMS

HART has a number of ESMS programs which are currently under development. HART has implemented the ESMS system to ensure that environmental considerations are built into the existing management framework, and that it becomes part of the way we conduct daily business. It has proven to be a tool that has enhanced our fulfillment of our environmental responsibilities, reduce our overall waste, conserved water and energy, and reduce the liability risks associated with environmental impacts. HART recognizes that reducing negative impacts on the environment is important to the citizens of the Tampa Bay region, and has committed to maintaining the environment by developing an Environmental Policy. This policy is used as a guiding document for all planning and action related to the EMS.

An essential step in moving HART forward will be our continual improvement towards sustainability initiatives. Incorporating and using ISO 14001 standards as an example will help us understand and define this commitment more clearly.

Significant Aspects and Impacts

The ESMS Core Team examined all activities within and outside of the Fenceline and identified all possible environmental aspects. One hundred seventy (170) aspects were identified and then evaluated based on the ISO 14001:2004 Standard. The Core Team used several criteria to identify environmental aspects material to HART operations. These criteria were grouped into two categories as shown below:

Environmental Significance

- Severity of Impact
- Probability
- Duration

Environmental Significance

- Legal and Regulatory Exposure
- Ease of Change/Technology Considerations
- Effect on Public Image
- Effect on Sustainability
- Concerns of Interested Parties

The top five aspects with the most potential for an environmental impact were deemed significant with three significant aspects selected to focus and control to initiate the ESMS program. Aspects with a total rating of 30 points or more were deemed significant.

1 Activity/ Product/Service

Diesel Fuel Delivery

Aspect

Petrolium Product

Impact

Soil and Groundwater Pollution

The main HART fleet facility is home to four 20,000 gallon diesel fuel above ground storage tanks (AST's). HART takes delivery of diesel fuel 6 times per week from two different service providers. Because of the frequency of delivery and the volume of diesel fuel delivered, this activity poses a significant threat to both environmental and business concerns. HART has developed a comprehensive Standard Operating Procedure (SOP) and accompanying Work Instruction (WI) to provide controls for this activity. Additionally, HART Inventory Control Personnel (ICP) is required to stand watch during fuel delivery/off-loading. Included in the WI are detailed guidelines on how to shut down the pump systems located on each of our service providers delivery tankers as well as how to disable the HART facility fuel system in the event of an emergency or environmental release. HART is in the process of conducting training with its ICP and fuel delivery service providers to ensure a high-level of task specific competency. The goal is to reduce the risk and the potential of safety complacency associated with this activity.

Hillsborough Area Regional Transit Authority
Hillsborough County, Florida

2 Activity/ Product/Service
Fueling Operations

Aspect
Petrolium Product

Impact
Soil and Groundwater Pollution

On average in 2014, HART fleet operations consumed approximately 190,000 gallons of diesel per month. Fueling operations are primarily conducted at night over the course of an 8-hour shift. HART's fueling area is equipped with a trench drain system that is connected to an oil/water separator. The trench drain system serves as emergency containment in the event of a spill in the fueling area. The HART ESMS was used to develop comprehensive emergency response procedures in the event of an environmental release.

3 Activity/ Product/Service
Fluid Transfer

Aspect
Petrolium, Oils, Lubricants, & Detergents

Impact
Soil and Groundwater Pollution

It is sometimes necessary to transfer liquids between our Heavy Maintenance and Preventative Maintenance buildings for the purpose of restocking bulk fluid containers and tanks. A forklift is used to move 55-gallon drums when executing this activity. The stormwater system located on-site feeds into off-site stormwater conveyances that discharge directly into Tampa's McKay Bay. Stormwater conveyances are located at several points along the route between the two buildings, therefore safely transporting fluids around the HART 21st Ave. facility is a top priority. The HART ESMS was used to develop process improvements such as requiring the use of a flagman and forklift drum carrier when executing this activity. Additionally, processes where implemented that limit this activity to "day light" and "week day" working hours. This is important because there are lower visibility conditions at night as well as smaller work crews (work crews are smaller on weekends as well). Putting these controls in place improve performance and reduce the potential of environmental impact when executing this activity.

4 Activity/ Product/Service
Fleet Operation

Aspect
Fleet Vehicle Emmissions

Impact
Emmissions from Greenhouse Gases (GHG) and Criteria Air Polluntants

Greenhouse gas (GHG) & Criteria Air Pollutant emissions contribute to climate change and impaired air quality. The HART ESMS is being used to drive efficiency improvements that will reduce our carbon footprint. Due to lower carbon dioxide and nitrogen oxides emissions, Compressed Natural Gas (CNG) buses and vans help mitigate GHG emissions. HART has already transitioned the majority of its van operations to CNG from diesel and is currently in phase I of a plan to place 44 CNG buses into service. Transitioning from diesel fuel to CNG improves both environmental and economic performance and will be key to providing sustainable transit to the Tampa Bay area.

5 Activity/ Product/Service
Cleaning of Oil/Water Seperator System

Aspect
Fleet Vehicle Emmissions

Impact
Emmissions from Greenhouse Gases (GHG) and Criteria Air Polluntants

There are two Oil/Water Separator (OWS) systems located at the HART 21st. Ave facility. Over time the systems accumulate oily sludge & oily water and need to be evacuated. The OWS systems are pumped out by a third-party service provider twice a year or more frequently if required. The HART ESMS was used to implement & maintain processes that ensure this waste stream is properly characterized and disposed of.

Objective and Targets

Objectives and Targets were identified and determined by the ESMS Core Team based on current practices, key issues and concerns, what we wanted to achieve, and the identification of the significant aspects. Goals were applied not only by function, but organization-wide, dependent on where improvement is needed and could be achieved. The goals were used as the basis for selecting performance measures for each goal area, and understanding that our objectives needed to be specific and measureable. In order to do that, the ESMS Core Team prioritized the sustainability goals towards areas where the most meaningful impact would be made. A thorough compilation and analysis of data was performed to develop those measureable objectives and move toward meeting our goals, especially for the planning and tracking of projects and outcomes. During the evaluation process, the ESMS Core Team considered HART's role in affecting outcomes and the influence of factors such as promoting energy conservation, improving the quality of life, vehicle technologies, and other issues.

The ESMS Core Team then established a series of objectives and targets with expected benefits for three Action Plans. The initial Action Plans outline the following:

CARBON EMISSIONS

Objective: Reduce Scope 1 annual carbon emissions from fleet operations (revenue only; excluding stationary sources & trolley cars) by 4,285 metric tons by end of CY2018 through the transition of fuel sources from diesel to compressed natural gas (CNG) and implementing strategies to reduce deadhead mileage.

Baseline: HART's carbon emissions baseline was defined by preparing a comprehensive analysis of Hillsborough Transit Authority's revenue fleet vehicles. HART chose calendar year 2013 as its baseline.

Target	Performance Indicator	Projected Completion Date	Performance Indicator
1. Design and build CNG fueling station and modify maintenance facilities for CNG maintenance	**Metric tons of CO2-equivelent emissions produced** (Data Source: gallons of diesel fuel consumed, gallons of gas consumed, and diesel gallon equivalent [DGE] of CNG fuel consumed)	1. April 2014	Construction completed; in-service testing and training completed Spring 2014.
2. Order and place into service 20 paratransit CNG vans		2. April 2014	All CNG Vans are in service
3. Order and place into service ~~8 flex~~ CNG vans		3. April 2014	
4. Order and place into service 22 CNG buses		4. March 2015	**February 2014** - Purchase of 22 CNG buses approved. **March 2015** - All 22 Buses arrived as scheduled and are currently being placed into service.

Hillsborough Area Regional Transit Authority
Hillsborough County, Florida

ELECTRICITY CONSUMPTION REDUCTION

Objective: Reduce electricity consumption by 5% by end of CY2018

Baseline: HART's consumptive use baseline for energy was defined by preparing a comprehensive analysis of all Hillsborough Transit Authority's facilities. HART chose calendar year 2013 as its baseline year.

Target	Performance Indicator	Projected Completion Date	Performance Indicator
1. Conduct consumptive use inventory for all facilities.	**Total energy consumed** (Data Source: kWh of energy used)	1. FY2010 - FY2013 (Complete) 01/30/2014	HART intends to use CY2013 as its baseline.
2. Conduct energy audit at all HART facilities.		2. 3/21/14 21st. Ave Facility	Tampa Electric Company (TECO) conducted a comprehensive energy audit.
3. Develop an energy use strategy based off of existing consumption and recommendations generated from utility service provider field audits.		3. TBD	
a. Determine scope of strategy		a. TBD	
b. Identify inefficiencies and targets		b. TBD	
c. Plan which projects or approaches must be implemented in order to meet long term energy use reduction goals		c. TBD	
4. Educate HART staff		4. TBD	

WATER CONSUMPTION REDUCTION

Objective: Reduce water consumption levels 2% by end of CY2018

Baseline: HART's consumptive use baseline for water was defined by preparing a comprehensive analysis of all Hillsborough Transit Authority's facilities. HART chose calendar year 2013 as its baseline year.

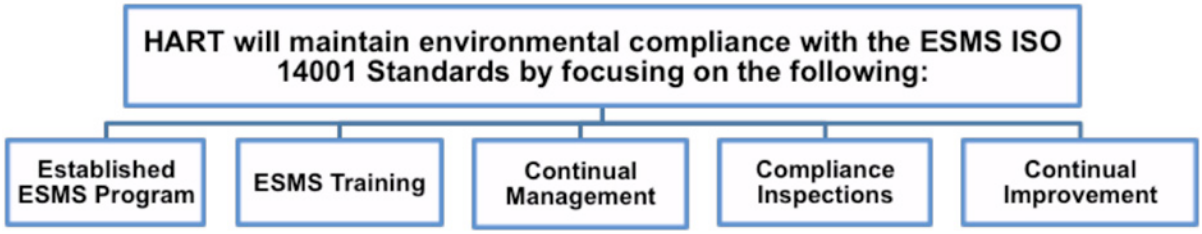
Target	Performance Indicator	Projected Completion Date	Performance Indicator
1. Conduct water audits for all HART locations	**Water consumption** (Data Source: gallons of water consumed)	1. FY2010 - FY2013 (Complete) 01/30/2014	Consumptive use data was collected from utilities service provider bills.
2. Develop a water use strategy based off of existing water consumption.		2. TBD	
a. Determine scope of strategy		a. TBD	
b. Identify inefficiencies and targets		b. TBD	
c. Plan which projects or approaches must be implemented in order to meet long term energy use reduction goals		c. TBD	
3. Educate HART staff		3. TBD	

Hillsborough Area Regional Transit Authority
Hillsborough County, Florida

Benefits of Adopting an ESMS

The need to continue our transition from a public transit agency to an environmentally sustainable transit agency is an organizational imperative if we are to meet the substantial environmental goals we have established. In order to have credibility in our interactions with the community and others regarding their support for our adoption of sustainable strategies, it is essential that we "walk the talk."

HART is committed to complying with all local, state, and federal environmental regulations that apply to its daily activities. These ESMS regulatory requirements are met by operating with integrity, credibility, and accountability.



While the benefits from an implemented ESMS within HART are numerous, reducing our environmental footprint and the way we interact with the environment is paramount. HART believes that benefits will include:

- demonstrating HART's continued commitment to the environment
- commitment to encouraging, achieving and maintaining compliance with legal and environmental regulations
- reduce the risk of causing environmental impacts
- improve and enhance environmental performance and increase efficiencies
- ability to better manage environmental risks, currently and in the future
- continue innovative and forward thinking approach to the community
- move towards "greener" ways of working
- potentially reduce public liability insurance costs
- reduce operational costs through sustainability program impacts
- reduction of waste by introducing recycling programs
- minimizing transportation-related carbon emissions
- renewable energy and energy efficiency
- achieve/improve employee awareness of environmental issues and responsibilities

Resources

HART estimates that the following staff resources have been dedicated to the ESMS training (including travel cost and time) to develop the ESMS Program from the period between August 2013 – June 2014.

Most of the resources and effort was expended on the development of the ESMS.

HOURS (Including Training) Committed to ESMS Development and Implementation	Quarter 1 Aug. 2013 Sept 2013	Quarter 2 Oct 2013 Dec 2013	Quarter 3 Jan 2014 Mar 2014	Quarter 4 April 2014 June 2014	Total Hours
ESMS Core Team	179	448	179	722.50	2,111
Sub-Committee(s)/ Other Personnel	27	16.5	27	247	357
Total Hours	206	464.5	206	960.5	2,468

Cost Savings and Avoidance

While HART has not been able to measure cost savings and avoidance from our current significant aspects due to the program being in its infancy HART, by using past and current conditions as a baseline, anticipate that by focusing on the aspects chosen will result in substantial cost savings for HART over time.

Our initial target(s) should realize cost savings through reductions in:

- Carbon Emissions
- Water Consumption; and
- Electricity Consumption

We believe we have a solid foundation for quantifying cost reduction efforts and plan to continue monitoring and measuring our programs and progress to quantify cost savings and avoidance more directly.

Next Steps

By taking inventory of our past accomplishments, evaluating the outcomes, continuing to establish sustainability performance drivers, engaging the community, enhancing partnerships, and involving HART employees, HART can better create its own future as well as help to influence sustainability efforts beyond our borders.

As the ESMS Core Team continues its momentum to refine its processes, sustainability efforts will continue to broaden throughout HART understanding that this is a long-term commitment for continual and ongoing improvements. HART has defined sustainability goals, devised action plans and has begun to implement them. It means accelerating our action plans to include employees at all levels within the organization into a mode of sustainable operations.

As part of that effort, HART will seek ISO 14001 certification in the summer of 2015 as certification will ensure a comprehensive and successful ESMS at HART.

In September of 2014 HART exhibited commitment to its obligation of enhanced environmental performance by devoting resources towards creating and staffing a full time ESMS related position, which is the ESMS Coordinator. The ESMS Coordinator is responsible for the planning, development and implementation of all of the HART ESMS Programs; and, for developing and providing coordination and maintenance of procedures, updates, documents, records, and databases for the ESMS. The ESMS Coordinator reports directly to the ESMS Executive Management Representative.

Go Live

October 1st 2014 marked the official launch date of HART's ESMS program. All of our initial ESMS documentation was released across the agency via ESMS Connect, which is a SharePoint platform that is accessible by our entire workforce via HARTS's Intranet.

In November of 2014, HART conducted an emergency drill related to our 2nd & 3rd significant aspect, Spill Control & Fluid Transfer. The drill simulated a spill during the activity of transferring fluids from the Heavy Maintenance (HM) Building to the Preventative Maintenance (PM) Building at our 21st Ave. facility within HART's ESMS Fenceline. The objective of the drill was to test the Emergency Preparedness and Response processes related to this specific activity. As facility personnel responded to the simulated spill, they were observed by two auditors (HART ESMS Core Team Members) who evaluated their individual competency levels against the standards set forth in our corresponding Standard Operating Procedures (SOPs) and Work Instructions (WIs). The auditors also examined the quality of HART's Emergency Spill Response procedures and processes themselves. Below are several Corrective Actions that are a result of conducting the emergency drill:

- Developed fluid movement restrictions (Daylight and weekday working hours)
- Developed Spill Report Form consistent with regulatory requirements
- Remove obsolete versions of legacy Spill Report Form

Hillsborough Area Regional Transit Authority
Hillsborough County, Florida

Management Commitment

Hillsborough Transit Authority is committed to protecting our natural resources by integrating, promoting and providing a sustainable transportation system that supports a sustainable and healthy community. As a public agency we are responsible for ensuring that all necessary actions are taken to integrate environmental accountability into our day-to-day decision making and long term planning, by optimizing our approach and ensuring that what we do makes a difference – today, tomorrow and for life.

HART's Executive Management Team is committed to integrating sustainability as part of HARTs daily practices, leadership principles and long-term objectives to meet the transportation needs of the community we serve. We are working hard to preserve and enhance the community we love and are invested in by creating a paradigm shift that ensures its quality and success well beyond the time of our service.

HART's executive management has demonstrated its commitment by establishing an ESMS and adopting an Environmental Policy. *"Hillsborough Transit Authority (HART) believes that we have a responsibility to care for and protect the environment in which we operate. HART is fully committed to protecting and improving our environmental performance across all of our business activities by establishing, integrating and implementing the environmental policy framework that will guide HART in promoting the use of sustainable transportation and reduce negative environmental impacts."* Similarly, as part of that commitment, executive management has ensured that the ESMS Core Team and its projects have the resources necessary to implement a successful ESMS and sustainability programs.

For more information about HART's ESMS program, please contact:
Thomas Jones, ESMS Coordinator
1201 E. 7th Ave. Tampa, FL 33605
Phone: (813) 384-6251
jonest@gohart.org

Detailed scoring on next page.

Final Audit

This section compares the percentage of requirements met, partially met and not met with respect to meeting the requirements of an ESMS as specified in the ISO 14001:2004 standard. The following scores are the result of the ESMS audit presented in this report:

Percent meeting all requirements **"Overall Score"** **98%**
Percent of requirements **"Met"** **96%**
Percent of requirements **"Partially Met"** **4%**
Percent of requirements **"Not Met"** **0%**

The ISO 14001:2004 standard elements of an EMS		Overall (%)	Met (%)	Partially Met (%)	Not Met (%)
4.1	General Requirements	100	100	0	0
4.2	Environmental Policy Requirements	100	100	0	0
4.3.1	Environmental Aspects Requirements	100	100	0	0
4.3.2	Legal and Other Requirements	100	100	0	0
4.3.3	Objectives, Targets and Programs Requirements	100	100	0	0
4.4.1	Resources, Roles, Responsibility and Authority	90	80	20	0
4.4.2	Competence, Training and Awareness	86	71	29	0
4.4.3	Communication	100	100	0	0
4.4.4	EMS Documentation	100	100	0	0
4.4.5	Control of Documents	100	100	0	0
4.4.6	Operational Control	88	75	25	0
4.4.7	Emergency Preparedness and Response	100	100	0	0
4.5.1	Monitoring and Measurement	100	100	0	0
4.5.2	Evaluation of Compliance	100	100	0	0
4.5.3	Nonconformity, Corrective Action and Preventive Action	100	100	0	0
4.5.4	Control of Records	100	100	0	0
4.5.5	Internal Audits	100	100	0	0
4.6	Management Review	100	100	0	0

FTA ESMS INSTITUTE
cota.vt.edu/ems

Kitsap Transit
Connecting Communities

Kitsap Transit

Bremerton, Washington
Case Study

Kitsap Transit
Bremerton, WA

Profile

Kitsap Transit is a Public Transportation Benefit Area Authority providing public transportation in Kitsap County, Washington since 1983. The agency carries nearly four million riders a year with a variety of transit services:

- Ninety-five routed buses, ranging from 22' to 40', operate on 42 bus routes.
- Forty ACCESS coaches provide door-to-door and curb-to-curb ADA service to the elderly and disabled.
- A unique 'Worker/Driver' program carries military and civil service personnel to military bases on 32 bus routes that operate like carpools.
- Kitsap Transit operates two foot ferry routes on Sinclair Inlet.
- Rideshare programs include 100 vanpools, eight SCOOT cars and a Regional Ridematch Program.

Kitsap County covers 566 square miles with a population of just over 250,000. The county is a bedroom community to Seattle and is home to four state ferry terminals that carry passengers between Seattle and our rural communities.

Kitsap Transit's administrative offices are adjacent to our multi-modal Bremerton Transportation Center in downtown Bremerton. Additional facilities include a centrally located primary Maintenance and Operations Base and two satellite operations bases. Kitsap Transit vehicles serve seven different transfer centers, a Bike Barn and a network of 24 park & ride lots.

Kitsap Transit
Bremerton, WA

Naval Base Kitsap (which includes Puget Sound Naval Shipyard, Keyport and Naval Submarine Base Bangor) is based in Kitsap County. Kitsap Transit works with the Navy to transport military and civil service personnel to the bases.

Kitsap Transit has a workforce of 385. The agency's 2014 operating budget was $31.2 million, with a capital budget of $23.2 million. Most of Kitsap Transit's funding comes from local sales tax revenue. Fare revenues cover 19% of operating costs and are collected with a regional electronic fare card system, ORCA.

Vehicles Operated

ACCESS Bus

Fixed Route Bus

Small Fixed Route Bus

PO to Brem. Foot Ferry

Fast Ferry RP1

Worker/Driver Bus

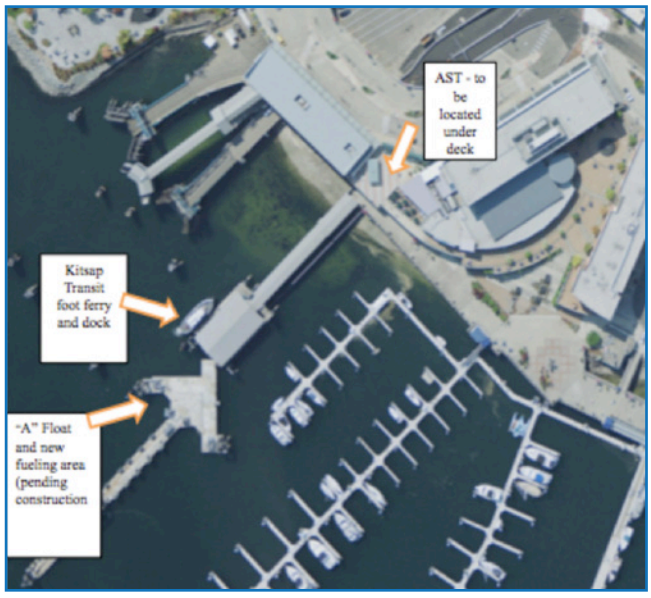
Kitsap Transit
Bremerton, WA

Fenceline

Charleston Base

200 Charleston Boulevard, Bremerton, Washington 98312

The ESMS fenceline for Kitsap Transit's Charleston Base covers over six acres and includes all of the area located between S. Charleston Boulevard to the west and Callow Avenue to the east. The southernmost boundary of this fence line is delineated by Rodgers Street. The area described therein includes all of the Kitsap Transit bus staging area, and three primary building structures that include a fueling & lubrication bay, a wash bay and an administrative, vehicle maintenance and inventory control building.



Foot Ferry

The fenceline for ESMS at the Bremerton Transportation Center will be an area located on the lower level, beneath the Washington State Ferry (WSF) terminal, between "A Float" and the WSF docking area. This ESMS designated fenceline will include the location of the yet-to-be-constructed Above Ground Storage Tank (AST) for vessel fueling, the above-water pipeline from AST to the "A Float" dock, the fuel dispensing pump located on the "A Float" vessel dock and all the water in between.

Kitsap Transit
Bremerton, WA

left to right: Jack Freer, Vici McDonald, Ellen Gustafson, Gordon Borgeson, Dennis Griffey, Phil Duryea

Core Team

Kitsap Transit's Environmental Sustainability Management System (ESMS) Core Team includes individuals representing various departments within the agency. Each has a long tenure at Kitsap Transit and is highly valued by all staff as the go-to members of their departments. Together, their unique responsibilities and experiences at Kitsap Transit will guarantee a successful ESMS program that will be accepted and respected by all employees.

The ESMS Core Team consists of:

- **Ellen Gustafson,** Operations Director (ESMS Senior Management Representative)
- **Jack Freer,** Operations Manager (ESMS Management Representative)
- **Dennis Griffey,** Maintenance Supervisor
- **Phil Duryea,** Worker/Driver Supervisor
- **Gordon Borgeson,** Facilities Supervisor
- **Vici McDonald,** Administrative Associate

Kitsap Transit
Bremerton, WA

Key Drivers for Adopting an ESMS

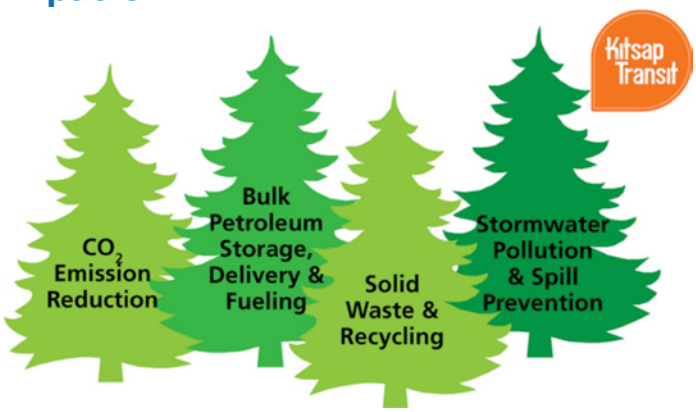
Kitsap County is in an environmentally conscious region of Washington State. Kitsap Transit has always mirrored that environmental concern. Kitsap Transit's main operating base, which is contained in the Charleston Fenceline, was originally constructed in the 1940s. The agency has performed a great deal of remediation at the site, renovating first in 1988-1990 and again in 2007-2008. During the initial renovation, many of the environmental practices that are in place today were established. However, a management system required to ensure compliance with all environmental regulations and changing regulations was not housed in a single department. Knowledge and systems were scattered around the agency and as people changed positions and left the organization, that institutional knowledge was beginning to disappear.

In late 2010, Kitsap Transit joined the American Public Transportation Association's Sustainability Program. As that program began to document environmental, financial and operational goals for sustainability, it became apparent a management system required to ensure Kitsap Transit continues to remain a good environmental steward was not in place. While Kitsap Transit's Sustainability Program included goals such as reducing energy usage, buying alternative fueled vehicles to reduce emissions, reducing idling time for vehicles, recycling, using permeable pavement in facilities, and meeting all environmental reporting requirements, the opportunity to advance those goals and requirements for compliance by using the ESMS was necessary and timely.

Attendance at the ESMS training is allowing Kitsap Transit to examine all aspects of its commitment to environmental preservation and to let the community know about that commitment. The excitement of the Core Team is spreading throughout the agency and that participation is what will make the program a success. The ESMS management system will help to ensure that the culture of Kitsap Transit remains one of environmental stewardship and sustainability for many years.

Significant Aspects and Impacts

The ESMS Core Team analyzed Kitsap Transit activities and identified all possible environmental aspects. One hundred fifty three were identified. Those aspects were then evaluated based on ISO 14001 and EMS's established criteria, considering each aspects potential for adverse environmental impacts, the extent of those potential impacts, the degree to which there were existing environmental controls in place and the ability of Kitsap Transit to manage and/or influence those impacts. The ESMS team completed the evaluation by rating each of the aspects using the criteria mentioned above. The top four Significant Aspects at implementation are as follows:



Kitsap Transit
Bremerton, WA

Objectives and Targets

Kitsap Transit's ESMS Core Team developed action plans with performance targets to measure progress towards goals for each of its four Significant Aspects.

The following table spells out specific objectives, targets, and performance indicators for each significant aspect. Task lists were developed to achieve these goals. Performance is tracked on a set timetable; the action plans themselves are updated on an annual basis.

Action Plan	Objective	Target & Tasks	Benefits
Spill Prevention	No petroleum or chemical spills during delivery, storage or dispensing operations Procedures to prevent spills and eliminate pollution from entering stormwater pathways and surface water	✦ Zero petroleum or chemical spills ✦ Schedule fuel deliveries in advance ✦ Ensure all KT employees and those working on behalf of KT are aware and comply with Operational Controls ✦ Developed fueling signage ✦ Developed fuel prevention and response procedures for delivery, storage and dispensing of petroleum and chemical products ✦ Placed spill kits near fueling areas ✦ Trained 100% of personnel who are involved with fueling operations.	In the event of a spill, employees and contractors will be aware and competent to respond to and clean up spills.

Spill drill conducted April 2014

Kitsap Transit
Bremerton, WA

Action Plan	Objective	Target & Tasks	Benefits
CO2 Reduction	Prevent pollution and conserve natural resources by reducing idle times, using cleaner/ alternative fuels and increase use of hybrids	✦ Reduce CO2 emissions by 2,000,000 cubic feet ✦ Reduce idle time of routed fleet from 30% to 28% run time and reduce over the road coach idle time in the afternoons from 60 to 10 minutes per coach/per day (30 coaches=Saved 1500 minutes per day of idle time; Savings of 1,332,000 cubic feet/year) ✦ Added jump start ability to worker driver fleet to save additional idle time. ✦ Switch from diesel to propane on 13 coaches in 2015 with 8 more in 2016.	Fuel cost savings Reduce environmental impact through reduced CO2 emissions Decrease of maintenance costs

Future Propane Coaches

Stormwater Pollution Prevention	Maintain required levels or below of turbidity, ph, zinc, copper, and oil by correct sampling procedures and best maintenance practices. Eliminate pollution from entering stormwater pathways	✦ Perform quarterly sampling ✦ Sweep lot on a quarterly basis ✦ Pump out sludge/ sediment at least yearly or when checked quarterly. ✦ Have storm drain cover kits staged throughout compound and labeled for site recognition. ✦ Inspect UST covers for tightness to insure no leaks. ✦ Color coated stormwater drains for easy recognition of pathways and installation of drain cover kits.	Adhering to SOP's will eliminate or improve stormwater inspections and permit violations. Reduce likelihood that pollutants will enter stormwater pathways.

Training…training…training

Kitsap Transit
Bremerton, WA

Action Plan	Objective	Target & Tasks	Benefits
Electricity Use Reduction	Achieve a 20% reduction in electricity use by June 2015	✦ Establish baseline for energy consumption at Kitsap Transit's Charleston Base ✦ Replace outdated HVAC units ✦ Upgraded to LED lighting ✦ Train personnel on actions to reduce electrical consumption.	Cost savings through reduced electricity use. Reduced environmental impact through reduced GHG emissions/tons of CO2 saved.

Upgrade to LED lighting

Solid Waste and Recycling	Prevent Pollution and conserve natural resources by reducing waste, reusing material and recycling.	✦ Increased recycling rates from 4 cubic yards per week to 8 cubic yards per week. ✦ Installed blue recycle bins in appropriate interior/ exterior spaces ✦ Recycle fuel oil/ waste absorbent materials ✦ Recycle metals, paper, and plastic ✦ Recycle bus, automotive and small alkaline batteries	Cost Savings through less solid waste disposal. Reduce environmental impact by diverting waste from landfills and incinerators. Reduce GHG emissions by recycling.

New recycling program implemented

Kitsap Transit
Bremerton, WA

Benefits of Adopting an ESMS

Kitsap Transit recognizes the following benefits of adopting ESMS:

- Kitsap Transit has seen a reduction in the number, type and severity of spill and stormwater incidents.
- ESMS has improved our relationships with state and federal regulators and reduced regulatory oversight.
- We have seen quantifiable reductions in pollution, air emissions and oil in waste water.
- We have recovered resources that would have otherwise been wasted.
- Communicating our environmental practices has enhanced our public image.
- Outreach has improved employee awareness of environmental concerns and impacts and reinforced our current environmental practices.
- The Core Team has worked with management to increase awareness of environmental practices, and have their full support.
- The process of instituting ESMS has allowed us to capture employee knowledge, institute best practices and document agency SOPs.

Kitsap Transit has committed to many hours of research, managing data and designing programs with the goal of obtaining ISO 14001 certification. With continued diligence, the core team is confident that Kitsap Transit will be successful in this objective.

Resource Commitment

Hours through 9/30/14	
Core Team & Sub Teams	986
Other Staff	30
Outside Agencies	31
TOTAL	**1,047**

Cost Savings and Avoidance

Management and support of Kitsap Transit's five significant aspects and other environmental issues have led to the following cost savings and cost avoidance:

Kitsap Transit
Bremerton, WA

Aspect/ Objective	Efficiency	Annual Cost Savings	Notes
Electricity Use Reduction	Upgraded facilities to LED lighting	$15,000	Projected 20% savings
Electricity Use Reduction	HVAC Upgrades	$1,000	Annualized over 20 years
Solid Waste and Recycling	Implemented single-stream recycling program.	$3,200	Reduction of approx. 400 cubic yards of plastic, paper, cardboard, aluminum and metal out of landfills annually.
CO2 Emission Reduction	Implemented a reduced idling policy designed to reduce CO2 emissions by 2 million cubic feet.	$35,000	Projected savings of 10,000 gallons of diesel
CO2 Emission Reduction	Convert 13 diesel coaches to propane by end of year 2015 and 8 more in 2016	$58,000	Projected cost of .85 cents per gallon v. $3.00 per gallon for diesel

Next Steps

Kitsap Transit is committed to implementing a full ESMS program to include:

- Agency-wide ESMS communication, awareness and training campaign
- Work with Capital and Finance Department to implement a Contractor Management program for current and future contractors/suppliers/vendors
- Conduct county response spill drill with contractors and first responders
- Pursue and complete Objectives and Targets

Kitsap Transit
Bremerton, WA

Management Commitment

Kitsap Transit's Environmental Policy was adopted on October 15, 2013 at its Board of Commissioners' meeting.

The first Management Review session was held in April 2014 and was attended by the Executive Director, the Maintenance/Facilities Director, the Operations Director and the entire Core Team. The significant aspects and corresponding objectives, targets, and programs were presented to the Executive Director resulting in his full support. The Core Team has committed to Management Review meetings every six months especially during the first two years of ESMS implementation.

"As the Executive Director of Kitsap Transit, and on behalf of our Board of Commissioners, I would like to express our utmost support and commitment to the agency-wide implementation of not only the Environmental Sustainability Management System as a whole but to Kitsap Transit's involvement through our ESMS team. The opportunity to work with FTA and Virginia Tech on implementation of this program is valuable and has focused Kitsap Transit on becoming more aware of the environment and good stewards of the earth."

John Clauson
Executive Director

For more information on Kitsap's ESMS, please contact:
Jack Freer, Management Representative
jackf@kitsaptransit.com
Phone: 360-340-5023

Detailed scoring on next page.

Kitsap Transit
Bremerton, WA

Final Audit

This section compares the percentage of requirements met, partially met and not met with respect to meeting the requirements of an ESMS as specified in the ISO 14001:2004 standard. The following scores are the result of the ESMS audit presented in this report:

Percent meeting all requirements **"Overall Score"** **100%**
Percent of requirements **"Met"** **100%**
Percent of requirements **"Partially Met"** **0%**
Percent of requirements **"Not Met"** **0%**

The ISO 14001:2004 standard elements of an EMS		Overall (%)	Met (%)	Partially Met (%)	Not Met (%)
4.1	General Requirements	100	100	0	0
4.2	Environmental Policy Requirements	100	100	0	0
4.3.1	Environmental Aspects Requirements	100	100	0	0
4.3.2	Legal and Other Requirements	100	100	0	0
4.3.3	Objectives, Targets and Programs Requirements	100	100	0	0
4.4.1	Resources, Roles, Responsibility and Authority	100	100	0	0
4.4.2	Competence, Training and Awareness	100	100	0	0
4.4.3	Communication	100	100	0	0
4.4.4	EMS Documentation	100	100	0	0
4.4.5	Control of Documents	100	100	0	0
4.4.6	Operational Control	100	100	0	0
4.4.7	Emergency Preparedness and Response	100	100	0	0
4.5.1	Monitoring and Measurement	100	100	0	0
4.5.2	Evaluation of Compliance	100	100	0	0
4.5.3	Nonconformity, Corrective Action and Preventive Action	100	100	0	0
4.5.4	Control of Records	100	100	0	0
4.5.5	Internal Audits	100	100	0	0
4.6	Management Review	100	100	0	0

FTA ESMS INSTITUTE
cota.vt.edu/ems

Lane Transit District

Eugene-Springfield, Oregon
Case Study

Lane Transit District
Eugene-Springfield, OR

Profile

Lane Transit District (LTD) has been providing public transit services to the greater Eugene-Springfield area since 1970. As the organization has grown from its initial 18 buses, LTD's service has grown to reflect the needs and desires of the community. Currently with 109 buses and just over 300 employees LTD demonstrates how a mid-sized transit agency contributes to the growth of a metropolitan area and fulfills the mission to:

"(We) provide people the independence to achieve their goals, creating a more vibrant, sustainable, and equitable community."

Annually, LTD carries 11.2 million riders throughout the Eugene-Springfield area. LTD provides thirty four fixed routes and one bus rapid transit (BRT) line that currently serves the two major downtowns, the University of Oregon, the regional medical center, and will eventually serve the entire metro area. The LTD service area covers about 486 square miles and contains a population of approximately 352,000. LTD's award-winning RideSource paratransit service provides service within the metro area for the elderly and for people with disabilities. Recognizing that buses won't work for everyone, LTD is home to Point2point, the region's transportation options program. Together we create a system of modes for all residents and visitors.

Lane Transit District
Eugene-Springfield, OR

Fenceline

LTD ESMS Core Team selected the LTD Glenwood Campus as the initial focus of the ESMS Program. The Glenwood Campus is located at 3500 E. 17th Avenue in Eugene, Oregon, and has been in operation since 1990. Uniquely oriented between two jurisdictions, LTD's main facility is located between the City of Eugene and the City of Springfield in an area known as Glenwood. The identified fenceline contains all aspects of service and operations including:

- Administration,
- Operations,
- Maintenance,
- Storage buildings,
- Bus wash facility,
- Fueling building,
- Primary bus lot,
- Employee parking, and
- Green space and landscaping.

The LTD ESMS Core Team selected the Glenwood site due to the relative complexity of its operations- with fueling and vehicle maintenance on site as well as exposure almost all LTD employees. While the LTD scope and fenceline are ambitious, many of the foundational elements of the ESMS are already in place at LTD Glenwood. The fenceline was selected keeping in mind the possibility to expand the ESMS program to other key LTD service sites.

Lane Transit District
Eugene-Springfield, OR

ESMS Core Team

Meet the LTD Core Team, pictured left to right:

- **Theresa Brand** - Transportation Options Manager
- **Ernie Turner** - Fleet Maintenance Manager
- **Tom Schamber** - Controller
- **Andy Vobora** - Director of Customer Services and Planning
- **Kelly Staines** - Facilities Maintenance Supervisor
- **Mark Johnson** - Director of Operations and Customer Satisfaction
- **Allie Camp** - Community Outreach Associate

With the oversight of General Manager Ron Kilcoyne, the ESMS Senior Management Representative Andy Vobora appointed a high-functioning, cross-departmental team of Fleet and Administration department directors, managers, and staff to participate in the FTA training workshops from August 2013 – June 2014. Team members were selected based on their involvement in current sustainability efforts and ability to influence existing LTD operations.

Lane Transit District
Eugene-Springfield, OR

Key Drivers for Adopting an ESMS

Lane Transit District has supported a sustainability program for decades. This support had traditionally taken the form of activities and processes that were "common sense" approaches to recycling and waste management. Over time these programs slowly expanded and were then bolstered in 1999 by the LTD Board of Directors support for a District commitment to purchasing environmentally-friendly vehicles. At this point the District began to focus more heavily on sustainability and major initiatives were begun in the mid-2000's. These initiatives have since evolved to reach its current state, a robust internal program focused on increasing efficiency and employee awareness. This broad focus has allowed LTD to incorporate updates and improvements into its sustainability efforts. With the program's development through two General Managers, LTD staff and key champions have carried the strong, albeit humble, program until its growth in 2012. Major growth was noted due to dedicated staff time for sustainability efforts to fulfill the American Public Transportation Association's (APTA) Sustainability Commitment. LTD received APTA Silver certification for its efforts toward this Commitment in spring of 2014.

Recognizing the long-term effects of a larger and defined commitment to sustainability, General Manager Ron Kilcoyne directed staff to apply for the Federal Transit Administration (FTA) Environmental and Sustainability Management System (ESMS) training program for public transportation agencies. Not only would this opportunity support and recognize our existing sustainability efforts, but it would also translate these efforts into a long-term system that ensures efforts towards continual improvement of the triple bottom line continue in the future.

General Manager Kilcoyne identified additional reasons to support LTD's participation. Kilcoyne realizes the intrinsic sustainable nature of transit and its growing relevance in the field of environmental responsibility. The ESMS program has the ability to promote transit as a triple bottom line benefit both internally and externally. Increased efforts from staff would be paying off in both economic returns and public stewardship. Kilcoyne hopes to not only 'walk the walk' when it comes to operational and business sustainability, but also to be a leader of this walk. LTD has always approached service and operations from an innovative perspective, especially as a mid-sized agency. The ESMS program will continue this innovative spirit and put LTD on the forefront of environmental planning, and will align the District with our community's strong commitment to sustainability.

LTD's growing efforts in sustainability, continual improvement in internal and external representation, and nimbleness during staff transition are the context in which LTD applied for and was accepted to the FTA ESMS program. As LTD's sustainability initiatives grow both internally and externally, LTD will continue serving as a good public steward.

Significant Aspects and Impacts

The list of significant aspects serves as the guiding force for LTD's ESMS. Previous rounds of the FTA ESMS program focused specifically on maintenance and fleet fueling and repair areas. LTD chose to also include the Administration office, which is relatively uncharted territory for ESMS participants.

The LTD ESMS Core Team scoured each facility to develop a living, breathing inventory of activities, products, and services that could have an impact on the environment. The LTD ESMS Core Team refers to these individual list items as aspects. Each aspect in the inventory was then ranked to determine its overall potential impact on the environment, which allowed LTD ESMS Core Team members to prioritize efforts. To rank these items the LTD Core Team considered:

- Anticipated Duration of Impacts
- Consequence
- Probability
- Impact from Associated GHG Emissions
- Priority
- Percentage of Fenceline Affected
- Possible Negative Impacts

This ranking process unveiled aspects that proved to be most "significant." These most "significant" aspects had the highest numerical ranking out of a possible 45 points. From these top-ranking aspects, the LTD ESMS Core Team selected five to serve as the focus of the ESMS.

Activity/Product	Aspect	Impact
Aerosol can disposal	Aerosol can and product	Universal waste generation
On-site diesel fueling	Fuel spills	Water, ground, and soil pollution; Employee safety
Landscaping and bus washing	Water	Resource consumption
Fuel use	Fuel	Resource consumption, pollution accumulation
Electricity use	Electricity	Resource consumption

Lane Transit District
Eugene-Springfield, OR

Objectives and Targets

The LTD ESMS is designed to help LTD achieve a higher level of operational efficiency and environmental responsibility. Each of the five identified significant aspects has an action plan. These action plans identify tasks which are the guiding elements, the building blocks, to achieving agreed upon objectives and targets. Action plan performance is tracked on a quarterly basis, with internal and external communications celebrating successes along the way. LTD used the action plans to incorporate reporting and measurement requirements and timelines for the American Public Transportation Association's (APTA) Sustainability Commitment. Below are LTD's objectives and targets for each of the selected significant aspects.

Aspect	Objective	Target
Aerosol Disposal	Create a process to address proper disposal of waste created by previously discharged aerosol cans and properly care for future aerosol residue.	Properly dispose of 100% of aerosol cans and associated residue by **December 2014.**
Electricity Use	Create a process through education and administrative controls that assist in reducing electricity use at the LTD Glenwood Facility.	Achieve a 5% reduction in electricity consumption at the Glenwood Facility by **May 2016.**
Fuel Spill Potential at Delivery	Create a process to prevent fuel spills during delivery and keep potential spills from the storm drains.	Develop the tools to prevent 100% of potential fuel spills or respond appropriately to 100% of spills that occur by **March 2015**, and maintain this level of spill avoidance.
Diesel Fuel Consumption	Develop a process to measure efficiency of bus operations to inform operator training and future purchases for the bus fleet.	Achieve a 2% reduction in GHG emissions by **June 2017** as LTD prepares to report back to APTA and will have completed forecasted bus purchases.
Water Use in Landscaping and Bus Wash Facility	Create a process of preliminary steps to reduce water use while washing buses and+ landscaping.	Achieve a 5% reduction in water consumption at the Glenwood Facility by **June 2016** as LTD prepares to report back to APTA.

Lane Transit District
Eugene-Springfield, OR

Universal Waste Generation from Aerosol Cans

Aerosol can products used at the Glenwood Facility for facilities maintenance, fleet maintenance, and cleaning can contain hazardous waste. Improper disposal of aerosol cans with hazardous waste contaminate regular waste with potentially hazardous materials. Additionally, disposing of aerosol cans with regular waste eliminates the possibility to recycle the metal from the cans. The goal is to separate the two streams of waste to properly dispose of both liquid/aerated waste and metal waste. To meet this goal LTD has purchased, implemented, trained staff, and monitored the use and productivity of an aerosol can puncturing device. This device was implemented in December 2014.

Pollution Potential from On-site Diesel Fuel Delivery

The Glenwood Facility holds diesel fuel on site for daily bus operations. The fuel is delivered by a contracted organization. LTD has four underground storage tanks containing diesel fuel, and receives a fuel delivery weekly. This quantity of fuel delivered at the responsibility of a contracted party was identified as a high environmental risk. To mitigate this risk LTD held a tabletop exercise to better examine existing practices and devise a plan in the case of a fuel spill. Additionally, infrastructure safety precautions were implemented- a spill bucket with instructions was added to the underground storage tank site and the tanks were clearly labeled for staff and the fuel delivery contractor.

Lane Transit District
Eugene-Springfield, OR

Resource Use- Water

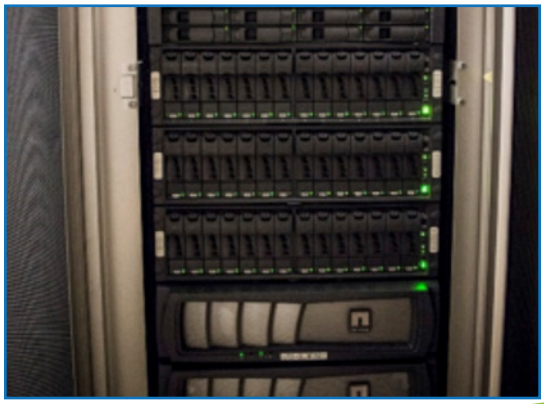
The Pacific Northwest has some of the cleanest water in the United States. Learning to manage that resource at the Glenwood Facility will save LTD money and represent the organization as a good public steward. To facilitate this water savings LTD has targeted two large sources of water use- the bus wash and the landscaping practices. LTD has an existing water collection system in the bus wash facility, but has retooled washing practices to allow for more days between bus washes. To measure the effects of these new washing procedures LTD installed a sub-meter to monitor and measure the water consumption at the bus wash facility. To better manage water consumption in landscaping practices LTD has installed a rain gauge. This gauge connects to the irrigation system and halts the sprinklers when rain is present.

Resource Use- Fuel

All 109 buses in the LTD fleet use a 5 percent biodiesel fuel blend. Buses using diesel fuel, while serving the purpose of removing single occupancy vehicles from the road, still account for a high level of environmental risk both inside and outside of the LTD fence line. About 60 percent of the LTD fleet is hybrid electric. Focusing on reducing diesel fuel consumption will minimize the pollution levels sourced at the LTD Glenwood Facility. To begin minimizing fuel use LTD had adjusted its idling policy and trained operators to abide by the new 1-minute idling expectation.

Resource Use- Electricity

Electricity is an expensive need at the Glenwood Facility that the ESMS Core Team has determined can be better managed. LTD has an on-site server room which requires temperature control more advanced than the HVAC system can handle. Because of this, additional electricity is required to keep the server room properly cooled. As part of the ESMS, the server room will be relocated to minimize electricity and better utilize the HVAC system.



Lane Transit District
Eugene-Springfield, OR

Benefits of Adopting an ESMS

Competitive Edge in Transit

LTD General Manager Ron Kilcoyne wants LTD to "constantly be challenging the best of the best in transit". The FTA ESMS program was a way for LTD to join the higher ranks of transit agencies, and continue to lead the field in social, environmental, and economic improvement. The ESMS program was a way for LTD to challenge its existing commitments and provide leverage for newer, more resource-intensive site and system improvements.

Compliance with Regulations

While LTD has never had an issue achieving compliance with local, state, and federal organizations, the ESMS has increased awareness around processes to ensure compliance is properly documented. LTD realizes the value in having a management system to eliminate potential noncompliance and the fines associated with noncompliance.

Employee Awareness and Cross Departmental Collaboration

The ESMS has highlighted the need to focus on environmental and sustainability-related initiatives because of the emphasis on safety, economic return, and employee ownership of the program. Previous to the ESMS, LTD had a small contingent of employees focused on small changes for environmental health. While this was effective, the development of a system assures that goals will be met and projects will be completed. Systematic interdepartmental collaboration is key to developing and implementing the ESMS. This systematic approach to sustainability has increased employee awareness and engagement. Current employees were initially trained in the fall of 2013. New employee orientations now include ESMS components and a follow-up training was completed with all employees in the fall of 2014. Regular management review and Board of Directors updates have kept the District's leadership aware of the work accomplished to date.

Leadership Commitment to Sustainability

By applying for and attending the FTA sponsored ESMS Workshops LTD was committing to a long-term sustainability program. While at first this was not fully understood, the results of the workshops have shown LTD leadership and Board of Directors that the ESMS program delivers lasting results in a systematic way. By committing to the ESMS LTD leadership will look at existing practices, products, and activities through the lens of a greener, safer, more efficient LTD.

Economic Return

While the ESMS has yet to show economic returns, LTD anticipates financial benefits from eliminating inefficiencies and improving existing processes.

Protection of Natural Resources

LTD is located in a community and geographic location that prioritizes the protection of its natural resources, especially the fresh water sources. The ESMS training program has encouraged LTD to take a stronger overall commitment to environmental stewardship. LTD has gained a thorough understanding of its daily operations which allow us to serve as a good public example of an agency doing its due diligence to understand and minimize its impact on the environment.

Lane Transit District
Eugene-Springfield, OR

Benefits of Adopting an ESMS

Regional Expectations

The significance attached to the protection of land and water sources resonates with the business community and with the general community served by LTD. Oregon's rich history of environmental stewardship is something that individuals and businesses aspire to uphold. It is both expected and appreciated that businesses 'walk the walk' to protect the region's natural resources. The ESMS provides an avenue to inform others of the actions LTD is taking to fulfill these regional expectations.

Resource Commitment

LTD committed financial resources for staff travel to and from Roanoke, Virginia to match the FTA's funding for the four ESMS workshops hosted by Virginia Tech. LTD committed staff time to develop and implement the ESMS at the LTD Glenwood Facility. The ESMS Core Team allocated the majority of the staff time invested in the ESMS. However, as the program grows more LTD employees have contributed to the ESMS process.

Total hours dedicated to ESMS:	**1,720**
Hours utilized for meetings:	212
Hours utilized for action items:	1,508

LTD hopes to see economic returns and cost avoidance grow as the system becomes more established. In the ESMS's beginning stages LTD has experienced positive results in the realm of employee awareness, training, and competence, along with progress in each of the significant aspects areas. Anticipated annual cost savings and avoidances are as follows:

Aspect	Efficiency	Infrastructure Solution	Investments (planned and completed)
Aerosol Can Disposal	Comply with hazardous waste standards	Aerosol can puncture device	$1,000
Electricity Use	Minimize on-site utility consumption	Server room relocation	$160,000
Fuel Spill Potential at Delivery	Plan for potential spills and mitigation of water source pollution	Spill bucket & spill kit	$1,500
Diesel Fuel Consumption	Minimize GHG emissions and utility consumption	Opacity meter calibration tool	$100
Water Use in Landscaping and Bus Wash Facility	Minimize on-site utility consumption	Water submeter & rain gauge	$1,500
Total Prospective Investments			**$164,000**

Lane Transit District
Eugene-Springfield, OR

Anticipated Savings

- Improvements in aerosol can disposal processes will ultimately result in avoidance of potential penalties associated with improperly disposing of hazardous waste. These penalties can range anywhere from a 'slap on the wrist' to thousands of dollars in fines depending on the content and quantity.
- Reductions in electricity use will be more fully realized upon implementation of a dedicated cooling system for the computer server room. This work is planned for 2015. As part of the ESMS, utility bills are being monitored to capture reductions in utility consumption. Additionally, LTD plans to continue changing its lighting in the Administration building from fluorescent to LED after successful implementation in off-site applications. Definite savings will result with that infrastructure improvement.
- Planning for and minimizing the risk of fuel spills upon delivery at the Glenwood Facility will allow LTD to evade potential environmental penalties ranging anywhere from $3,000 to $25,000 depending on the size of the spill.
- Changing the LTD idling policy from 3 minutes to 1 minute has affected the fuel economy of the bus fleet. The average miles per gallon of diesel fuel in 2013 for the bus fleet was 3.675. The new idling policy was implemented in January 2014. The average miles per gallon of diesel fuel in 2014 for the bus fleet was 3.875, resulting in an operational savings. These improvements will continue as the District expands its fleet of hybrid electric buses in coming years.
- Bus washing practices were changed to minimize washing in fall of 2014. The submeter was installed in the bus washing facility in December 2014. Previous bus washing practices had employees washing buses every night, regardless of appearance. New bus washing practices direct employees not to wash buses during extended periods of dry weather.

Next Steps

LTD's next steps focus on continual improvement and system management in order to continue exercise the system up until ISO 14001 Certification. The LTD Core Team anticipates pursuing ISO 14001 Certification in July of 2015.

Lane Transit District
Eugene-Springfield, OR

Management Commitment

"LTD approaches sustainability from a triple bottom line perspective of doing the right things to improve the environment, be economically beneficial, and create greater equity. The Environmental and Sustainability Management System provides LTD with a new framework to continue to not only practice sustainability from this perspective, but streamline the process and provide an ongoing commitment of staff time and resources."

Ron Kilcoyne
General Manager

For more information about Lane Transit District's ESMS program, please contact:
Allie Camp
Community Outreach Associate
allison.camp@ltd.org
541-682-3245

Detailed scoring on next page.

Lane Transit District
Eugene-Springfield, OR

Final Audit

This section compares the percentage of requirements met, partially met and not met with respect to meeting the requirements of an ESMS as specified in the ISO 14001:2004 standard. The following scores are the result of the ESMS audit presented in this report:

Percent meeting all requirements **"Overall Score"** **94%**
Percent of requirements **"Met"** **89%**
Percent of requirements **"Partially Met"** **11%**
Percent of requirements **"Not Met"** **0%**

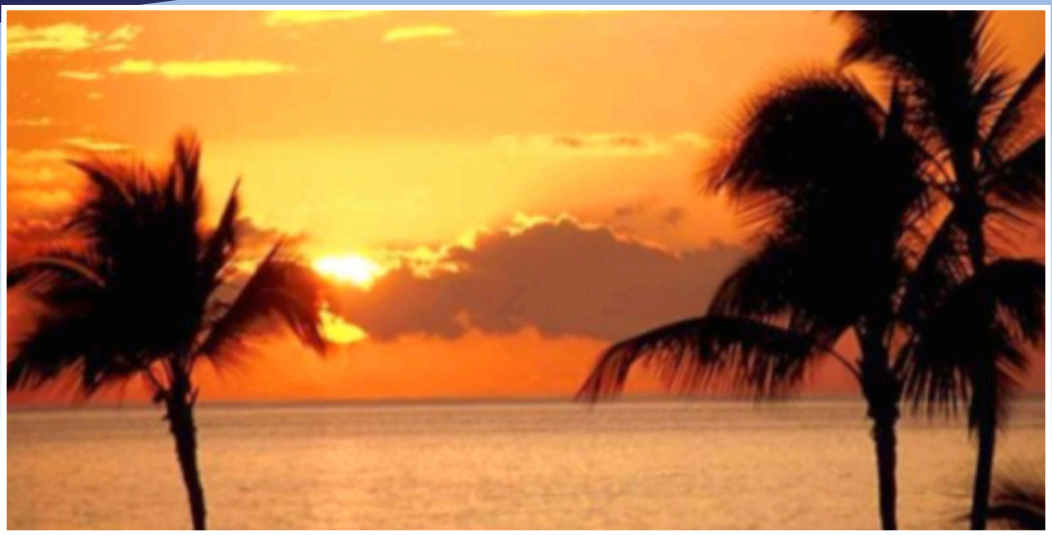
The ISO 14001:2004 standard elements of an EMS		Overall (%)	Met (%)	Partially Met (%)	Not Met (%)
4.1	General Requirements	100	100	0	0
4.2	Environmental Policy Requirements	100	100	0	0
4.3.1	Environmental Aspects Requirements	100	100	0	0
4.3.2	Legal and Other Requirements	67	33	67	0
4.3.3	Objectives, Targets and Programs Requirements	100	100	0	0
4.4.1	Resources, Roles, Responsibility and Authority	100	100	0	0
4.4.2	Competence, Training and Awareness	93	86	14	0
4.4.3	Communication	100	100	0	0
4.4.4	EMS Documentation	100	100	0	0
4.4.5	Control of Documents	100	100	0	0
4.4.6	Operational Control	88	75	25	0
4.4.7	Emergency Preparedness and Response	100	100	0	0
4.5.1	Monitoring and Measurement	100	100	0	0
4.5.2	Evaluation of Compliance	50	0	100	0
4.5.3	Nonconformity, Corrective Action and Preventive Action	100	100	0	0
4.5.4	Control of Records	100	100	0	0
4.5.5	Internal Audits	100	100	0	0
4.6	Management Review	100	100	0	0

FTA ESMS INSTITUTE
cota.vt.edu/ems

Commonwealth Office of Transit Authority

Northern Mariana Islands
Case Study

Commonwealth Office of Transit Authority
Northern Mariana Islands



Profile

The area and the people

This lush tropical Micronesian paradise of 14 islands in the western Pacific offers the perfect getaway for visitors from both East and West. Called “America’s best kept secret,” here you can truly escape to a place of magnificent beaches and crystal-clear waters. Rich history, year round outdoor activities, a wide range of cultures and ethnic cuisines add their unique zests to this island paradise. Magical sunsets highlight an unhurried, friendly lifestyle and warm, island hospitality to form an unforgettable experience for the astute traveler.

Saipan is the largest island and the capital of the Northern Mariana Islands. It is about 12 miles long and 5.6 miles wide with a land area of 44.55 sq. mi. The Chamorro and Carolinians are the indigenous people of these islands. Over 53,000 people live in the CNMI of which over 48,000 are on Saipan.

Saipan is the principal commercial center of the Northern Mariana Islands. Rota, Tinian and the Northern Islands are neighboring islands of Saipan and are easily accessible by plane. The islands are divided into villages, which correspond with neighborhoods in American cities.

The Commonwealth Office of Transit Authority (COTA)

COTA was established in May of 2011 when then Governor Benigno Fitial signed Public Law 17-43. COTA was charged with developing, establishing and overseeing a transportation system for the Commonwealth. It envisions public transportation as a vital link to education, employment, healthcare and other destinations.

COTA’s mission is to provide reliable safe, comfortable public transportation service that is cost effective, reduces energy consumption and contributes to the cultural and economic betterment of its residents.

Commonwealth Office of Transit Authority
Northern Mariana Islands

It currently provides paratransit services at a reduced fare, to persons with disabilities and older adults. Paratransit service, referred to as the Call-a-Ride program, also serves the rest of the community. In 2013, COTA's Call-a-Ride Saipan (CAR-S) recorded 3,343 segments.

Commonwealth Public Transportation Advisory Board (CPTAB)

An advisory board was also created by Public Law 17-43. CPTAB works collaboratively with COTA to achieve its mission, goals and objectives. CPTAB is an 11-member advisory board that has four primary roles: Safety; Finance; Legal; and Advocacy.

Public Transit Services today and visions for the future

CAR-S service is performed with three gasoline-engine, 8-passenger, accessible vans. COTA is in the process of expanding with the addition of four accessible vans by early summer 2015. The new vans are capable of transporting more passengers and are more environmentally friendly than the ones currently in operation.

Also in the plans for future expansion is a fixed-route service and an inter-island ferry. At least nine ADA compliant, medium built, low-floor, 30-foot buses are needed to implement the fixed-route service on Saipan. Still in the early concept and design stage, plans for a ferry system between Saipan and Tinian, and another between Rota and Guam will have a positive and profound impact on our island economy and the standards of living for the residents of the CNMI.

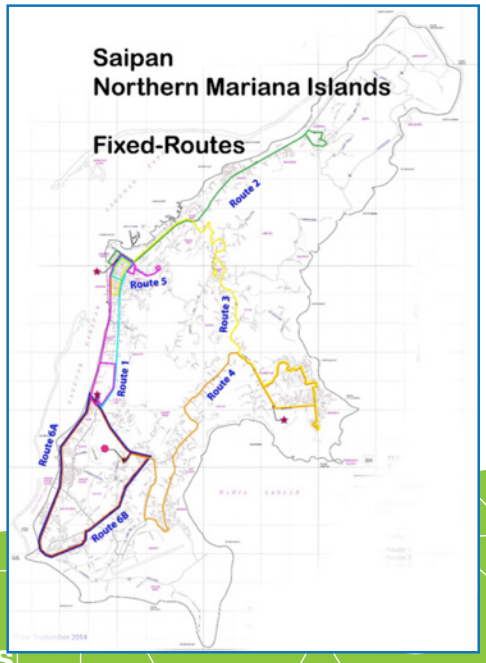
Commonwealth Office of Transit Authority
Northern Mariana Islands

Fenceline

COTA operations and administrative functions are located in a leased facility on the central part of Saipan. Administrative functions shall continue in the current location and eventually move to a new building on the same property as a planned maintenance facility.

Currently, COTA does not own or operate a maintenance facility. All vehicle maintenance and services are performed under a services contract with local vendors. COTA, however, is planning to build a Vehicle/Bus Maintenance, Repair and Storage Facility. Construction is scheduled to begin in 2015 with completion projected for mid to late 2016. COTA operations will relocate to the maintenance facility after construction.

Implementation of a fixed-route system requires more than adding busses to the current fleet. A team of community representatives joined COTA in assessing needs and planning a fixed/flexed-route system. It identified 7 routes, 4 transfer stations and 190 bus stops. The team estimates 20 to 30 percent of stops will have shelters. Successes in public transportation on the island of Saipan will be duplicated on Rota and Tinian, at a smaller scale.

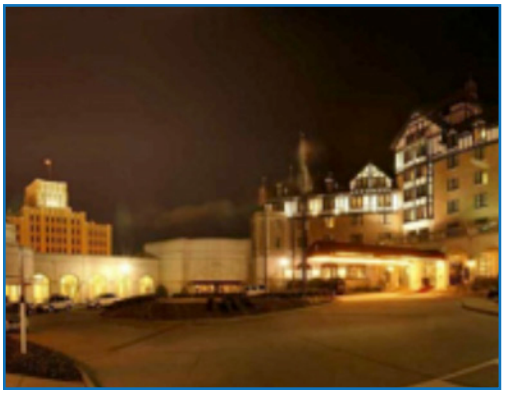


Commonwealth Office of Transit Authority
Northern Mariana Islands

Core Team

The ESMS Core Team consists of five members representing various sections of the Commonwealth Office of Transit Authority (COTA). All members completed the four workshops of the ESMS Institute at Roanoke, Virginia. The team includes (Photo: L-R):

- **Christopher R. Sablan,** Grants Management & DBE Liaison Officer (Finance & Revenue);
- **Mary "Kit" S. Dickinson,** Administrative Officer;
- **Thomas J. Camacho,** Special Assistant for Public Transportation/Chairman, Commonwealth Public Transportation Advisory Board;
- **Roy T. Rios,** Community Planner/Title VI Coordinator (Environment); and
- **Vince Cruz Merfalen,** Mobility Management & Transit Coordinator



Commonwealth Office of Transit Authority
Northern Mariana Islands

Key Drivers for Adopting an ESMS

Surrounded by ocean and carpeted by lush, green tropical vegetation, the COTA environment is not only beautiful but also fragile. The native Chamorro and Carolinians protect their culture and ancestral ways of life. With over 48,000 people residing on a tiny 45 square miles of land, COTA is passionately sensitive to the effects of its activities on the environment.

Plans for developing public transit entails new facilities, additional vans and busses, and employees to maintain it all. Federal, state, and local environmental laws and regulations help COTA protect and preserve it natural resources but a systematic and proven system is necessary to achieving a successful environmental management program.

Joined with its passion for the environment is a deep belief that prevention is the key to preserving and protecting the environment. COTA's vision is to be the first CNMI government entity to adopt and be certified in ISO 14001 standards. COTA views its initiative in applying for the 2013 FTA ESMS Training its good fortune and a critical step towards achieving this goal.

Significant Aspects and Impacts

An ESMS Team identified COTA activities, products and services within its fence line that may affect the environment. Fifty-three aspects were identified. Those aspects were further evaluated against ISO 14001 criteria. Using the ISO 14001 criteria, each aspect was scored, rated and rank ordered. The top five items are COTA's Significant Aspects and have the greatest impact on the environment and potential for regulatory and legal risks. These are:

1. Spill Potential
2. Electricity Consumption
3. Recycle Program
4. New Construction
5. Chemicals

Objectives and Targets

The ESMS Team, in coordination with the Mobility Management and Transit Coordinator, evaluated all environmental aspects and identified those with significance. Appropriate objectives, targets and programs to control and manage the overall impact of the aspects were developed for each significant aspect. A summary of the targets and objectives are found in COTA ED 4.3.3-2.

1 Spill Potential

Aspect	Objective	Target	Performance Indicator	Projected Complete Date	Status/ Comments
Spill Potential	Develop Spill Prevention and Control Plan	Shall cover present and future activities	Approved by COTA ESMS Team	May 2014	Plan completed and filed in the COTA library
	Identify training requirements for first responders and other COTA staff.	prepare coordinate and resource training plan	Plan is submitted and approved	May 2014	Training Plan completed.
	Train employees	spill response, reporting and cleanup	Training certificates filed	Semi-annual	Review January and July of each year.
	Respond to spills	report and clean up 100% of the spills that occur at COTA	Spill site cleared by COTA Safety Officer. All required forms submitted.	Additional as needed	New employees needing training are scheduled for the next available course/training.

2 Electricity Consumption

Aspect	Objective	Target	Performance Indicator	Projected Complete Date	Status/ Comments
Electricity Consumption	Conduct energy audits to identify building systems situation and improvement options	Identify building systems and improvement options; Coordinate with the landlord	Report submitted to the ESMS Team	December 2014	Data collected for the year 2014.
	Review findings. Determine priority of actionable projects that will reduce electricity use.	Determine priority of actionable projects that will reduce electricity use.	Minutes of ESMS Team meeting	January 2015	Team to evaluate data and form recommendations. Present to ESMS in January ESMS meeting.

3 Recycle Program

Aspect	Objective	Target	Performance Indicator	Projected Complete Date	Status/ Comments
Electricity Consumption	Conduct research of recycle program in the CNMI;	Identify recycle options for the variety of waste generated by COTA	Report submitted to ESMS Team	March 2014	Separation of aluminum and plastics now being practiced in COTA; study ongoing. Research of recycle organizations on Saipan is completed.
	Review findings. Determine priority of actionable items.	Prepare report with options for a COTA recycle program	Report submitted to ESMS Team	June 2014	Recycle program implemented.
	Identify and coordinate with organizations who will receive recyclable material	Meet with recycle organization(s) who will be receiving COTA recycle material.	Contract signed	July 2014	Recycle organizations on Saipan has been identified.
	Purchase / designate recycle receptacles	Fund and procure necessary resources	All receptacles in place and properly marked.	July 2014	Completed.
	Develop a COTA recycle program	Prepare a plan; present it to the ESMS Team	Plan approved by ESMS Team	May 2014	COTA's recycle program has been implemented. Employees provided training.

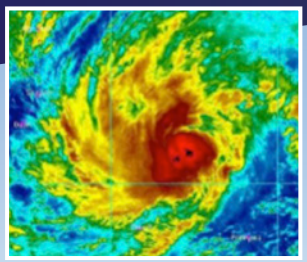
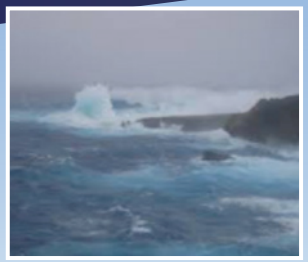
4 New Construction

Aspect	Objective	Target	Performance Indicator	Projected Complete Date	Status/ Comments
New Construction	Develop Operational Control for Contractor Management	Operational Control in place and available to Contractors Responsible COTA manager prepared to brief contractors.	Report submitted to the ESMS Team ESMS documents approved and published	February 2014	Operational Control Completed. Includes: • Contractor Awareness Packet • Environment Checklist

5 Chemicals

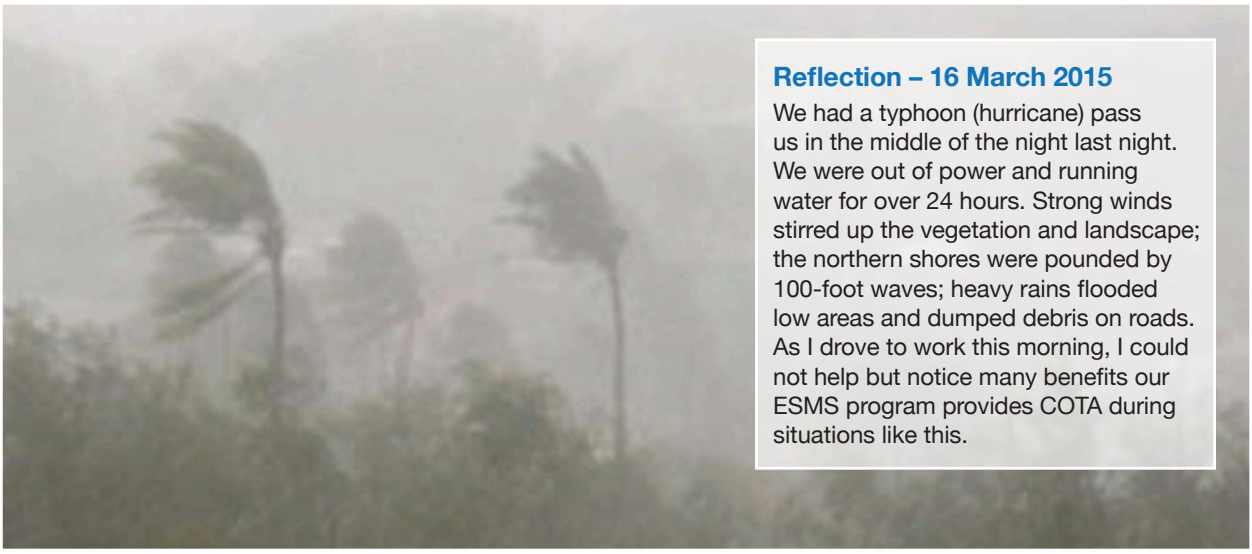
Aspect	Objective	Target	Performance Indicator	Projected Complete Date	Status/ Comments
Chemicals	Conduct an inventory of 100% of all chemical products at COTA	Prepare an inventory list Include location of items on the list	Set policy. Write "new card" work instructions. Train employees.	February 2014	Completed February 2014. Chemical List and MSDS located in the COTA Library with copies in the Mobility and Operations sections.
	Appoint a COTA Safety Officer	Identify a primary and alternate Safety Officer	Appointment letter issued and published	15 February 2014	Steven Pangelinan has been designated as the COTA Safety Officer.
	Send Safety Officer to OSHA General Industry training and certification course	Identify training needs and sources of training	Training certificate obtained and filed at COTA	July 2014	Training source for OSHA General Industry has been identified. Coordination is ongoing to send the Safety Officer and an Alternate.
	Perform a safety and environmental review of 100% of all chemical products at COTA;	Conduct initial safety evaluation. Coordinate with CNMI Dept. of Labor Safety	Report submitted	March 2014	CNMI Safety Office at the Department of Labor has been contacted and consulted.
	Train all employees on hazards in the workplace and COTA policies and procedures.	In accordance with approved Training plan.	Training certificates filed in employee records	Semi-annual; or as needed	

Commonwealth Office of Transit Authority
Northern Mariana Islands

Benefits of Adopting an ESMS

- The ESMS process instills in COTA's staff and management, a heightened sense of awareness, understanding and cognizance about the environment.
- Training in ESMS provides COTA with sound and tested practices, techniques and methodologies. In addition, although the newest government agency in the CNMI, COTA is quickly becoming an advanced steward of the environment; setting the example for others.
- The training process helped COTA build a solid foundation from which develops the ESMS. An integral first step was to develop and adopt an ESMS Policy Statement.
- The ESMS process helps COTA n the intricate web of environmental laws, policies and regulations.
- The ESMS process equipped COTA with administrative tools such as a filing system and control of documents in both print and electronic formats for easy retrieval and reference.
- Through ESMS and the process of developing its 17 elements, COTA is evolving its contingency plans and operational controls for different potential emergencies. In order to minimize impact on the environment, we have organized the location and physical arrangement of things within the fence line as well as how we do business. The following is a reflection of a COTA employee after a recent typhoon (hurricane).



Reflection – 16 March 2015

We had a typhoon (hurricane) pass us in the middle of the night last night. We were out of power and running water for over 24 hours. Strong winds stirred up the vegetation and landscape; the northern shores were pounded by 100-foot waves; heavy rains flooded low areas and dumped debris on roads. As I drove to work this morning, I could not help but notice many benefits our ESMS program provides COTA during situations like this.

Commonwealth Office of Transit Authority
Northern Mariana Islands

Resource Commitment

COTA has been tracking its efforts in establishing an ESMS. As of February 2015, they estimate that the following hours have been devoted:

- ESMS CORE TEAM: 376 Hours
- Subcommittees and Other Personnel: 65 Hours

Cost Savings and Avoidance

At this time, COTA is in its second year of operations. As such, it is now forming a baseline from which ESMS impacts on operations may be measured. Over the next few years, as major improvements are accomplished, like the construction of a new maintenance facility, COTA must again establish baseline data. Non-the-less, COTA shall continuously monitor its data and impact of any change in the processes and activities.

Next Steps

Next steps COTA will take include:

- In collaboration with the Public Transportation Advisory Board, implement ISO 14001 Standards across the entire organization
- Conduct community outreach activities to inform and educate the community about COTA's ISO 14001 Plan, goals and objectives
- Plan and solicit resources for an ISO 14001 Certification Audit
- Obtain ISO 14001 Certification for the COTA fence line

Commonwealth Office of Transit Authority
Northern Mariana Islands

Management Commitment

Management support goes a long way when COTA Special Assistant for Public Transportation submitted its interest and application for the FTA ESMS Institute early part of 2013. COTA is committed to operating an effective Environmental Sustainability Management System (ESMS) as part of an integrated framework for sustainable environmental stewardship. Our ESMS will comply with all applicable environmental and energy statutes, regulations, and executive orders. The ESMS is integrated with EPA's mission to protect human health and safeguard the environment. This is accomplished through setting targets for environmental stewardship, reducing or preventing pollution, preserving environmental resources and enforcing environmental protection in conjunction with other governmental agencies.

- To further confirmed management's commitment, Senior Management approval and Concurrence of the transit advisory board COTA's ESMS Policy Statement.
- The record shows the attendance of Senior Management at all four training sessions in Roanoke, VA.
- Senior Management attended most Core Team meetings.

"COTA management and staff are committed to protecting human health and natural resources, promoting environmental stewardship, and implementing innovative environmental technologies and practices. Implementing effective pollution prevention and waste minimization, we each take personal responsibility to protect the environment as we conduct our work. We each take personal responsibility to use resources wisely. We each take personal responsibility to protect and enhance our local communities. We will promptly report all incidents and unsafe conditions to COTA emergency services. Environmental stewardship is and must be an integral part of every COTA business practice, operation, procurement and contracts. It is incumbent on each of us to assess our own roles and responsibilities and to help fulfill, to the utmost of our abilities, the commitments set forth in this statement."

Special Assistant for Public Transportation
Chairman, Commonwealth Public Transportation Advisory Board
Thomas J. Camacho

For More Information about COTA's ESMS program, please contact:
Vince Merfalen, Acting Management Representative
vince.merfalen@gov.mp

Detailed scoring on next page.

Commonwealth Office of Transit Authority
Northern Mariana Islands

Final Audit

This section compares the percentage of requirements met, partially met and not met with respect to meeting the requirements of an ESMS as specified in the ISO 14001:2004 standard. The following scores are the result of the ESMS audit presented in this report:

Percent meeting all requirements **"Overall Score"** **94%**
Percent of requirements **"Met"** **87%**
Percent of requirements **"Partially Met"** **13%**
Percent of requirements **"Not Met"** **0%**

The ISO 14001:2004 standard elements of an EMS		Overall (%)	Met (%)	Partially Met (%)	Not Met (%)
4.1	General Requirements	100	100	0	0
4.2	Environmental Policy Requirements	100	100	0	0
4.3.1	Environmental Aspects Requirements	100	100	0	0
4.3.2	Legal and Other Requirements	100	100	0	0
4.3.3	Objectives, Targets and Programs Requirements	95	91	9	0
4.4.1	Resources, Roles, Responsibility and Authority	90	80	20	0
4.4.2	Competence, Training and Awareness	86	71	29	0
4.4.3	Communication	100	100	0	0
4.4.4	EMS Documentation	100	100	0	0
4.4.5	Control of Documents	94	89	11	0
4.4.6	Operational Control	100	100	0	0
4.4.7	Emergency Preparedness and Response	63	25	75	0
4.5.1	Monitoring and Measurement	100	100	0	0
4.5.2	Evaluation of Compliance	100	100	0	0
4.5.3	Nonconformity, Corrective Action and Preventive Action	100	100	0	0
4.5.4	Control of Records	100	100	0	0
4.5.5	Internal Audits	92	83	17	0
4.6	Management Review	67	33	67	0

FTA EMS INSTITUTE
cota.vt.edu/ems

TRI DELTA TRANSIT

Eastern Contra Costa Transit Authority (ECCTA), Tri Delta Transit

Antioch, Brentwood, Oakley, Pittsburg, and unincorporated areas of eastern Contra Costa County, California
Case Study

Tri Delta Transit
California

Profile

Eastern Contra Costa Transit Authority (ECCTA), also known as Tri Delta Transit, provides public transportation bus and paratransit service to a 225 square mile area that includes the cities of Antioch, Brentwood, Oakley, Pittsburg, and unincorporated areas of eastern Contra Costa County, California. The area is considered a suburb of San Francisco and includes suburban as well as rural areas with a population of 306,000. ECCTA was formed in 1976 under the provisions of the California Joint Exercise of Powers Act, Government Code Sections 6500 et. Seq. as a Joint Powers Authority and began operating bus route service in 1977.

The management, maintenance, oversight of the service contract, some customer service (complaints and lost & found), bus stop maintenance for the approximately 700 bus stops in the system, bus shelter ownership and maintenance, planning, and marketing for both fixed route and paratransit service is provided by ECCTA. The operations function is provided under a contract with First Transit, Inc.

ECCTA is governed by an eleven member Board of Directors supported by a professional staff of thirty-four maintenance and administrative employees. The Board includes two representatives from each of the four incorporated cities, two representatives from the county, and one at-large member appointed by the other members of the board.

ECCTA's operating budget for Fiscal Year 2014 is $21,410,000. ECCTA's operates bus service 365 days/year with thirteen routes Monday-Friday and four routes on weekends and holidays. ECCTA uses sixty-two fixed route buses and thirty paratransit vehicles and provides over 2.5 million trips/year. The fixed route ridership is divided nearly equally between three main groups: commuters transferring to the regional rail system (BART), local work/college trips, and high school-middle school trips.

Tri Delta Transit
California

Fenceline

ECCTA's only facility, owned and maintained by ECCTA, is located at 801 Wilbur Avenue, Antioch, CA, an industrial area that is adjacent to high density housing. The facility was built in 1987 with an addition built in 2003 that nearly doubled the building size to a 16,132 square foot administrative area and a 19,257 square foot maintenance area. The site increased from 4.72 acres to nearly 7 acres and includes the maintenance/operations building, two underground fuel tanks, a detail area for buses, a fuel dispensing island, a wash island, a training trailer, employee parking, and bus parking. All lubricant storage is above ground and there is generated power for use during service disruptions.

All vehicles are fueled and washed daily at the facility and maintenance is performed in the seven repair bays. There is one steam clean rack which is used to clean the underside of the buses. The Fenceline area is secured with electric gates with coded entry keys and an extensive video surveillance system. All bus operators begin and end their work shifts at the facility.

Tri Delta Transit
California

ESMS Core Team

ECCTA's Environmental and Sustainability Management System (ESMS) Core Team is comprised of six members representing various departments and responsibilities throughout he agency. All members of the core team attended all four of the workshops in Roanoke, Virginia. ECCTA's ESMS Core Team is responsible for providing leadership in developing, implementing, and maintaining ECCTA's ESMS.

The Core Team members are (left to right):

- **Irene Schaefer**, Receptionist-Clerk
- **Ann Hutcheson**, Director of Administrative Services
- **Jeanne Krieg**, Chief Executive Officer
- **Susan Hinson**, Director of Operations
- **Rich Babcock**, Director of Maintenance
- **Steve Ponte**, Chief Operating Officer

Key Drivers for Adopting an ESMS

Late last century, ECCTA made a commitment to the local community to provide environmentally sensitive transit without sacrificing the core mission of providing safe, reliable, friendly, high quality and economical transportation service. ECCTA worked to become a certified Green Business and was awarded the Environmental Business Partner of the Year from the local sewer and sanitation agency. ECCTA is a signatory to APTA's Sustainability Commitment Initiative, reinforcing its pledge to make Eastern Contra Costa County more livable by integrating and balancing the community's economic, social and environmental needs. ECCTA has taken several steps over the years to incorporate green business practices into employee training, vendor contracts, and procurement decisions. Without formal environmental governance, our efforts seemed piecemeal and were not being officially measured.

The various environmental federal, state, and local laws and regulations form a loose framework for ECCTA's sustainability efforts. The ESMS program will enable ECCTA to weave those laws and regulations into programs and initiatives that will remain a part of ECCTA's culture for years to come. The values associated with the pursuit of sustainability initiatives and the time commitment associated with institutionalizing the ESMS will become a part of the way ECCTA conducts business in the future: environmental considerations will be integrated into everyday business operations.


BAY AREA
GREEN BUSINESS PROGRAM

GREEN BUSINESS PLEDGE

Our company commits to protecting the environment by adopting this Green Business pledge:

We believe a successful business is dependent on a healthy environment. We are actively working to show our environmental responsibility to our community by committing to the following objectives:

- To comply with all applicable regulations and strive to exceed compliance.
- To conserve energy, water, materials, and other resources.
- To develop and implement practices that prevent pollution and waste.
- To be an environmentally responsible business within our community.


BAY AREA
GREEN BUSINESS PROGRAM

Contra Costa Green Business Program

Eastern Contra Costa Transit Authority

801 Wilbur Avenue, Antioch California

has successfully demonstrated full compliance with local environmental regulatory agencies and taken action to conserve resources and protect the environment. Therefore, this certificate is issued this 8th day of January 2014.

Issued by Contra Costa Green Business Program

Paris Greenlee

Paris Greenlee, Pollution Prevention Manager

Green Business Partners

This certificate is valid for three years unless revoked for cause at the discretion of the local partner agencies

Significant Aspects and Impacts

ECCTA's ESMS Core Team invited each employee to participate in the identification of the environmental aspects associated with operating the service. This process generated a list of 176 aspects that the employees identified as having a potential impact on the environment. The ESMS Core Team prioritized and identified significant aspects based on the following criteria:

- Scale of Impact
- Severity of Impact
- Probability of Occurrence
- Duration of Impact
- Potential Regulatory and Legal Exposure
- Ease of Changing Impact
- Effect on Public Image
- Effect's on ECCTA's Sustainability
- Concerns of Interested Parties
- Cost of Changing Impact

Each aspect was given a score of 1 (low) to 5 (high). The highest-scoring aspects were analyzed by the ESMS Core Team and four were chosen as ECCTA's Significant Aspects, meaning those of the highest priority in meeting ECCTA's commitment to the environment. The Four Significant Aspects are:

Gasoline Delivery | **Diesel Delivery** | **Water Consumption** | **Electricity Consumption**

These Significant Aspects are the foundation of ECCTA's ESMS.

ASPECT	OBJECTIVE	TARGET	PERFORMANCE INDICATOR
Bulk Gasoline Delivery	Maintain regulatory compliance with all applicable codes & standards	Maintain incident-free delivery record	Violations & incidents
Bulk Diesel Delivery	Maintain regulatory compliance with all applicable codes & standards	Maintain incident-free delivery record	Violations & incidents
Water Consumption	Reduce water consumption	Consumption: 10% reduction from FY 12	Consumption: ccf
Electricity Consumption	Reduce electricity consumption	Consumption: 10% reduction from FY 12	Consumption: kWh

Tri Delta Transit
California

Benefits of Adopting an ESMS

Going through the ESMS process, especially the aspect identification activity focused the agency on considering potential environmental impacts of our daily operations in ways that had not been previously considered. Because of the ESMS, not only are we now monitoring our environmental impacts, we are putting systems and controls in place to measure them. The agency employees as well as the Board of Directors are excited by a heightened sense of environmental awareness that has spread throughout the organization.
The ESMS also:

- Provides a strong foundation for the selection of environmental projects and programs
- Allows ECCTA to be better stewards of the environment for our community
- Communicates ECCTA's commitment to environmental sustainability to the employees as well as to the community
- Provides a forum for a new level of interdepartmental communication and cooperation
- Creates a structure that encourages and enables employee participation
- Formalizes a proactive management system
- Institutionalizes best practices
- Increases accountability throughout the organization
- Provides a framework for sustainable growth
- Helps to reduce operating costs
- Enhances ECCTA's image with the public

Resource Commitment

ECCTA estimates that the following labor hours have been expended in the development and implementation of the ESMS, from the first meeting with Virginia Tech and FTA on June 21, 2013 through March 1, 2015. The time includes the time spent at the four workshops in Roanoke, Virginia.

GROUP	ESTIMATED HOURS
ESMS Core Team	1500 (though 5/31/14: hours)
Other ECCTA Employees	40 (though 5/31/14: hours)
Total	1540 (though 5/31/14: hours)

Most of the effort was expended on development of ESMS procedures and work instructions. Additional time was expended for ESMS training, auditing, and communicating the status of the ESMS.

Cost Savings and Avoidance

The costs associated with ECCTA's participation in the FTA training program are offset by the economic value of implementing its ESMS program. Many of the anticipated outcomes of the ESMS will not be fully evident until it has been implemented for a period of time. Our improved training and communication programs have lowered the risk of environmental emergencies. The control and management of the four significant aspects are expected to lead to cost savings and cost avoidance. The prospective annual returns are:

Aspect	Description
Bulk Gasoline Delivery	The improved management of gasoline delivery will help to avoid costs associated with potential spills. This includes fines, clean-up costs as well as potential negative environmental reports.
Bulk Diesel Delivery	The improved management of diesel delivery will help to avoid costs associated with potential spills. This includes fines, clean-up costs as well as potential negative environmental reports.
Water Consumption	ECCTA's water consumption is more than 2500 ccf per year. The ESMS program goal of a 10% reduction will result in lower utility bills as well as participation in helping address California's growing water shortage. The 10% reduction will result in a savings of 189ccf or $1305 annually.
Electricity Consumption	ECCTA's consumes nearly 240,000 kWh each year. The ESMS program goal of a 10% reduction will result in lower utility bills. The 10% reduction will result in a savings of 73,371 kWh or $9910 annually.

Next Steps

The next steps for ECCTA's ESMS program are to:

- Continue monitoring and measuring our progress to quantify cost savings and avoidance
- Implement improvements based on suggestion from the final audited conducted by Virginia Tech on January 29, 2015.
- Track progress on Objectives and Targets specified in current and future action plans
- Develop a Request for Qualifications (RFQ) for an ISO 14001 certification audit
- Continue to increase staff awareness of sustainability issues and practices
- Establish the ESMS and sustainability projects as part of ECCTA's annual budget
- Continue creating Standard Operating Procedures and Work Instruction Plans
- Develop and maintain better recordkeeping mechanisms
- Develop and maintain an ESMS awareness training program for employees and vendors

Tri Delta Transit
California

Management Commitment

ECCTA's senior management team along with the entire Board of Directors is fully committed and supportive of the successful implementation of ECCTA's ESMS program. Necessary resources to implement the program have been allocated and the ESMS is one of the agency's top initiatives.

"By adopting these management principles, ECCTA will be a stronger organization with a clear commitment to sustainability."

Jeanne Krieg
Chief Executive Officer
Eastern Contra Costa Transit Authority

For more information about ECCTA's ESMS program, please contact:
Steve Ponte
Chief Operating Officer
sponte@eccta.org
(925) 754-6622

Detailed scoring on next page.

Final Audit

This section compares the percentage of requirements met, partially met and not met with respect to meeting the requirements of an ESMS as specified in the ISO 14001:2004 standard. The following scores are the result of the ESMS audit presented in this report:

Percent meeting all requirements **"Overall Score"** **97%**
Percent of requirements **"Met"** **93%**
Percent of requirements **"Partially Met"** **7%**
Percent of requirements **"Not Met"** **0%**

The ISO 14001:2004 standard elements of an EMS		Overall (%)	Met (%)	Partially Met (%)	Not Met (%)
4.1	General Requirements	83	67	33	0
4.2	Environmental Policy Requirements	100	100	0	0
4.3.1	Environmental Aspects Requirements	75	50	50	0
4.3.2	Legal and Other Requirements	100	100	0	0
4.3.3	Objectives, Targets and Programs Requirements	82	64	36	0
4.4.1	Resources, Roles, Responsibility and Authority	100	100	0	0
4.4.2	Competence, Training and Awareness	100	100	0	0
4.4.3	Communication	100	100	0	0
4.4.4	EMS Documentation	100	100	0	0
4.4.5	Control of Documents	100	100	0	0
4.4.6	Operational Control	100	100	0	0
4.4.7	Emergency Preparedness and Response	100	100	0	0
4.5.1	Monitoring and Measurement	100	100	0	0
4.5.2	Evaluation of Compliance	100	100	0	0
4.5.3	Nonconformity, Corrective Action and Preventive Action	100	100	0	0
4.5.4	Control of Records	100	100	0	0
4.5.5	Internal Audits	100	100	0	0
4.6	Management Review	100	100	0	0

FTA ESMS INSTITUTE
cota.vt.edu/ems

VIA Metropolitan Transit

San Antonio, Texas
Case Study

VIA Metropolitan Transit
San Antonio, TX

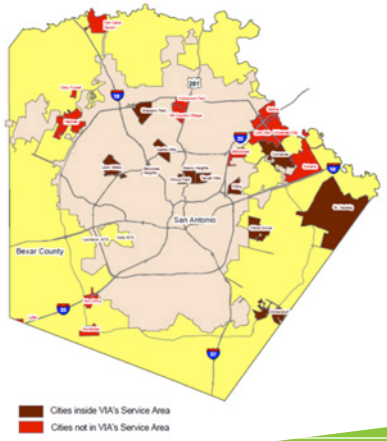
Profile

VIA Metropolitan Transit began operations providing services for the San Antonio area on March 6, 1978 with assets purchased from the City of San Antonio-owned transit system. VIA has continued to grow and now operates a fleet of approximately 463 buses, 124 paratransit vehicles and 120 non-revenue support vehicles. VIA currently provides fixed route bus and demand response paratransit services within a 1,213 square mile area of Bexar County, Texas.

VIA's service area includes various unincorporated parts of the county and multiple municipalities covering roughly 98 percent of Bexar County. Buses operate seven days a week from 4:00 a.m. to 1:00 a.m., and run along over 90 bus lines with more than 7,000 bus stops. VIA provides over 140,000 passenger trips daily, which translates into hundreds of thousands of cars kept off San Antonio roads and over 7 million fewer pounds of soot, carbon monoxide, hydrocarbons, and other toxic substances released into the air each year.

Operations at VIA are constantly being refined to lessen our impact on the environment through innovation and progress. VIA has committed to a greener San Antonio by attracting riders and connecting to new destinations because providing frequent and convenient mass transportation service adds value to our agency and improves our community.

Employees:	2,124
Service Area:	1,213 square miles
Types of Services:	✦ Bus ✦ Primo Bus Rapid Transit (BRT) ✦ VIAtrans (paratransit) ✦ Special Event ✦ Vanpool
Bus Routes:	92
Bus Stops:	7,173
Bus Service Hours:	4:00 a.m. – 1:00 a.m.
Fleet:	440 Buses 121 Paratransit Vehicles 120 Non-revenue Support Vehicles
Park and Rides:	8
Transit Centers:	5
Passenger Trips:	45.9 million* *Fiscal Year 2013
Board Members:	11



VIA Metropolitan Transit
San Antonio, TX

Fenceline

The Environmental and Sustainability Management System (ESMS) fenceline for VIA includes land, structures, equipment, employees and contractors located at VIA Metropolitan Transit's main offices, referred to as VIA Operational Headquarters. This includes all operational, administrative, maintenance and storage functions at the 32-acre facility, centrally located just north of downtown San Antonio. The three main buildings include the Administration Building, the VMC building housing all operational functions, and the maintenance shop and garage. In addition to the maintenance shop and garage, this facility includes a bus wash, wastewater storage, and eight underground storage tanks ranging in size from 8,000 gallons to 15,000 gallons. All VIA vehicles are fueled, serviced and stored at this location.

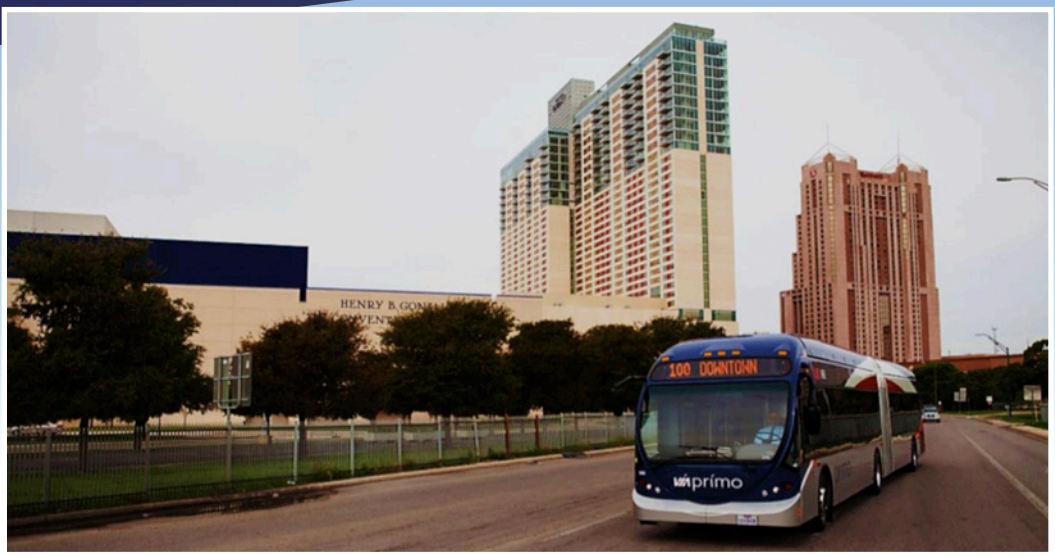
Workforce included in the fenceline consists of a total of approximately 900 salaried and maintenance employees. VIA's fleet consists of approximately 463 buses, including 217 North American Bus Industries (NABI) diesel buses, 23 NABI compressed natural gas buses, 176 New Flyer diesel buses, 30 New Flyer diesel-electric hybrid buses, 3 Proterra electric buses, and 14 Optima streetcars. Also included in the fleet are 124 paratransit vehicles and 120 non-revenue support vehicles.

VIA OPERATIONAL HEADQUARTERS MAIN BUILDINGS

Building	Address	Area
Administration Building	800 W. Myrtle Street	23,000 sq. ft.
VMC Building	1021 San Pedro Ave.	59,000 sq. ft.
Maintenance Building	1720 N. Flores Street	125,000 sq. ft.

VIA ESMS ENVIRONMENTAL & SUSTAINABILITY MANAGEMENT SYSTEM

VIA Metropolitan Transit
San Antonio, TX



ESMS Core Team

The VIA Metropolitan Transit Core Team is referred to as the Environmental and Sustainability Management System (ESMS) Core Team and is comprised of personnel representing the Fleet and Facilities Division and the Safety and Security Division.

ESMS Core Team members include:

- Gary Glasscock, Vice President Fleet and Facilities
- Stan Moczygemba, Environmental Safety Specialist
- Abigail K. Rodriguez, Manager of Facility Programs
- Darren Shimek, General Foreman – Facilities
- Jennifer Serold, Administrative Assistant to Vice President
- Janice G. Williams, Asset Manager
- Alison Buck, Environmental and Facility Sustainability Coordinator

VIA Metropolitan Transit
San Antonio, TX

Key Drivers for Adopting an ESMS

VIA Metropolitan Transit recognizes that environmental performance is becoming increasingly important and has responded by incorporating environmental protection, conservation, and minimization of natural resource usage into its vision, mission, and goals. Improving the environmental performance at VIA is important because of the organization's vast role in serving the the community and the size and scope of the organization services. This large scope allows for a significant impact on the well-being of San Antonio's citizens through the effects resulting from environmental efforts. For example, over the past several years, air quality measurements in San Antonio have been close to exceeding, or have slightly exceeded, the national ambient air quality standards. Bexar and surrounding counties currently form the largest metropolitan area designated as an attainment area, but in order to keep air quality measurements within the requirements of the standard and prevent San Antonio from losing its full-compliance designation, action must be taken. Because of the vital importance of air quality to the region, VIA wants to – and has the ability to – contribute to maintaining San Antonio's attainment status by participating in programs committed to mitigation of negative environmental impacts and/or reduction of harmful emissions. With the goal of minimizing environmental damages, VIA actively participates in various partnerships and programs committed to sustainability.

In September 2009, VIA made a commitment to environmental performance improvement by becoming one of the original signatories of the American Public Transit Association's (APTA) sustainability commitment. As one of only 45 transit agencies making this commitment, VIA pledged to set long-term goals, short-term action items, and contribute to the development of industry-wide best practices. In order to honor this commitment, VIA began looking for ways to further sustainability efforts and improve the organization. In December 2012, VIA applied for participation in the 4th round of the Federal Transit Administration's Environmental and Sustainability Management System (ESMS) training and assistance program. VIA recognized that adopting the ESMS framework would provide the organization with the structure to fulfill the APTA commitment by integrating environmental considerations into everyday business operations and processes. VIA was accepted into this ESMS program in April 2013 and began the process to implement the system within the selected fenceline shortly thereafter. Though several environmental commitments and programs were already in place, VIA recognized that the ESMS would provide the organization with a formal system for measuring and managing the elements of the agency that interact with the environment.

In addition to signing APTA's sustainability commitment and implementing an ESMS, VIA is also actively participating in the U.S. Department of Energy's Clean Cities program, which provides resources to local coalitions to reduce petroleum consumption through various methods, such as use of alternative fuels and implementation of idle-reduction measures and other new technologies.

VIA Metropolitan Transit
San Antonio, TX

The development and implementation of an ESMS provides VIA with a series of processes and procedures to measure, manage, record, and reduce the impact of work-related activities on the environment. This helps to lower operating costs while conserving resources, advancing the organization economically and environmentally. VIA Metropolitan Transit must comply with several federal, state, and local laws and regulations enforced by various environmental agencies, and the ESMS helps to ensure that VIA is in compliance with all legal and other requirements to which we are responsible. Development of an ESMS adds another dimension to our organization's existing sustainability efforts by providing the organization with a formal system for measuring and managing the elements of the business that interact with the environment, and adopting an ESMS program will further contribute to keeping San Antonio a safe, healthy, and clean place to live and work.

Significant Aspects and Impacts

The ESMS Core Team met several times to discuss the areas and processes that have an environmental aspect. During these meetings, the ESMS Core Team identified fourteen aspects based on the ISO 14001 criteria. Each aspect was scored and evaluated using set criteria that considered environmental and business significance. Some of the factors that were considered include:

- Scale of Impact
- Severity of impact
- Probability of Occurrence
- Duration of Impact
- Legal and Regulatory Exposure
- Ease of Change of Impact
- Effect on Public Image
- Concerns of Interested Parties

Each member of the core team scored the risk based on a pre-determined set of criteria and discussed the ranking as a group. If the discussion did not lead to a unanimous vote, the majority ruled. Scores for individual aspects were added together and the aspects scoring the highest (28 points or above) were identified as significant.

The significant environmental aspects are as follows:

- **Chemicals and Hazardous Materials**
  - Environmental Impacts: Water, Air, Waste Management, Ground, and Raw Materials
- **Wastewater and Sludge**
  - Environmental Impacts: Water, Waste Management, Ground, and Raw Materials
- **Spill Potential**
  - Environmental Impacts: Water, Air, Waste Management, Ground, and Raw Materials
- **Underground Storage Tanks (USTs)**
  - Environmental Impacts: Water, Air, and Ground

VIA Metropolitan Transit
San Antonio, TX

Objectives and Targets

The team developed these objectives and targets to correspond with the four significant environmental aspects:

Chemicals and Hazardous Materials

Planned Completion Date: October 2015

Goal: VIA will minimize the risk of exposure to hazardous materials

Objective: Enhance the process by which hazardous materials are purchased, stored, & used to reduce exposure to hazardous materials

Target: Reduce the number of hazardous chemicals used by 10%

Strategy:
1) Enhance approval process for purchase of chemicals
2) Assess current inventory of chemicals
3) Consolidate inventory
4) Ensure appropriate training of personnel regarding hazardous materials
5) Ensure that the facility has adequate space for disposal and storage

Wastewater and Sludge

Planned Completion Date: October 2014

Goal: VIA will improve wastewater treatment and pollution discharge performance

Objective: Improve the quality of wastewater

Target: Reduce the amount of fats, oils, and greases by 5%

Strategy:
1) Establish a baseline
2) Monitor wastewater quality
3) Maintain wastewater treatment equipment and sumps
4) Redirect wastewater storage tank discharge

VIA Metropolitan Transit
San Antonio, TX

Objectives and Targets

Spill Potential

Planned Completion Date: January 2016

Goal: VIA will use best practices and training to reduce spill potential

Objective: Reduce the potential for spills to occur through training and use of best management practices

Target: Maintain the number of reportable spills to zero per year

Strategy:
1) Develop effective response procedures
2) Ensure awareness and training of employees regarding spill prevention
3) Confirm appropriate placement of spill lockers where necessary

Underground Storage Tanks (USTs)

Planned Completion Date: August 2016

Goal: VIA will improve the processes associated with USTs in order to reduce the potential for contamination from leaks and spills.

Objective: Reduce the potential for ground/groundwater contamination from USTs

Target: Maintain the number of reportable spills to zero per year

Strategy:
1) Testing/Monitoring/Inspections
2) Utilize a preventative microbial additive
3) Ensure that employees are properly trained
4) Install UST sealed sump system and upgrade existing leak detection equipment

Benefits of Adopting an ESMS

VIA recognizes several benefits of adopting an ESMS that will have a positive impact for the agency and the San Antonio area. Going through the implementation process (particularly during aspect identification) has allowed the agency to realize fully how our daily operations may impact the environment. As part of the ESMS process, the ESMS Core Team has had the opportunity to view our operations from the ground level in a more "hands on" approach allowing us to gain a better overall understanding of our operations from this perspective.

Positive impacts include:

- Reduced environmental impact,
- Ensures the agency meets all local, state and federal regulations,
- Increased value to the community,
- Streamlined processes with all contractors,
- Auditing component ensures compliance & continual improvement,
- Dollar cost savings,
- Revenue from improved environmental performance,
- Pollution prevention,
- Resource conservation,
- New customers and markets,
- Increased efficiency,
- Reduced operating costs,
- Enhanced employee morale,
- Enhanced image with the public, and
- Greater employee awareness of environmental issues and responsibilities.

VIA Metropolitan Transit
San Antonio, TX

Resource Commitment

Each Core Team member devoted many hours in the training and preparation of documents as well as in meetings as a team and with others in the agency. The team dedicated over 1,000 hours to the ESMS from June 2013 through February 2015.

Cost Savings and Avoidance

VIA Metropolitan Transit strives to be a more environmentally friendly organization and has made many important changes to demonstrate its commitments to sustainability. Some of these sustainability commitment initiatives and related improvements include: engine overhauls, new particulate filters, and the installation of anti-idling technologies on traditional diesel engines, facility lighting retrofits, bus wash water recycling, installation of solar panels at transit centers and bus shelter locations, an enthalpy wheel cooling system, and the installation of bicycle accommodations at transit centers and major transfer locations.

The cost savings relating specifically to the ESMS and the significant aspects will mostly come from the avoidance of fines due to noncompliance. The significant environmental aspects that VIA is focusing on at this time do not directly impact costs and are focused more on avoiding spills, accidents, and noncompliance incidents. However, VIA has experienced cost savings resulting from various projects and programs outside of the ESMS. Detailed projects are noted below specific to fleet operation, buildings and property, administrative practices, purchase/procurement, planning, and alternative transportation encouragement.

VIA Metropolitan Transit
San Antonio, TX

Fleet Operation

- VIA has one of the most fuel diverse fleets in the country (diesel, natural gas, propane, E10 gasoline/ethanol blend, hybrid, all electric). As alternative fuel types have been incorporated and more diesel buses are replaced with CNG buses, VIA has experienced savings. See table below.
- Engines of over 100 older diesel buses have been repowered with engines that provide a 30% reduction in NOX emissions. NOX is a precursor to ozone.
- Bus washers are equipped with water recycling and drying equipment to conserve water and control run off.
- Efforts have been made to minimize solar and ambient heat loading of buses (less fuel consumed to cool bus). Some of these efforts include:
  - Windows tinted to maximum legal limit
  - Low heat absorption paint schemes
  - Push open exit doors
- Other fuel saving measures leading to savings:
  - Adoption of electric engine cooling fans for buses
  - Adoption of screw type, air-conditioning compressors for improved efficiency
  - Adoption of LED interior and exterior lighting which require less energy
  - Engine idle limit controls on all buses
  - Use of aluminum wheels, PVC flooring and redesigned passenger seating to reduce vehicle weight
  - Tire pressures checked daily

VIA Metropolitan Transit
San Antonio, TX

Fuel Cost Information

Fuel/Propulsion Type	Fuel Cost Feb. 2015 ($/gal)	Taxes & Fees ($/gal)	Total Fuel Cost ($/gal)	Cost/Mile ($/mi)
Propane – Trolley	0.7506	0.0078 (3)	0.7584 0.2584 (5)	0.39 0.13 (5)
Propane – Para Van	0.7506	0.0078 (3)	0.7584 0.2584 (5)	0.13 0.04 (5)
E10: Gasoline/Ethanol – Para Van	1.6561	0.2041	1.8602	0.28
Ultra Low Sulfur Diesel – Bus	1.9046	0.2041	2.1087	0.56
Diesel/Electric Hybrid – Bus	1.9046	0.2041	2.1087	0.38
Compressed Natural Gas (DGE) 40' & 60' Bus	0.7545 (1)(2)	N/A (4)	0.7545 0.2545	0.28 0.09 (5)
Electric Bus (Jan 2015)				1.6473

(1) Diesel Gallon Equivalent (DGE) based on energy content equivalent
(2) Includes $0.0516 per DGE cost of electricity for gas compression
(3) An annual state tax of $444.00 is also paid per propane vehicle
(4) An annual state tax of $444.00 is paid per natural gas vehicle
(5) Includes $0.50/GGE rebate from IRS

Buildings/ Property

- 100% use of wind generated electricity
- Lighting retrofits in all administrative buildings, offices, and shelters to reduce energy consumption
- Replacement of HVAC systems with energy efficient systems including programmable control systems in the:
  - Administrative and Annex buildings
  - VMC
  - Maintenance administrative area
  - Crossroads Park and Ride
  - Ingram Park and Ride
  - Randolph Park and Ride
- White roofs recently installed on Maintenance and Annex buildings (R-value improved from R 2 to R 20 reflected – 87%).
- Low E window retrofits installed at Administration and Annex buildings.
- Employee parking in bus yard to minimize operational footprint
- Rooftop solar power collection
  - Madla Park and Ride (13.4 Kw),
  - North Star Center (9.2 Kw),
  - Kel-Lac Park and Ride (24.6 Kw),
  - South Texas Medical Center Transit Center (30 Kw),
  - Robert Thompson Terminal,
  - 556 Bus Shelters
- Since mid-2010 when the first solar energy panels were being installed at VIA Transit Centers, we have generated approximately 190,000 KwH on site and avoided over 130,000 kg of CO^2

VIA Metropolitan Transit
San Antonio, TX

Administrative Practices

- Comprehensive energy and water use plan
- Removal and replacement of older, less efficient servers
- Utilization of employee flex time to minimize energy peaks
- Agency wide recycling is in place for a large variety of commodities including: cardboard, plastic, paper, scrap metals, oil/lubricants, batteries, filters, paint, water, refrigerants, and solvents

Purchase/ Procurement

- Eliminated the requirement that responders to RFPs submit multiple copies and instead accept electronic versions
- All appliances purchased are Energy Star rated

Planning

- Routinely coordinates other agency infrastructure projects to insure connections and access to transit are considered, improved and scare resources leveraged
- Ensure public transportation access and amenities are discussed and included in long-range planning documents and plans (bicycle master plan, pedestrian safety access, long-range comprehensive plan)
- New building designs take sustainability into consideration

VIA Metropolitan Transit
San Antonio, TX

Next Steps

VIA's next steps are simple. The plan is to:

- Use the ESMS framework to improve environmental compliance and awareness in all departments and at all levels of the organization
- Continue development and implementation of policies and procedures related to the ESMS
- Continue to improve environmental performance by completing action plans and incorporating other identified environmental aspects into the ESMS
- Establish the ESMS projects as part of the annual budget completely paid for by cost-savings generated from the implementation of these projects
- Continually improve VIA's ESMS by continuing maintenance efforts in all 17 ISO 14001:2004 elements

VIA Metropolitan Transit
San Antonio, TX

Management Commitment

VIA Metropolitan Transit's executive team is committed to development and successful implementation of the ESMS program. The Board of Trustees adopted the policy on December 16, 2014.

"VIA Metropolitan Transit is committed to continuous process improvement and to responsible stewardship of our resources. This commitment includes improving the sustainability of our organization through implementation of best practices as outlined by our Environmental and Sustainability Management System (ESMS). The comprehensive and systematic approach of our ESMS enhances VIA by conserving natural resources while lowering operating costs. Our ESMS is valuable to our organization because it helps us to protect public resources and the environment, which is good for our customers, employees, and the entire region that we serve."

Jeffrey Arndt,
President/CEO

For more information about VIA Metropolitan Transit's ESMS Program, please contact:
Alison Buck
Environmental and Facility Sustainability Coordinator
alison.buck@viainfo.net
(210) 362-2465

Detailed scoring on next page.

VIA Metropolitan Transit
San Antonio, TX

Final Audit

This section compares the percentage of requirements met, partially met and not met with respect to meeting the requirements of an ESMS as specified in the ISO 14001:2004 standard. The following scores are the result of the ESMS audit presented in this report:

Percent meeting all requirements **"Overall Score"** **97%**
Percent of requirements **"Met"** **94%**
Percent of requirements **"Partially Met"** **6%**
Percent of requirements **"Not Met"** **0%**

The ISO 14001:2004 standard elements of an EMS		Overall (%)	Met (%)	Partially Met (%)	Not Met (%)
4.1	General Requirements	100	100	0	0
4.2	Environmental Policy Requirements	95	90	10	0
4.3.1	Environmental Aspects Requirements	100	100	0	0
4.3.2	Legal and Other Requirements	100	100	0	0
4.3.3	Objectives, Targets and Programs Requirements	100	100	0	0
4.4.1	Resources, Roles, Responsibility and Authority	100	100	0	0
4.4.2	Competence, Training and Awareness	93	86	14	0
4.4.3	Communication	100	100	0	0
4.4.4	EMS Documentation	100	100	0	0
4.4.5	Control of Documents	100	100	0	0
4.4.6	Operational Control	88	75	25	0
4.4.7	Emergency Preparedness and Response	100	100	0	0
4.5.1	Monitoring and Measurement	100	100	0	0
4.5.2	Evaluation of Compliance	75	50	50	0
4.5.3	Nonconformity, Corrective Action and Preventive Action	100	100	0	0
4.5.4	Control of Records	100	100	0	0
4.5.5	Internal Audits	100	100	0	0
4.6	Management Review	100	100	0	0

FTA EMS INSTITUTE
cota.vt.edu/ems

Valley Transportation Authority

Santa Clara, California
Case Study

Valley Transportation Authority
Santa Clara, CA

Profile

The Santa Clara Valley Transportation Authority (VTA) is an independent special district that provides bus, light rail, and paratransit services, as well as participates as a funding partner in regional rail service. As Santa Clara County's congestion management agency, VTA is responsible for countywide transportation planning, including congestion management, design and construction of specific highway, pedestrian, and bicycle improvement projects, as well as promotion of transit-oriented development.

VTA Fast Facts

Total Ridership FY'14:	43,428,492
Bus Ridership: (avg. weekday FY'14)	105,969
Light Rail: (avg. weekday FY'14)	35,012
Number of Bus Stops:	3,832
Miles of Bus Routes: (round trip)	1,236
Total Operating Budget:	$380 Million
Number of Employees:	2,100 (70% in Operations)
Service Area:	346 square miles
Total County Population:	1.8 million
Number of Buses:	505
Routes:	70
Number of Light Rail Cars:	99
Lines:	3
Number of Light Rail Stations:	62
Miles of Light Rail Track:	42.2
Total Capital Program Budget:	$4.5 Billion
On Time Performance:	86% (Bus) 85% (Light Rail)

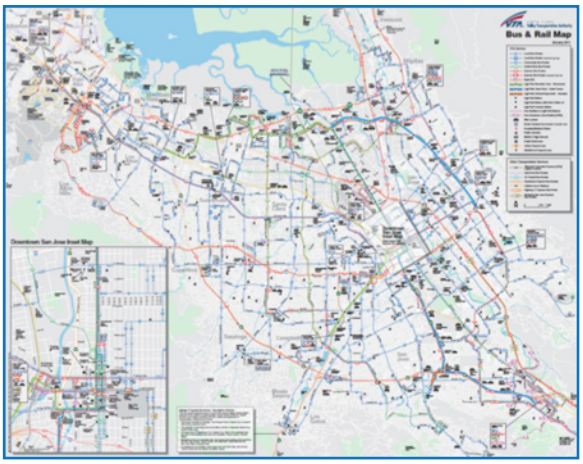
Valley Transportation Authority
Santa Clara, CA

During 2014 VTA reached the halfway mark on the largest public works project in Santa Clara County history. The BART Silicon Valley Berryessa Extension Project extends the San Francisco Bay Area Rapid Transit system into Silicon Valley. The majority of construction for the first phase will be complete by 2016, with system testing in 2017 and passenger service planned by late 2017.

VTA also broke ground on the first Bus Rapid Transit (BRT) project in the Bay Area.

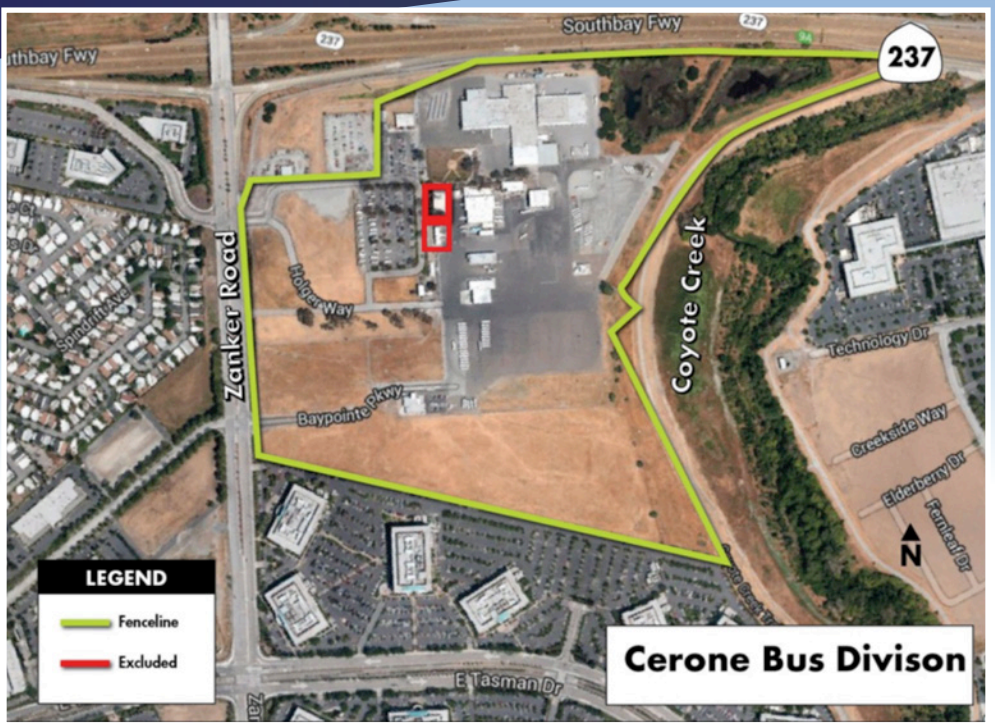
BRT features:

- Limited-stops
- 10-minute frequencies
- All door boarding
- Traffic signal priority that holds green lights longer for approaching buses
- Dedicated median bus-only lane to improve travel time for customers.
- Hybrid vehicles with modern interiors and on board Wi-Fi will offer a comfortable, convenient and productive new way to travel.



When the San Francisco 49ers opened a new stadium in Santa Clara last summer, VTA began providing front-door stadium service to thousands of fans. VTA will have a chance to shine once again with Super Bowl 50 in early 2016. The event is expected to attract nearly 80,000 people to Levi's Stadium located in Santa Clara County.

Valley Transportation Authority
Santa Clara, CA



Fenceline

The Cerone Bus Division serves as a base for operations, fueling, servicing, detailing, running repair, and preventative maintenance for 136 buses. The Division also provides a centralized major maintenance program for VTA's entire bus fleet, including paint and body repair, upholstery, fare box repair, transmission and small component rebuild, engine overhaul, and the heavy repair and maintenance associated with major component removal.

The Environmental Management System (EMS) fence line is limited to activities associated with bus maintenance and repair. Paratransit maintenance, bus operations, and revenue are excluded.

Valley Transportation Authority
Santa Clara, CA

Core Team

VTA's EMS Core Team consists of seven members from various departments. The EMS Core Team meets weekly to plan, check, and implement VTA's EMS. The members were selected to represent the diverse functions of VTA from transit operations to environmental planning and risk management. The members include (pictured from left to right):

Jesse Soto
Facilities Maintenance Coordinator

Maria Soto
Executive Secretary to the Chief Operating Officer

Lani Ho
Environmental Planner III

Michael Hursh
Chief Operating Officer

Steve Keller
Director of System Safety & Security

Mark Gordon
Environmental Health & Safety Specialist (ret.)

Jay Petty
Operations Manager, Bus Maintenance

Valley Transportation Authority
Santa Clara, CA

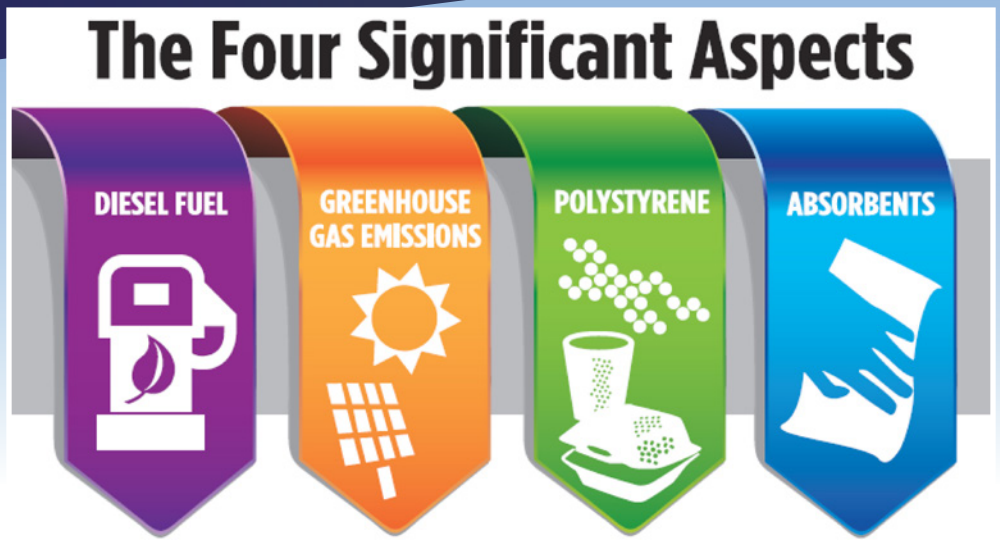
Key Drivers for Adopting ESMS

VTA has a long history of environmental leadership.

- In 2008, VTA's Board of Directors approved a Sustainability Program and adopted the following goal statement: "To strengthen VTA's commitment to the environment through the conservation of natural resources, the reduction of greenhouse gases, the prevention of pollution, and the use of renewable energy and materials."

- In 2009, VTA volunteered to be a signatory of the American Public Transportation Association (APTA) Sustainability Commitment. Accomplishments of VTA's Sustainability Program include installing energy efficient lighting, replacing bathroom fixtures with low-flow models, installing electric vehicle charging stations, retrofitting irrigation equipment, and other sustainable practices.

After achieving the low-hanging fruit, VTA applied to the Federal Transit Administration for one of ten available team slots in the EMS Institute. Completing this institute and implementing the ISO 14001 environmental management system demonstrates VTA's ongoing commitment to the environment.



Employee Badge Card Lists Significant Aspects

Significant Aspects

For the initial implementation phase, the EMS Core Team identified a list of 77 activities, products, and services (aspects) within the fence line that may have a potential negative impact on the environment. Each aspect was scored and rated.

Based on the rating system developed by the VTA EMS Core Team, nine aspects were determined to be critical. Out of these nine, the EMS Core Team prioritized the aspects and selected four to represent VTA's initial focus. The four significant aspects include diesel fuel, greenhouse gas emissions, polystyrene, and absorbents.

Diesel Fuel

The majority of VTA's bus fleet uses ultra-low sulfur diesel fuel. The EMS fence line includes a diesel fuel underground storage tank and fueling island. Diesel fuel has the potential to contaminate the environment during delivery, storage, fueling, and disposal. Pollution can be prevented by properly labeling storage areas and spill kits, maintaining fueling equipment, and conserving fuel.

Greenhouse Gas Emissions

Greenhouse gas emissions contribute to global climate change. Emissions can be reduced by improving the cleaning process of diesel particulate filters, eliminating unnecessary vehicle idling, purchasing fuel efficient vehicles, and retrofitting equipment.

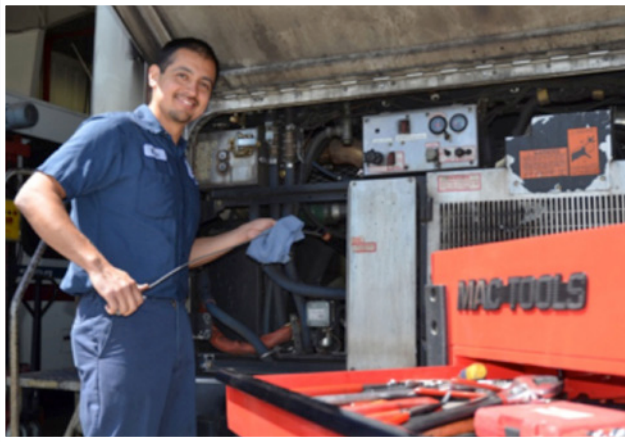
Polystyrene

Disposable cups and take-out containers are made out of expanded polystyrene (EPS) foam, commonly referred to as Styrofoam™. Reducing polystyrene helps the environment by preventing litter and conserving resources.

Absorbents

Absorbent pads and towels are intended for wiping up oil, grease, and small spills at our bus and light rail divisions. Sometimes absorbents are used to clean up non-hazardous materials. By properly using and disposing of absorbents, we can save money on hazardous waste fees.

Valley Transportation Authority
Santa Clara, CA



Absorbents are commonly used in maintenance and repair

Objectives and Targets

SIGNIFICANT ASPECT	OBJECTIVE	TARGETS
DIESEL FUEL	Improve fuel economy of VTA's operating fleet by 20% and increase awareness of environmental impacts associated with diesel fuel.	Improve labeling of storage areas and spill kits; Track fuel economy and establish baseline; Implement and/or revise procedures to maintain fueling equipment, fuel ports and fuel island flooring; Educate employees of fuel conservation and spill prevention procedures.
GREENHOUSE GAS EMISSIONS	Achieve 10% reduction in greenhouse gas emissions.	Replace vehicles that have exceeded their useful lifespan with hybrids; Improve cleaning process for diesel particulate filters; Replace two fire tube boilers with energy efficient hot water boilers and corresponding control systems; Replace two propane emergency generators with one diesel generator; Retrofit existing propane tank; Quantify greenhouse gas emissions using guidance from the American Public Transportation Association.
POLYSTYRENE	Eliminate the use of polystyrene foam food ware containers.	Obtain historical purchasing record and existing inventory of foam food ware containers; Identify food ware product substitutes; Revise, approve, and distribute supply order forms; Educate employees and advisory committee; Conduct outreach with food truck vendors on eliminating foam food ware containers; Quantify reduction in food ware waste; Revise Objectives, Targets and Program Action Plan to further reduce polystyrene foam in other areas of use such as packaging materials.
ABSORBENTS	Reduce the amount of absorbents disposed as hazardous waste by 50%.	Obtain waste absorbent data and establish baseline; Educate employees to identify waste that is and is not contaminated; Quantify reduction in waste; Review Objectives, Targets and Program Action Plan and revise as necessary.

Valley Transportation Authority
Santa Clara, CA

Benefits of Adopting an EMS

- Environmental stewardship and leadership
- Increased awareness of environmental impacts of our operations
- Reinforcement of environmental processes and programs currently in place
- Reduction of air emissions and waste
- Documentation of operational controls that is integrated with existing management and regulatory requirements
- Improved uses of practices, products, and services to avoid or reduce pollution
- Improved procedures for addressing actual and potential nonconformities and for taking corrective and preventive action
- Cost savings in operations and maintenance
- Third-party validation of our environmental performance and compliance

Resource Commitment

VTA estimates it has spent the following staff time to undergo the training and develop the EMS from the period of February, 2013 through February, 2015:

EMS Core Team:	1,304 hours
Other Personnel:	797 hours
Total:	2,101 hours

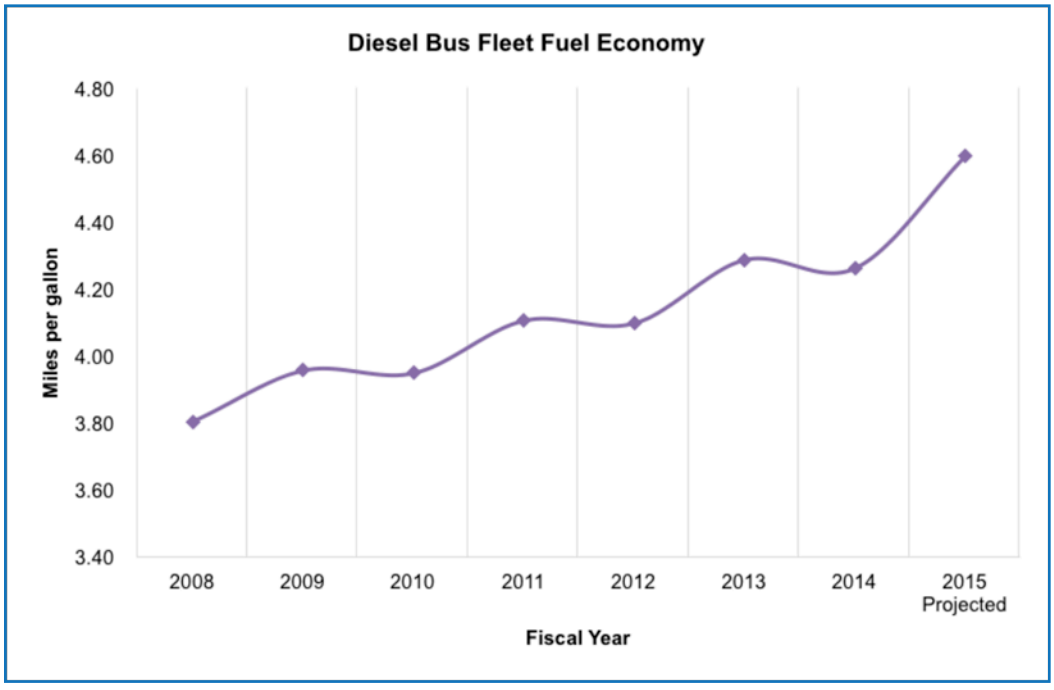
VTA Keep the Valley Green.

ENVIRONMENTAL MANAGEMENT SYSTEM

Valley Transportation Authority
Santa Clara, CA

Cost Savings and Avoidance

Miles per gallon was calculated using the total service miles driven and diesel fuel consumed. In 2014, the fuel economy was 4.26 MPG, representing a 12 percent increase since the 2008 baseline year. VTA's goal is to improve fuel economy by 20 percent through the implementation of its EMS. We are well on our way to accomplish this goal!



Introduction of a new in-house diesel particulate filter (DPF) cleaning program has resulted in cost savings associated with sending DPF's to an outside vendor and prolonging their useful life.

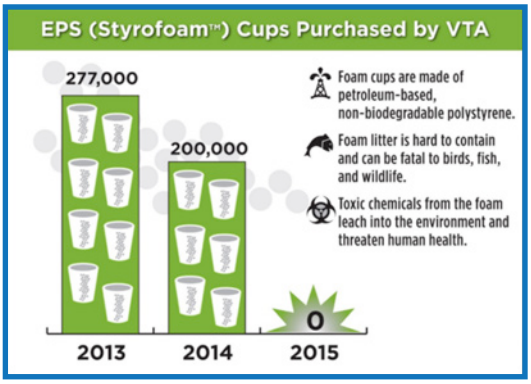
Valley Transportation Authority
Santa Clara, CA

Reusable mugs are printed with the EMS logo and a reminder to *"Carry Your Cup"*

Cost Savings and Avoidance

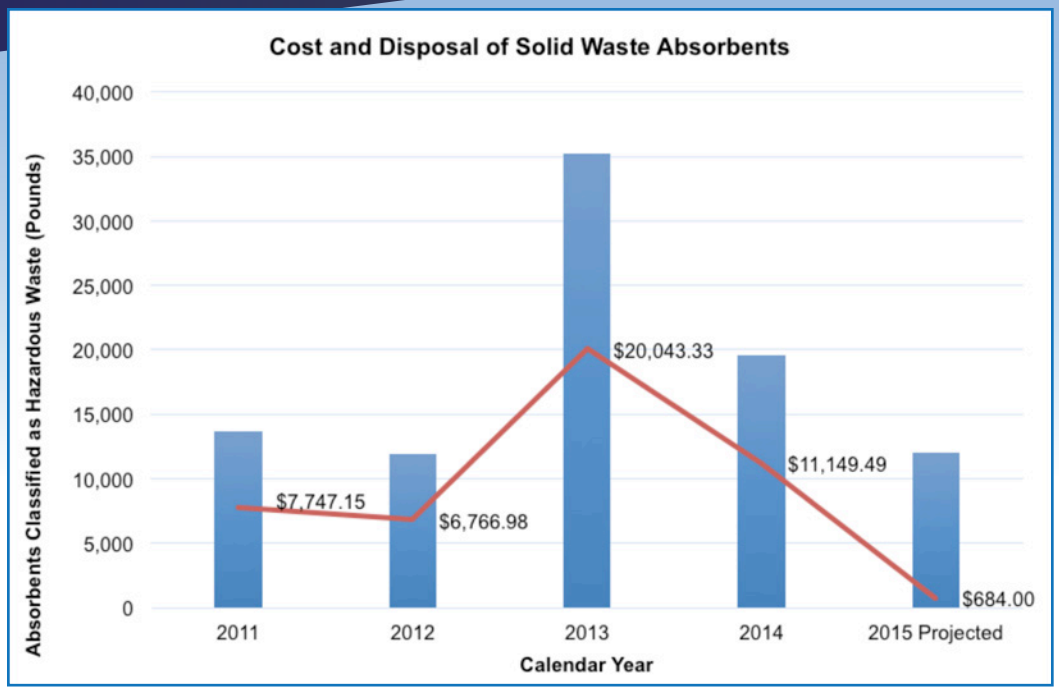
Expanded polystyrene (EPS) cups were removed from supply order forms. Paper cups were added to the forms and reusable mugs were provided to employees to encourage reuse. Although the cost of paper is higher, VTA elected to eliminate EPS to support the City of San Jose's food foam container ban which seeks to reduce litter.

Year	DPFs purchased	DPFs cleaned & reused	Cost Avoided*
2010	57	142	$299,400
2011	39	229	$165,300
2012	17	169	$51,300
2013	28	271	$86,700
2014	24	141	$101,700
2015**	12	120	$36,000
Average	**33**	**190**	**$140,880**



In 2013, we conducted an investigation of abnormal high disposal fees. The spike in usage was attributed to a measuring error by our hazardous waste vendor. This error has been corrected by updating the procedure to confirm the accurate weight of waste is being recorded. We estimate lower costs in 2015 as a result additional education targeted at proper disposal of absorbents of that are considered non-hazardous.

Valley Transportation Authority
Santa Clara, CA



Next Steps

After successful completion of the FTA ESMS program, the next steps that VTA will take include:

- Evaluate staffing needs to obtain ISO 14001 Certification for the Cerone Bus Division
- Continually improve EMS implementation at our fenceline division
- Study opportunities to expand the EMS program into other facilities at VTA
- Increase overall awareness of the EMS program and sustainability goals throughout VTA

Valley Transportation Authority
Santa Clara, CA

Management Commitment

"Agencies that take the step to implement a formal Environmental Management System benefit in many ways beyond an improved greenhouse footprint. Public and employee awareness increase, and financial risk to the agency is reduced due to the comprehensive, thorough and ongoing review of regulatory requirements."

Michael Hursh,
Chief Operating Officer
and EMS Core Team Member

"VTA demonstrates its ongoing commitment to protecting the environment through the implementation of sustainable programs and practices. Adopting an Environmental Management System takes that commitment to the next level, wherein sustainability becomes core to our identity and how we operate."

Nuria I. Fernandez,
General Manager/CEO

For more information about VTA's ESMS Program, please contact:
Maria Soto
Maria.Soto@vta.org
408-321-5588

Detailed scoring on next page.

Final Audit

This section compares the percentage of requirements met, partially met and not met with respect to meeting the requirements of an ESMS as specified in the ISO 14001:2004 standard. The following scores are the result of the ESMS audit presented in this report:

Percent meeting all requirements **"Overall Score"** **99%**
Percent of requirements **"Met"** **98%**
Percent of requirements **"Partially Met"** **2%**
Percent of requirements **"Not Met"** **0%**

The ISO 14001:2004 standard elements of an EMS		Overall (%)	Met (%)	Partially Met (%)	Not Met (%)
4.1	General Requirements	100	100	0	0
4.2	Environmental Policy Requirements	100	100	0	0
4.3.1	Environmental Aspects Requirements	100	100	0	0
4.3.2	Legal and Other Requirements	100	100	0	0
4.3.3	Objectives, Targets and Programs Requirements	100	100	0	0
4.4.1	Resources, Roles, Responsibility and Authority	100	100	0	0
4.4.2	Competence, Training and Awareness	100	100	0	0
4.4.3	Communication	100	100	0	0
4.4.4	EMS Documentation	100	100	0	0
4.4.5	Control of Documents	94	89	11	0
4.4.6	Operational Control	100	100	0	0
4.4.7	Emergency Preparedness and Response	100	100	0	0
4.5.1	Monitoring and Measurement	100	100	0	0
4.5.2	Evaluation of Compliance	100	100	0	0
4.5.3	Nonconformity, Corrective Action and Preventive Action	100	100	0	0
4.5.4	Control of Records	100	100	0	0
4.5.5	Internal Audits	92	83	17	0
4.6	Management Review	100	100	0	0