TURI Community Grants Program

WPS FINAL PROJECT REPORT

Case Study

Fiscal Year 2019

Project:	EPPs for School Building and Grounds Maintenance, and School Bus Fleet Maintenance 1. TUR in School Building Trades – Carpenters, Electricians, Glazier, HVAC/Steamfitters, Locksmith, Plumbers 2. TUR in School Bus Operations and Maintenance
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WPS 2019 Case Study for TURI
EPPs in Maintenance Products for Vehicles, Buildings and Grounds Equipment

WPS Background

WPS is located on 400 acres of land in Worcester, Massachusetts. It is the second largest city in Commonwealth (and NE), and the third largest school district.

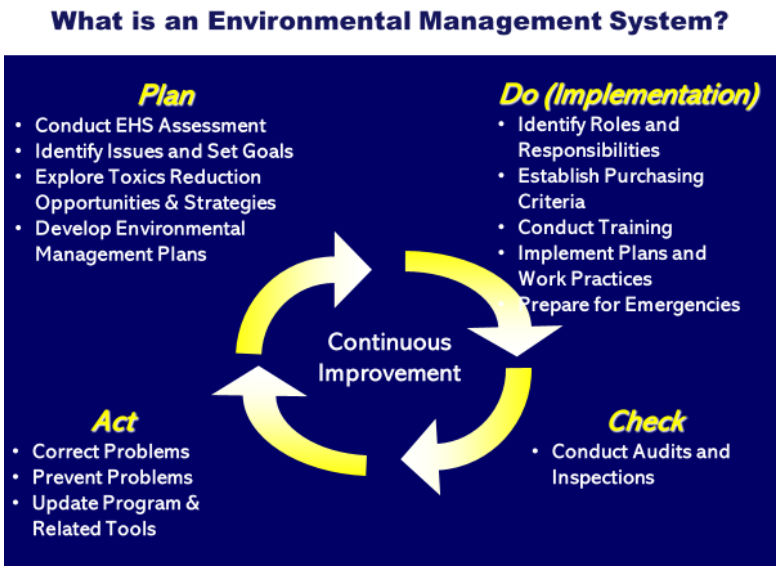
The role and responsibility of the WPS Facilities Department is to provide clean, safe schools and ancillary buildings (total 62 buildings, 3.6 million square feet). Buildings are aged between 1842 – 2017, with an average age of 71 years. Student Population is currently 25,400 and there are 4, 244 employees.

One way to illustrate the magnitude of WPS's responsibilities for environmental health and safety (EHS) of its workers and building occupants, and put this EHS work into perspective, WPS takes care of approximately the same number of students that all the local colleges do COMBINED, plus over 4,000 teachers. These colleges have significantly more EHS resources and in most cases, have EHS Departments to do this work. Local College Enrollment:

• Assumption	2,675
• Becker	2,135
• Clark	3,485
• Holy Cross	2,729
• MCPHS	1,606
• WPI	6,573
• WSU	6,306
TOTAL	25,509

WPS Environmental Initiative

For the past ten years, WPS has used the environmental management system (EMS) model to reduce any environmental impacts from academics, operations and maintenance, and enhance building conditions to ensure health and safety of its students and staff.



Role of **Toxics Use**

Reduction (TUR) in the EMS

TUR is a key EMS strategy and the first step to reduce compliance requirements, liability and reduce hazards to workers and building occupants. Thus, one of the first key tools WPS created was a Purchasing Program that set very basic purchasing standards regarding product use, quantities and hazard levels.

WPS then embarked on engaging each WPS department in assessing their product specific issues to determine what changes were needed. Based on the findings of these assessments, WPS worked for the last two years with TURI to identify alternatives for food service, transportation, and building and grounds equipment maintenance. In addition to the TURI projects, the Custodial Sector has replaced its disinfectant with a less hazardous product and is working towards using safer cleaning products. The WPS Science Department has embarked on a nine-year initiative to reduce the use of toxics in the science curriculum.

Project Management

The project was designed and coordinated by the Facilities Department in conjunction with the participating WPS departments. The Facilities Department coordinated all aspects of the project, administered project, identified products of concern for the tradesmen and grounds crew, selected products to pilot, etc. They also coordinated grant activities for the Transportation Department.

Lynn Rose, Consultant, provided project administrative support, program development and coordination, training and technical assistance. For this second year of the TURI projects, she worked in conjunction with Jim Bedard, Director of Environmental Compliance and Capital Projects, Tom Barret, Coordinator Buildings and Grounds for tradesmen and building and grounds equipment maintenance, John Hennessey, Director Transportation, for the WPS Bus Depot, the Facilities Department administrative support staff, and the Materials Management Department (procurement).

Project Description

The goal of this second year project was to reduce the use of toxics in the following WPS sectors who serve the entire district that manages 62 school and operations buildings and grounds:

1. Building Trades - who provide repair and maintenance services to school buildings.
2. Grounds Crew - who provide grounds maintenance for WPS school grounds.
3. Transportation - who provide school bus transportation in large and small buses.

Long Term Goals

1. Reduce risks to worker and occupant health and safety, and to the environment.
2. Reduce hazardous waste management and disposal costs for all sectors.
3. Create purchasing criteria and specifications for selecting the least toxic products used by the trades, grounds crew, custodial staff, and vehicle maintenance person (Facilities & Transportation Depts.)
4. Expansion of successfully piloted products and systems to all WPS buildings, vehicles and equipment. For example, the FY 2018 TURI project recommendations for cleaning and disinfecting school buses has become instituted as the new system for implementing

in all the buses.

The objectives used to meet these goals:

1. Find safer products for the most highly hazardous and most commonly used products for the operation, repair and maintenance of school buildings, buses and landscaping equipment.
2. Ensure product availability.
3. Develop purchasing criteria so standards can be met for the long-term.
4. Develop related guidance materials (e.g. work practices, product management, systems, purchasing criteria, design criteria for new facility).
5. Pilot new products to ensure they are safe and effective.
6. Develop training materials and train people on how to use and manage new products.

Auto Repair

Overview

WPS Transportation Department operates its own bus garage for WPS owned small school buses, which they have historically driven for the WPS special education population. They have been exploring the expansion of the bus services for the last few years. During 2017 – 2018 school year, they expanded their operations and purchased and drove a fleet that went from 31 small buses to 40 small buses and added 14 large buses and 2 vans. As of summer, 2019, they are in the process of exploring expanding their operations further to own, service and drive all the buses used by the school department for a total of 132 large and small buses.

As a part of this expansion initiative, WPS completed phase one of a successful transition to greening their operations through a TURI funded pilot for green cleaning and disinfecting the SPED buses in 2017-2018.

Following the initiative to safely clean and disinfect the buses, they implemented phase two of greening the bus fleet operations for the fluids and maintenance products. WPS obtained the TURI grant to explore;

1. how maintenance of the buses (once brought in house) could be done safely through purchase and use of EPPs that have the least impact on the environment and employees,
2. what training could be provided to repair personnel, and
3. how a new bus facility could be designed to have the least impact on the environment and employees.

Summary of Vehicle Project Accomplishments:

1. Worked with the new Maintenance Supervisor to select and begin to pilot safer products. He left the district in the spring of 2019, and the Transportation Department is actively the process of hiring for this position. Please note that the pilot will continue once new personnel and processes are in place.
2. Set-up and began using the new products (maintenance and auto fluids) in the shop. We selected one bus to pilot the fluids, to better track performance. In addition, maintenance products are used in all the buses as needed. Please see attached photos of products in shop.
3. Researched and collected guidance for establishing a repair and maintenance shop (once a new location is selected for the expansion) to prevent pollution, minimize use of toxics and ensure regulatory compliance.
4. Obtained a commitment from the Massachusetts Office of Technical Assistance for Toxics Use Reduction (OTA) for receiving technical assistance and guidance for operating the new bus depot and conducting the repairs.
5. Obtained Masscar (from OTA) training materials for training the Maintenance Supervisor and 6 to 7 repair men. Also identified a very affordable on-line training program with

extensive trainings on all aspects of managing a repair shop by the Coordinating Committee for Automotive Repair (CCAR).

The following information chronicles our process and findings in detail. Specific documents are referenced and provided in the attachment to enable WPS and others to implement and build on this work. As a result of the TURI project, the Transportation Department has the tools to plan the new facility, order environmentally preferable products, train the repair staff once hired, and guide the management of the facility and work practices.

Research - Guidance on Regulatory Compliance and Best Practices

Reviewed web and agency resources, and compiled fact sheets and training materials from resources. (e.g. OTA Masscar Program, EPA/OSHA - CCAR program, Boston Public Health Commission Safe Shops Program).

Findings - Guidance on Regulatory Compliance and Best Practices

1. **Masscar -** Many state agencies and EPA have generated training and guidance materials over the last 20 years to help reduce the use of hazardous materials as well as improve management of hazardous materials in auto repair shops. The materials generated by federal, state and municipal agencies (MassDEP, EPA and Boston Public Health Commission) were reviewed by the Massachusetts Office of Technical Assistance for Toxics Use Reduction (OTA). OTA updated and expanded the available information into a new set of materials called Masscar. The comprehensive Massachusetts-based program contains everything needed to establish a safe vehicle repair and maintenance shop, including training, checklists, product specific fact sheets, housekeeping guidance, etc.

   All of the auto repair related documents and tools for this program are attached and are referenced in the section of the report "Attachments to this Report".

2. **CCAR Online Training Program** by the National Environmental Compliance Assistance Center for Auto Repair:

   (888) 476-5465

   The Coordinating Committee for Automotive Repair (CCAR), a not-for-profit organization, works with the automotive industry, the insurance industry, OEM's, career and technical schools, collision and automotive repair shops, governments, municipalities, etc. to provide best practice information and training.

   CCAR also has an Alliance agreement with OSHA to develop best practices for those who work on or around vehicles to help protect employees' health and safety.

   CCAR operates "**CCAR-GreenLink**", in cooperation with EPA. This free, web-based (https://ccar-greenlink.org/how-we-do-it/) service provides a wide range of compliance and best practices information specifically for the auto repair industry. They provide the very latest OSHA and EPA pollution prevention and safety training modules.

   CCAR provides "**autoEHS"**, a suite of online safety courses developed specifically for those in the automotive maintenance, repair, and collision industries. It has 20 separate modules, best practice information relating to matters such as Bloodborne Pathogens, Jump Starting Vehicles, and AGM Battery Safety. Each module offers a comprehensive final exam. Upon passing the final, a certificate of completion is offered for download or printing. The autoEHS Safety course bundle is available on a subscription basis for $299 per year, which allows an unlimited amount of training for that facility's staff during the 12-month period.

   Schools receive 20 course Safety bundle pack and the HazmatU training for a discounted price of $299 (a 50% discount).

Research – Third Party Certifications (see reports attachments for detailed information on these certifications)

- Green Seal – Reviewed GS 53 Specialty Cleaning Products for Industrial and Institutional Use. Vehicle related products include; motor vehicle cleaning products, windshield washing fluid, metal cleaning, motor vehicle (automotive/tire/wheel) cleaning products, other cleaning products sold for specialty uses.
- USDA Bioprefered- Biobased products are derived from plants and their renewable agricultural, marine, and forestry materials and provide an alternative to conventional petroleum derived products. Biobased products include diverse categories such as lubricants, cleaning products, inks, fertilizers, and bioplastics. For the purposes of the BioPreferred Program, biobased products do not include food, animal feed, or fuel.
    - Mandatory Federal Purchasing - This symbol indicates that a product qualifies for mandatory federal purchasing by meeting or exceeding the minimum biobased content requirements for one or more products categories that have been identified by USDA. The manufacturers self-certify (self-identify) the product's biobased content. USDA lists the product's biobased content as "meets minimum" for a particular category.

      FP
    - Voluntary Labeling - This symbol indicates that a product or package is USDA Certified Biobased. The biobased contents of these products/packages have been third-party tested at independent laboratories. These products/packages have earned USDA certification and the approval to display the USDA Certified Biobased Product label.

Findings – Third Party Certifications

Due to the status of available alternatives, there are extremely few certifications for auto repair products aside from the biobased. Certifications are available for products to clean vehicle and windows, paint and lubricate vehicles and degrease vehicle parts with aqueous solutions are available.

Research - Product Alternatives

Vendor Results – the project explored state contract options and other vendors that were not available on state contract:

1. Commbuys Contract VEH96 - Light, Medium, Heavy Duty OEM & Non-OEM Motorized Vehicle Parts, Refined Motor Oil, Lubricants.

   The contract only had one vendor in Category 3 Vendor - Motor Oil & Lubricants: Dennison Lubricants, Contact Brian Dennison, briand@denlube.com, 508-946-0500 x110

2. Autobegreen - https://autobegreen.com/ - Absorbents, AntiFreeze & Coolant, ATF, Brake Cleaner, Car Care Products, Degreasers, Diesel Fuel Conditioner, Food Grade Lubricants, Fuel Additives, Gear Oils, Greases, Hydraulic Oils, Hydraulic Jack Oil,

Lubricants / Penetrants, / Inhibitors, Marine Motor Oils, Other Products, Outdoor Engine Oils, Uncategorized, Universal Tractor Fluid, Windshield Products

The project used Autobegreen since they were a one stop shop for auto as well as having products that we could pilot in all three sectors of our project. This was an efficient way to identify desired alternatives.

Product Research Results

1. Biobased – The majority of products (other than car cleaning products) identified and piloted were biobased. It was disappointing that that there were few other types of less hazardous products. This finding is very significant due to the environmental health and safety issues associated with auto repair and maintenance products.

2. Products Selected and Obtained for Pilot for Vehicle Maintenance:

    - Ultra Lube Lubricant and Penetrant
    - Full Synthetic Dexos
    - Amsoil Antifreeze
    - ATF Multi Vehicle
    - Amsoil gasoline stabilizer
    - Gunk vehicle wash cleaner VW5
    - Eco Touch Window Clear
    - ultra-lube multipurpose lubricant and penetrant
    - Cocosorb (spill clean-up absorbent)

Attachments to this Report:

1. Guidance Documents
    - Health Issues
        - Nhexane in auto repair industry
        - Worker exposure to VOCs in auto repair
    - Regulatory Guidance (see also chapter on Waste Management and Recycling)

      Note: Some of the documents below are from the Masscar program. The excerpted documents from the Masscar program include mainly the sections of the Masscar program related to auto repair, not the autobody repair. The checklist and the training presentation were designed for both sectors, thus are provided here in that format.

        - MassCar Auto Repair Training (please note that this checklist also contains guidance on Autobody Repair operations)
        - MassCar Checklist (please note that this checklist also contains guidance on Autobody Repair operations)

        - Permits and Inspection Readiness
        - SewerFax DEP Fact Sheet
        - Understanding OSHA Requirements for Auto Shops
        - Wastewater Regulations and Best Practices
    - TUR/P2 and Alternative Products and Processes (not piloted for this project but provided in the report as a resource for the reader and for WPS to be used in the new transportation facility.)
        - Spill Prevention
        - Adhesive lead - free wheel weights
        - Water-Based Brake Cleaning
        - Water-Based Parts Cleaning
    - Waste Management (not piloted for this project but provided in the report as a resource for the reader and for WPS to be used in the new transportation facility.)
        - Waste Management and Recycling
        - Anti-Freeze Recycling
        - Common Hazardous Wastes
        - Hazardous Waste Management
        - Refrigerant Recycling Systems
        - Solvent Recycling Systems
        - Vehicle Fluid Evacuation Caddies
        - Oil Filter Crushers
        - Waste Oil Management
2. Vendors – Autobegreen
    - EPP Documentation
        - Cocosorb (spill clean-up product)
            - Biodegradability Report Cocosorb
            - CocoAbsorb™ California Department of Fish and Wildlife Packet 2019
            - CocoAbsorb™ EcoLogo UL Environment Packet 2019
            - CocoAbsorb™ NSF Packet 2019
            - CocoAbsorb™ OMRI Packet 2019
            - CocoAbsorb™ USDA Packet 2019
            - Label Oil Dri (here to compare to cocosorb)

        - Biodegradability Report Bar and Chain Oil
        - Engine Oil Emissions Reduction 09-17
        - 2 and 4 Cycle Oil Certification
        - Lubricants Ecolabel Certificate Feb 2019
    - Safety Data Sheets
        - SDS – Grounds Equipment Maintenance
            - SDS NV Earth Bar and Chain Oil
            - SDS LMX Red Grease
            - SDS Ultra Lube Penetrant
            - SDS Gulf Green Ns 46 Hydraulic Fluid
            - SDS Ultra Lube Multipurpose Lubricant and Penetrant
            - SDS Amsoil gasoline stabilizer
            - SDS Performance Plus Gear Oil
        - SDS Vehicle Maintenance
            - SDS Ultra Lube Lubricant and Penetrant
            - SDS Full Synthetic Dexos
            - SDS Amsoil Antifreeze
            - SDS ATF Multi Vehicle
            - SDS Amsoil gasoline stabilizer
            - SDS Gunk vehicle wash cleaner VW5
            - SDS Eco Touch Window Clear
            - SDS ultra lube multipurpose lubricant and penetrant
            - SDS Cocosorb

3. Vendor on COMMBUYS Contract VEH96 Category 3 (products) - Dennison:
    - VEH96_Complete_Cost_Table_Dennison Lubricants~1.xlsx
    - VEH96_Geographical_Coverage_(Dennison Lubricants).xlsx
    - VEH96_Store_Warehouse_Locations_(Dennison Lubricants).xlsx
    - VEH96_Warranties_(Dennison Lubricants)1.rtf
    - VEH96_Warranties_(Dennison Lubricants)2.rtf
    - VEH96_Warranties_(Dennison Lubricants)3.doc
    - VEH96_Warranties_(Dennison Lubricants)4.doc
    - VEH96_Warranties_(Dennison Lubricants)5.rtf

- VEH96_Delivery and Distribution_(Dennison Lubricants).doc
- VEH96_Return_Policy_(Dennison Lubricants).doc
- VEh96_Closed_Loop_AntiFreeze_[Dennison Lubricants]
- VEH96_Closed_Loop_System_WasteOil [Dennison Lubricants]
- VEH96_Drum_Return [Dennison Lubricants]