



Air Quality Award Standards Achievement Report

Please submit one double-sided hard copy and an electronic version of this report to Green Star to earn your Air Quality Award. The hard copy report and any supplemental information can be sent to Green Star, 880 H Street, Suite 106, Anchorage, AK 99501. The electronic version can be sent to info@greenstarinc.org.

Please include at least one digital photo illustrating your organization's Green Star efforts, preferably with team members in the photo. Quarterly report submittal deadlines are March 31, June 30, September 30, and December 30 of each year. Thank you for your participation in Green Star!

Organization Information

Name of Organization: Alaska Railroad Corporation

Contact Person: Stephenie Wheeler. Public Involvement Officer

Green Team Leader (if different): same

Mailing Address: P.O. Box 107500

City: Anchorage

State: AK

Zip: 99510-7500

Physical Address (if different): 327 W. Ship Creek Avenue, Anchorage, AK 99501

Phone : 265-2671

Fax: 265-2365

Email: wheelers@akrr.com

Number of Employees: ~900

Full-time: Nearly all, but about 200 are seasonal (summer)

Multiple Locations

If you have more than one location, please provide addresses for the different locations and indicate which ones you wish to include within this report.

The Alaska Railroad has operating Yard locations in Anchorage, Fairbanks, Whittier and Seward; as well as section operations (track maintenance, etc.) in areas in between the yards. For the purposes of this Green Star Award, the Anchorage Railroad Reserve (yard and office buildings in the Anchorage operating area) will be included.

However, because of the transportation nature of the railroad, some items that we will bring to light in this report have impact all along the rail line, from Seward to Fairbanks. This includes facility maintenance and management policies and actions; train/locomotive fleet maintenance and management; and heavy equipment / work vehicle maintenance and management.



Organization Description

Please provide a brief description of your organization (year established, mission, products, services, ethics etc.): please use a separate page if necessary

The Alaska Railroad is steeped in history, playing a pivotal role in our country's military and economic endeavors, as well as in the development of the 49th state. It grew from humble beginnings in 1904 as a private rail line stretching just a few miles north from its starting point in Seward. The owners, the Alaska Central Railway, and later the Alaska Northern Railway, went bankrupt.

A decade passed before the federal government became interested in an Alaskan railroad for mining and military purposes. In May 1914, President Woodrow Wilson created the Alaskan Engineering Commission, charged with determining the best route from a southern ice-free harbor to the winter-bound rivers of the Interior. In April 1915, President Wilson chose the roughly 500-mile route starting in Seward and ending in Fairbanks. A skeptical Congress funded the eight-year construction project. Finally, on a sweltering and sunny day, July 15, 1923, President Warren Harding drove the golden spike in Nenana, marking the railroad's completion.

In 1985, the federal government wanted out of the railroad business, and the State of Alaska offered to buy the Alaska Railroad for \$22 million. The State of Alaska became the official owner of the Alaska Railroad Corporation and remains so to this day.

The state-owned Alaska Railroad is incorporated and run like a private business. A seven-member board of directors guides the railroad's policy and direction to ensure the railroad remains self-sufficient, as required by law. The Alaska Railroad receives no operating funds from the state. Rather, it must generate enough revenues to cover operations and maintenance expenses.

ARRC Vision: Building a great railroad across a great land.

ARRC Mission: to be profitable by focusing on safe, high-quality service to our freight, passenger and real estate customers; and to foster the development of Alaska's economy by integrating railroad and railbelt community development plans.

The railroad has three major business segments:

- 1) Passenger Service – year-round service on a weekly basis between Anchorage and Fairbanks from mid-September to mid-May; and on a daily basis between Seward, Anchorage, Denali and Fairbanks during the summer months. The Alaska Railroad carries nearly 500,000 passengers annually.
- 2) Freight Service –The Alaska Railroad Corporation is a powerful economic engine, hauling millions of tons of freight per year, including building products to construct Alaska homes and businesses, and support for critical resource industries such as coal, petroleum products and gas. ARRC hauls commodities via trailers/containers; in hoppers for gravel, coal and similar materials; in fuel tank cars for petroleum-based cargo; and by flat car for timber, pipe and other such materials.
- 3) Real Estate – the railroad owns more than 36,000 acres, half of which is used for railroad operations, including yard facilities and right-of-way. The other half of the land is available for commercial and community use through leases and permits.

The Air Quality Standards

*Your organization must complete all eight Standards to achieve the Air Quality Award. Please check the items you have completed and provide a brief written description where indicated. You may attach any supporting documentation that you wish. For more detail about implementing each standard, see the references to chapters in *Becoming a Green Star* (online or hard copy available) and/or *Green Star Tip Sheets*.*

Air Quality Standard #1: Sign the Air Quality Agreement, committing your organization to the Air Quality Award process.

To fulfill this standard, please complete the following:

X	Sign the Air Quality Star Agreement. Include the signed memorandum with this report. Please provide a signed Agreement for each location included in this report.
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Air Quality Standard #2: Implement internal initiatives that emphasize Air Quality activities.

To achieve this standard, please implement **all** of the following Outreach/Education activities and at least **two (2)** Training/Incentives activities. Include at least one of your own initiatives within these categories. See Chapter 10 in *Becoming A Green Star* for more details.

~ Outreach/Education ~ Complete all activities.

X	Identify a Team Leader or Green Star champion who will oversee daily Green Star activities and provide his/her contact information on first page of this report.
X	Adopt the Air Quality policy provided in the Air Quality Agreement (see Standard #1) or your version of it, and incorporate it into your organization's policies.
X	Post and circulate your Green Star Air Quality policy statement internally.
X	Create a bulletin board of air quality and pollution prevention information.
X	Discuss your Air Quality initiatives regularly at staff meetings or other similar forums.
X	Include reminders about Air Quality Standards in employee newsletters, emails, or other regular communications.
X	Establish a procedure for notifying employees on days when air pollution levels are high and suggest ways to protect their health and reduce pollution. When an air quality alert is issued by the Municipality, your Green Star Coordinator or other designated person will receive notification via e-mail from Green Star staff.
	Other initiatives, please describe:

~ Training/Incentives ~ Complete at least two (2) activities.

	Include air quality initiatives in job descriptions, employee orientations, training programs, and/or performance appraisals, where appropriate.
X	Create a suggestion box or another communication channel for new air quality ideas and offer periodic prizes or awards to employees who identify new areas.
	Offer awards such as free bus passes, free or reserved parking for van/carpoolers, etc.
X	Other initiatives, please describe: The ARRC Employee Recognition Program includes air quality improvement, pollution prevention, waste reduction and energy conservation as innovations/activities that may be recognized and awarded among nominated employees

Please provide details about the initiatives you've implemented in the above Standard.

AIR QUALITY ALERT:

The ARRC Green Star Coordinator, Stephenie Wheeler, will sign up to receive Green Star Air Quality alerts and distribute via email to all ARRC Employees with email. These may also be printed and posted on break room bulletin boards for employees without email.

AIR QUALITY IDEAS SOLICITATION / INCENTIVES:

The ARRC *All Aboard* employee newsletter encourages suggestions for improving air quality, reducing waste, preventing pollution, and conserving energy. Employee ideas and tips from other sources are, and will be, featured in the newsletter. Recognition will come by way of identifying the suggesting employee. (Copies of appropriate newsletters are included in the *Supporting Materials Binder (Tab 1)*)

EMPLOYEE RECOGNITION PROGRAM:

The Alaska Railroad has instituted a comprehensive Employee Recognition Program that recognizes excellence, innovation and dedication among employees who are nominated as individuals or groups. Nominees are recognized for notable achievements by way of:

- **Innovation** (i.e. similar to a patent award) – employee creates a new tool, method or procedure for getting the job done better, with measurable results
- **Safety** – employee goes beyond the call of duty contributing to corporate safety goals
- **Excellence in Efficiency** – employee enhances results/decreases expense to an exceptional degree, with measurable results



- **Environment** – employee develops procedure or program that reduces waste, prevents pollution, improves air quality or conserves energy

The ARRC Employee Recognition Program and Nomination Forms are included in the Supporting Materials Binder (Tab 1).

See Appendix 1: Incentives & Outreach for additional details.

Air Quality Standard #3: Encourage the use of alternative transportation.

Alternate means of transportation include using public transportation, van/carpooling, bicycling, skiing and walking. Since vehicle emissions are the major source of air pollutants in Anchorage, this is one of the best ways to have a big impact on air quality. Added benefits include reduced parking problems, traffic hassles and stress. See Tip Sheet #13 for more details about the following activities.

Implement at least six (6) activities.

	Provide bus passes to employees for free or at a reduced rate.
X	Coordinate van/carpooling to and from work or school, and to business meetings and errands during the day.
	Provide preferred parking for van/carpoolers.
	Provide gas for van/carpool vehicles through partial reimbursements.
	Participate in People Mover’s Employer Transportation Coordinator (ETC) program by designating an ETC in your organization.
	Participate in the People Mover’s annual Commute Survey
	Invite People Mover staff to set up an information table at your facility periodically to share public transportation information with your employees.
	Adopt-A-Stop and help keep a nearby bus stop clean and attractive. For more information, call People Mover marketing at 343-8491.
	Offer a tax-free benefit to employees who commute to work by methods other than driving alone through the federal <i>Commuter Choice</i> program.
	Maintain an alternative transportation information board for employees and customers. Include directions to the nearest bus stop, bus schedules, maps for good biking and walking routes, and carpool needs.
	Allow employees to dress down, especially on snowy days.
X	Install secure bicycle racks.
	Provide showers or free or discounted passes to a nearby gym or health club for shower use.
X	Keep sidewalks clear around your facility. Consider heated sidewalks using waste heat from your facility – they’re safer, require less maintenance, and you’ll use less traction sand and salt.
X	Construct functional sidewalks and bike paths that are maintained and cleared year-round. Include safe walking routes to and from nearby bus stops.
X	Provide landscaping to make facilities safer for pedestrians and more appealing.
	<i>For teachers and schools in Anchorage:</i> Use People Mover buses for field trips. Class Passes provide unlimited trips for your class during the school year. For more information, call People Mover at 343-6526.
	Other initiatives. Please describe:
X	<u>ARRC is a long-time proponent of Commuter Rail service</u> , having sponsored a southcentral Alaska commuter rail study and operations plan, constructed track and depot infrastructure, and served in an advisory role for local government and public support groups.
X	ARRC is a partner in offering the Ship Creek Shuttle, a public transit service that connects lower downtown Anchorage (Ship Creek basin) with upper downtown Anchorage, where a connection can be made with the Municipality’s People Mover public bus system.
X	<u>ARRC Constructed Pedestrian Amenities in Ship Creek Area</u> – trail expansion, trail improvement, pedestrian plaza, sidewalks, lighting, landscaping.

Please provide details about the initiatives you’ve implemented in the above Standard.



COMMUTER RAIL PROPONENT:

The Alaska Railroad has been at the forefront as a proponent of commuter rail service for thousands of commuters traveling between the state's fastest-growing area (Mat-Su) and the major employment hub of Anchorage. Commuter Rail would take hundreds, if not thousands, of privately-owned vehicles off of the roads, significantly reducing emissions, fuel use, etc.:

- **Commuter Rail Study & Survey:** Girdwood to Mat-Su: The Railroad conducted a \$200,000 Southcentral Alaska Rail Network Commuter Study & Operation Plan in 2001-2002. The study created a blueprint for further actions taken by local and state governments to establish a viable and operational commuter rail system. (*Copy of Commuter Rail Study & Operations Plan" fact sheet in Supporting Materials Binder (Tab 9)*). The Railroad also recently completed an informal survey of ARRC employees to determine interest in commuter rail between the Mat-Su Valley and the Railroad. (*Copy of All Aboard newsletter coverage, survey and results included in the Supporting Materials Binder (Tab 9)*).
- **Rail Realignment:** The Railroad has invested \$70+ million in straightening the tracks between Anchorage and Wasilla, making faster train speeds possible, and therefore commuter service more feasible (*Copy of Anchorage-to-Wasilla Track Realignments fact sheet included in Supporting Materials Binder (Tab 9)*).
- **Depots and Stations:** The Railroad has invested millions more in depot facilities to serve commuters. These include the Palmer Park-and-Ride Facility (completed 2005), Anchorage Airport Rail Station (completed 2005), Ship Creek Intermodal Transportation Center / Historic Depot improvements (currently in Phase I construction), and plans for Anchorage Area Commuter Rail Infrastructure that includes an expanded transit station at Dimond Center (conceptual phase). (*Copies of Anchorage Area Commuter Rail Service, Bill Sheffield Alaska Rail Depot at the Anchorage International Airport, Ship Creek Intermodal Transportation Center, and Alaska State Fair Intermodal Commuter Center fact sheets in the Supporting Materials Binder (Tab 9)*).
- **Commuter Rail Car:** Through a partnership project with the U.S. Forest Service, the Railroad is purchasing a \$4.7 million self-propelled rail car with the flexibility necessary to make commuter rail service feasible. When not used to support the Chugach National Forest Whistle Stop project during the summer, the railcar may be available for pilot commuter rail service beginning in 2008. (*Copy of the Whistle Stop Service in Chugach National Forest fact sheet in the Supporting Materials Binder (Tab 9)*).
- **Technical Advisor to Grassroots Supporters:** Railroad representatives participate as a technical advisor to the Commuter Rail Advocacy Committee, a grassroots group that was established in 2002 to help formalize and organize public support for commuter rail. The committee includes members of the Anchorage Assembly and representatives from local media, local businesses, environmental groups and interested citizens.

SHIP CREEK SHUTTLE:

In 2002, the Alaska Railroad became a founding partner in establishing the Ship Creek Shuttle, a public transit service linking lower downtown Anchorage (Ship Creek basin) with upper downtown, where riders could easily get to the main public bus service *People Mover* Transfer Station. The other three partners are People Mover (the Municipality of Anchorage Public Transportation Department), the Bayview Building (private entity located on Railroad leased property in Ship Creek), and Paratransit Services (the shuttle operator also operating the MOA Anchor Rides program). In spring 2002, the railroad donated logo development, promotional and printing services and \$10,000 in seed money to jump-start the service. Every subsequent year, ARRC has contributed \$5,000 toward the maintenance of year-round service. (*Copy of Ship Creek Shuttle Route and Bus photos and 2002 Initial Service News Release in the Supporting Materials Binder (Tab 9)*).

SHIP CREEK PEDESTRIAN AMENITIES:

The Alaska Railroad continues to encourage pedestrian traffic within the Ship Creek basin. Since 2000, ARRC has planned, developed and constructed several pedestrian amenities. These efforts include a pedestrian plaza with benches, inviting landscape and room for vendors, which serves as a draw and a hub for pedestrian traffic. Other efforts include construction of sidewalks and installation of street lighting, bus gates, fencing and pedestrian rail crossing gates to encourage the safe and orderly flow of pedestrian traffic throughout the area, particularly from upper downtown to the lower downtown area (Ship Creek), and between the Historic Ship Creek Depot, ARRC Headquarters Building, Comfort Inn, Bridge Restaurant.

In addition to these street area improvements, the railroad has been a partner in planning, funding and constructing and trail enhancements, extensions and connections in the Ship Creek Area.

ARRC partnered with the American Association of State Highway & Transportation Officials to enhance the existing trail that runs along the creek within the ARRC Anchorage Reserve. Enhancements include interpretive signs and short term parking for trail visitors.



ARRC also dedicated \$1.5 million of its capital grant funding to support of the Municipality of Anchorage's (MOA) Ship Creek Trail Extension. ARRC efforts entailed construction of a pedestrian bridge over the rail and creek.

The railroad is also supporting the MOA's efforts to design and develop a connection of the Ship Creek Trail to the Coastal Trail. Connecting these two trail systems would effectively permit bicyclists, pedestrians and other non-motorized trail users to travel from Southwest Anchorage to Northeast Anchorage, uninterrupted.

(Copies of Ship Creek Projects and Support of Ship Creek Trail Extension in Supporting Materials Binder (Tab 9.)

See Appendix 9: Public / Alternative Transit Proponent for additional details.

Air Quality Standard #4: Reduce vehicular pollution.

See Chapter 9 of *Becoming a Green Star* and Tip Sheet #14 for more information.

Please implement at least three (3) initiatives.

	Provide extension cords and timers for employees at reduced or no cost.
	Provide ways for employees to plug in at work. Install electrical outlets, and/or furnish extension cords to access existing electrical outlets.
	Subsidize the purchase or installation of block heaters for personal vehicles.
X	Distribute information about the benefits of plugging in.
	Install block heaters and electrical outlets for company or fleet vehicles. Use block heaters when the outdoor temperature is 20° F or lower.
X	When purchasing company vehicles, choose appropriately sized fuel-efficient models, and consider alternate-fueled vehicles, such as hybrid, electric, or compressed natural gas vehicles.
	If fleet or company vehicles have studded tires, use tire studs that reduce road wear and are approved by the Alaska Department of Transportation, such as Street Smart™ studs.
X	Enhance your fleet maintenance program for vehicles to improve efficiency. For example, tune up every 3,000 to 5,000 miles, and keep tires inflated properly.
X	Examine idling practices and reduce idling wherever feasible.
X	Combine trips and reduce vehicle miles whenever feasible. Consider this when hiring couriers, when making business-related trips, or in personal errands by employees.
	Establish flexible shifts or "flex-time" to avoid rush hours, and allow employees to telecommute or work from home when feasible.
	Other, please describe:
X	Locomotive Emission Reduction policies and procedures.
X	Vehicle Emission Reduction policies and procedures.
X	Section Maintenance Facilities for improved vehicle performance and efficiency.

Please provide details about the initiatives you've implemented in the above Standard.

LOCOMOTIVE EMISSION REDUCTION

The Alaska Railroad's currently has 62 locomotives (and four more on order) in its fleet (*Locomotive Roster in Supporting Materials Binder (Tab 10)*). Complaints about locomotive exhaust from residents living near the Anchorage Yard (Government Hill) have all but disappeared, thanks to Alaska Railroad efforts on several fronts to cut locomotive emissions. These efforts have dramatically reduced locomotive exhaust emissions not only in the Anchorage Bowl area but throughout our rail-belt system. Efforts are in 5 categories:

1. Investment in 28 new more efficient, lower emission locomotives. The Alaska Railroad has 15 GP-40 3000 hp locomotives purchased about 30 years ago (between 1975 and 1978). In devising a locomotive replacement plan, the ARRC chose wisely to invest in brand new SD70MAC locomotives that significantly increased performance, reliability and efficiency while decreasing fuel and maintenance costs. SD70MAC purchases began in 2004, with the most recent purchase in 2007. The California Environmental Protection Agency Air Resources Board's 2004 Roseville Rail Yard Study (*copy in Supporting Materials Binder Tab 10*) illustrates the lower emissions of the newer SD70MAC models, compared to the older GP-X models). Likewise, a



Southeastern States Air Resource Managers research project completed in June 2004 (*copy in Supporting Materials Binder Tab 10*) also concludes that there was a marked difference in the average emission factors for line haul operations between the GP-40 and the SD70MAC.

2. Purchase and Installation of Idle Time Reduction systems for about half of the locomotives. Locomotive idle time can consume a lot of fuel and add to exhaust emissions. Of ARRC's 66 locomotives, two-thirds (43) are equipped with systems designed to reduce idling. Systems were installed between 2002 and 2007. (*Information on the idle reduction systems in Supporting Materials Binder (Tab 10)*).
3. Improvements to train operating and breaking techniques. The Alaska Railroad trains its engineers to be aware of fuel conservation policies and to follow best train operating practices that are highly effective in boosting locomotive efficiency. An important tool is the ARRC Brake & Train Handling Manual, which has an entire section dedicated to fuel conservation. This section outlines policies and procedures that promote energy savings in the operation of train locomotives. (*Copy of manual excerpt in Supporting Materials Binder (Tab 10)*).
4. Improvements in the general maintenance of our older series and new locomotives. ARRC has comprehensive preventive and repair maintenance policies in place for locomotives engines, which are monitored daily for correct horsepower, excessive exhaust, and routine analysis of the oil. Visual inspections take place daily, while oil sample analysis occurs every 30 days. Engines that are well-maintained burn fuel more efficiently, and emit less exhaust for the horsepower provided
5. Switch to Ultra Low Sulfur Diesel fuel ahead of EPA mandate. ARRC's locomotives fall into the non-road category, and as such must begin using Low Sulfur Diesel (LSD) fuel beginning June 2007 and must phase into use of Ultra Low Sulfur Diesel (ULSD) by 2012. Low Sulfur Diesel has a maximum of 500 ppm while Ultra Low Sulfur Diesel has no more than 15 ppm. The Alaska Railroad already made the switch to ULSD in 2007, five years ahead of the EPA mandated phase in for this type of fuel. (*Information about Ultra Low Sulfur Diesel Fuel and EPA regulations is included in the Supporting Materials Binder (Tab 10)*).

See Appendix 10: Locomotive Emission Reduction for additional details.

VEHICLE PURCHASE POLICY:

Vehicle purchases must be planned for the minimum body size and maximum fuel efficiency, and shall meet EPA emission standards. Hybrid technology will be reviewed periodically for applicability at ARRC. Because SUVs are often larger vehicles and get poorer gas mileage, they will not be purchased or leased unless SUVs meet a specific, functional requirement that cannot be met by a truck or sedan. (*Copy of ARRC Policy on Vehicle Management, Acquisition and Disposal in Supporting Materials Binder (Tab 11)*).

VEHICLE OPERATION (CARPOOLING) POLICY:

Vehicle use is dictated by the most economic approach. For example carpooling by using just one ARRC vehicle for several employees to travel is mandated whenever feasible and practical. (*Copy of ARRC Policy on Use of ARRC Vehicles in Supporting Materials Binder (Tab 11)*).

VEHICLE / TRUCK EMISSION REDUCTION

The Alaska Railroad maintains a fleet of about 210 owned and 10 leased vehicles. (*Roster of vehicle fleet in Supporting Materials Binder (Tab 11)*). Most of these are medium-duty truck, along with a few heavier-duty trucks, SUVs and tractors. 85 of these vehicles are equipped with hyrail capability, meaning that they can be driven on the track. Alaska Railroad Vehicle Policy states:

Motor vehicles resources will be organized and managed to ensure optimum responsiveness, efficiency and economy in support of ARRC requirements. Alaska Railroad Corporation Management will ensure efficient and effective motor vehicle operations by providing active managerial oversight of ARRC motor vehicle assets, including usage and related maintenance expenses.

Vehicle emissions are kept to a minimum through:

1. Comprehensive Preventive Maintenance program involving weekly inspections, detailed recordkeeping, and regular scheduled maintenance. ARRC's Vehicle Maintenance Policy states: "Each vehicle will have a Maintenance Guide that describes the required maintenance and safety inspection schedule for that vehicle. Maintenance will be performed by the vehicle operator or by authorized vendors."
2. Preventive maintenance includes checks of minor or simple parts replacement and servicing, such as engine fluids, fuses, tire inflation, etc. Scheduled service includes inspection and maintenance by qualified automotive inspectors and mechanics. In addition, the Fleet Manager will ensure that vehicles are maintained in a fuel



efficient manner by ensuring clean fuel and air filters, clean fuel injection systems., use of a multi-grade energy conserving engine oil, and maximum tire pressure recommended by the vehicle manufacturer. Emissions inspection and maintenance must comply with state and local regulations.

3. Employee work-related carpooling is mandated whenever possible.
4. Vehicle purchases must be planned for the minimum body size and maximum fuel efficiency.
5. Switch to Ultra Low Sulfur Diesel fuel ahead of EPA mandate. ARRC's motor vehicles fall into the road category of diesel engines. EPA mandated that road vehicles switch to LSD (500 ppm) by June 2006, and to ULSD by 2010. ARRC met and exceeded this mandate, by switching to ULSD in early 2006 for all diesel trucks/vehicles.

SECTION MAINTENANCE FACILITIES

The Alaska Railroad completed the first of six planned Section Maintenance Facilities (SMF) to serve the railroad maintenance functions in more remote areas (sections) of the mainline between Seward and Fairbanks. The first SMF was completed in Cantwell. Five more are planned in Hurricane, Portage, Talkeetna, Wasilla and Nenana.

These uniform steel-framed heated maintenance facilities house a small office, restroom, utility room and a 2-bay open shop area that accommodates storage and maintenance for one piece of heavy equipment and one to two trucks. By keeping vehicle warm, crews will be able to keep these them in top operational form and start-up will produce fewer emissions with a warmed engine.

The new facilities will replace aging, and often inadequate and inefficient buildings and sheds that cannot accommodate indoor storage of vehicles or even people in some cases. The SMF project is funded entirely by ARRC internal operations-generated funds.

(Copy of Section Maintenance Facilities fact sheet in Supporting Materials Binder (Tab 11)).

See Appendix 11: Vehicle Emission Reduction for additional details.

Air Quality Standard #5: Reduce pollution in the workplace.

Workplace air pollution includes outdoor emissions from a variety of stationary sources, generated both indoors and outdoors. Regular equipment maintenance and energy conservation activities can go a long way to reducing overall outdoor air pollutant emissions. If you lease your workspace, work with the building owners or managers to learn how these initiatives have been put in place.

Please implement at least four (4) Indoor Air Quality Initiatives:

	Enhance your maintenance program for all furnaces and equipment to improve efficiency, including keeping furnace filters clean.
X	When purchasing or replacing equipment and appliances, choose high-efficiency models. Look for the EPA Energy Star logo.
	Purchase "green" energy, or energy that is produced using renewable resources such as wind or solar.
X	Turn thermostats down when buildings are unoccupied, such as at night and on weekends, and optimize ventilation fan use for various seasons and times of day and week. Consider installing programmable thermostats or timers. For larger facilities, computerized Energy Management Systems (EMSs) provide digital monitoring and control of heating and ventilation systems.
X	Modify cooling systems to bring in cool air from outside rather than cooling recirculated warmer indoor air.
	Reduce lighting in over-lighted areas. Proper lighting systems can often increase visibility while lowering energy use.
	Replace incandescent bulbs with compact fluorescent bulbs.
	Turn off lights and appliances (including copy machines, printers, and computers) at the end of the day or when not in use. Consider installing light control systems such as timers, photocells that turn lights on and off in response to natural light levels, occupancy sensors that activate lights when a person is in the area, or dimmers to reduce the wattage and output of incandescent and fluorescent lamps.
	Use motion detectors in infrequently used rooms (such as bathrooms) to automatically turn off lights when they are not being used.
X	Caulk and weather strip windows.



	Install thermal window panes.
	Install insulation blankets over water heaters.
X	Check for and repair leaky faucets, faulty seals, drafts and vents. Gradual leaks over the long term are often the cause of major water, heat and energy loss.
X	Other, please explain: Contracted to have infrared scans of ARRC Buildings to identify heat / energy loss leaks that are not detectable to the naked eye. Developed and pursued a Facility Repair Plan to plug many, if not all of these leaks during summer 2007.

Please implement at least two (2) Outdoor Air Quality Initiatives:

	Use less traction sand when sanding sidewalks and parking lots in winter.
X	Use a coarser grade of sanding material in parking lots. Fine particles are most likely to become airborne, so specify clean sand with 1% or less fines. Larger aggregate can be used effectively in parking lots since speeds are low, and it is less likely to be tracked into buildings on foot, making it easier to keep your entryways clean.
X	Use cleaning methods that minimize dust emissions, such as a vacuum truck equipped with an effective baghouse or other filtering device. In Anchorage, the use of leaf blowers and similar equipment for sweeping is prohibited by law.
	Dirt and sand carried from driveways onto roadways, called "track-out," is a major source of road dust in Anchorage. Reduce track-out from your facility.
X	Locate snow piles in areas where melt water will not flow into major traffic areas and roadways. Dirt and traction sand carried in melt water is more likely to become airborne when subject to traffic.
	Plant trees and shrubs around parking lots to trap particulate emissions. Evergreens such as spruce and pine have found to be most effective.
X	Vegetate open areas with grass or other plants to reduce dust and erosion.
	Use photovoltaic cells for outdoor lights.
	Other, please describe:
X	<u>Use of Recycled Glass Grit</u> in place of silicon sand for part of the year. The non-toxic glass grit does not produce potentially harmful silica dust and contains no metals.
X	<u>Use of Solar and Wind Power</u> for some Siding Signal and Crossing Signal sites. Solar and wind generation emits zero exhaust or other airborne contaminants.

Please provide details about the initiatives you've implemented in the above Standard.

LEED FACILITY POLICY:

The Facility Department has adopted a policy for considering green options when faced with the need to replace aging building systems. In other words, the department is looking comprehensively at Leadership in Energy & Environmental Design (LEED) for Existing Buildings (EB) that will lead to greater energy conservation and less pollution generation.

COOLING SYSTEM USING AMBIENT AIR:

In the Headquarters Building, the railroad spent \$160,000 in 2006 to replace a Freon-based compressor system that kept the building's computer room from overheating. The new system uses ambient air for cooling a glycol-circulating system, which takes advantage of Alaska's cooler weather. This means that during the colder months, energy will not be used to cool the computer room; rather cold air temperatures outside will be used to cool the room indoors.

HEAT/ENERGY LOSS PREVENTION FACILITY REPAIRS:

A major goal of the department is to monitor and benchmark energy usage in order to identify problem areas and implement corrective maintenance and capital improvements for greater efficiency. In this vein, the Facilities Department hired Oregon Infrared, a firm specializing in using infrared imagery as a tool to improve predictive maintenance. An infrared camera system is a tremendous aid to finding the causes of a structure's heat loss - the largest obstacle to energy conservation. The US Department of Energy calculates that 38 percent of the average building's energy losses are due to air leaks caused by leaky walls, windows and doors; the remainder of the heat being conducted, radiated and convected out of the building because of inadequate [or improperly installed] insulation, structural defects and design faults. These problems can often be easily remedied once they are located, but they tend to remain hidden to the naked eye. Infrared imaging systems greatly increase their detection.



For two days in September 2006 and an additional day in March 2007, Oregon Infrared's Harley Denio accompanied Facilities Department personnel to Anchorage, Fairbanks and Seward to accomplish infrared scans of about two dozen buildings. First regular photos were taken to show how the naked eye perceives the building. Then out came the Denio's specialized infrared thermal imaging camera, which produced remarkable images that pinpointed areas with significant energy loss. White, yellow and orange colors indicate areas of greatest heat/ energy loss, while purple, deep blue and black colored areas indicate "cold" areas, or areas that are not losing heat.

It became glaringly clear where heat-loss was occurring, which would have been impossible to detect with simple observation, even to the skilled maintainer's eye. The infrared scans provide important clues to potential problem areas that can be fixed with relative ease, thus stopping the costly outflow of building heat. Rooftop cracks, corner leaks, thin or non-existent insulation, poorly caulked seams, uncapped ventilation outlets, door's separated weather stripping, leaking window sealant, etc.

Many of these energy wasters are easy to fix. As problems were identified with the thermal images, the Facilities Department devised a plan of attack. Throughout the summer, cracks have been sealed, insulation blown in, weather stripping replaced, ventilation outlets capped, seams recaulked, etc. Farnsworth estimates his team will be done with the maintenance fixes by the end of the summer, in time to reduce heat loss during winter 2007-08.

The \$15,000 investment in the infrared scanning was so useful, that Farnsworth plans to bring Oregon Infrared back to Alaska in the fall to continue with scans of other Railroad buildings, at remote track maintenance facilities along the rail line, as well as yards and depot operations in Whittier, Talkeetna, Denali and Nenana. The department will also return to some Anchorage, Fairbanks and Seward facilities to document corrected heat loss problems that were discovered in the first round of scans. (*Copies of facility Infrared images are included in the Supporting Materials Binder (Tab 6)*).

See Appendix 6: Facilities Management & Maintenance for additional details.

SNOW REMOVAL/MANAGEMENT:

Parking Lot maintenance – the Railroad uses a coarse gravel mix for traction in parking lots.

Building Yard maintenance – the Railroad contractors use rakes to gather leaves.

Snow removal – the Railroad collects snow in vacant areas, and then has the snow relocated to approved municipal snow dumps prior to melting.

VEGETATE OPEN AREAS:

Revegetation of open areas left following both maintenance and capital project construction is standard operating practice. The Railroad's capital project work agreements with contractors typically require revegetation with suitable (native to the region) grass following construction completion.

RECYCLED GLASS GRIT USE.

In June 2006, the Alaska Railroad traded imported sand for locally recycled glass grit to provide its fleet of locomotives with traction in slippery conditions or when climbing hills. ARRC locomotives are equipped with delivery systems that spread traction control media — such as sand or glass grit — onto the track. Made from locally recycled waste glass, the grit is used during summer and no-snow months, replacing the imported sand for about half the year. The other half of the year, ARRC uses sand shipped from Wisconsin because Alaska's sand has too much clay which makes it more slippery when wet. The recycled glass option has yielded a number of benefits for the Railroad and for the local recycling effort.

See Appendix 2: Procurement & Supply Management for additional details.

SOLAR AND WIND POWER USE.

At some of the more remote crossings and sidings (train passing lane pullout) the Alaska Railroad has installed solar and wind power generation systems to power signals. Signals may be a wayside (by the track) train signal, which tells a train to switch into or out of a siding, for example. Or, the signals may be at a crossing and comprise the flashing lights and the gate arm that lowers to stop road traffic from crossing when a train approaches. Solar panels can provide enough power to operate either wayside or crossing signals. Windmills generate electricity to charge battery systems that operate signals as well.

See Appendix 7: Solar & Wind Power for additional details.

Air Quality Standard #6: Reach out to the community about your Air Quality efforts.

To meet this standard, choose activities within at least **two (2)** of the four activities listed below. For more information, see Chapter 10 of *Becoming a Green Star* or Tip Sheet #10.

<p>X</p> <p>X</p>	<p>Outreach/Education Please describe your activities.</p> <p><u>NEWSLETTERS.</u> The Alaska Railroad has announced ARRC's intent to enroll in the Green Star Air Quality program in all three of its newsletters.</p> <ul style="list-style-type: none"> • <i>All Aboard</i> newsletter is distributed to all ARRC employees (800 to 1,000 people depending on the time of year) on a bi-monthly basis (6 times per year) • <i>Community Ties</i> newsletter is distributed to 2,000-plus government, civic and community leaders around the state. The Railroad has offered readers an opportunity to get this newsletter by email. About 30 have responded with a request for the electronic version, saving paper and postage for at least some. • <i>Tenant Ties</i> newsletter is distributed three times per year to about 300 ARRC land leaseholders and permit holders along the rail line. <p><u>WEB SITES INFORMATION POSTED / LINK TO GREEN STAR SITE.</u></p> <ul style="list-style-type: none"> • The Alaska Railroad has an internal employee web site and an external web site. ARRC will post our involvement and support for the Green Star Program on both sites, encouraging employees to participate in various ways (recycling, energy conservation, etc.) and encouraging other businesses to consider earning a Green Star as well, including a link to the Green Star web site. <p>See Appendix 1: Incentives & Outreach for additional details.</p>
	<p>Get Involved Involve your organization or employees in community planning processes, and actively advocate for improvements benefiting air quality. See Tip Sheet #15 for a list of organizations that are active in local air quality issues in Anchorage. Ask them how your organization can get involved. See Tip Sheet #15 for a list and note which organizations you have contacted.</p> <p>_____ participate in Walking School Bus program _____ volunteer with a local organization. Describe activity:</p>
	<p>Recruit a New Member Please describe your efforts and provide contact information.</p>
	<p>Sponsor Green Star Programs Please describe your efforts.</p>

Air Quality Standard #7: Provide measures for your success.

Please list at least **two (2)** initiatives you have chosen to measure and attach the measures. Include baseline data and changes over time after implementing the initiatives. See Chapter 2 of *Becoming a Green Star* for information about how waste assessments can be used as a tool to measure success. See Tip Sheet # 11 for ideas of what to measure.

Comprehensive Facilities Use and Efficiency Tracking.

With the advent of a Facilities Department, there are more resources and manpower dedicated to facilities improvement and formulating a comprehensive preventive maintenance (PM) program. As part of this 2-year effort, the department is in the process of surveying each and every building the Railroad uses in its operations. The effort will inventory building square footage, occupancy, energy use, equipment that require replacement, cleaning, repair and regularly scheduled PM work. Once this inventory is in place, the railroad will be in a much better position to track energy use and efficiency improvements as progress is made in upgrading building structures and systems. This tracking mechanism is still in its infancy. Major progress is anticipated for Green Star recertification reporting in 2009.



Florescent Lighting Retrofit and Computer Room Temperature Control in HQ Building:

The Railroad is tracking the savings that will be realized from two significant improvements – replacement of the T-12 with the T-8 florescent lighting, and replacement of the Freon-based Computer room cooling system with the ambient air cooling system. The baseline is monthly electric usage and cost January – July 2007, which will be compared to the same months in 2008. ARRC is tracking monthly electrical usage for the Headquarters Building, anticipating an overall reduction in annual average usage, thanks in part to the more efficient computer room cooling system. *(Copies of Municipal Light & Power bills for HQ Bldg January – July 2007 are included in the Supporting Materials Binder (Tab 6))*

	<u>KWH 2007</u>	<u>KWH 2008</u>
January	100,960	
February	107,360	
March	92,480	
April	100,480	
May	107,520	
June	117,120	
July	126,240	

Heat Loss Prevention Efforts for the Anchorage Yard Buildings / Boiler Facility:

Pipe insulation, patching of heat-loss leaks, and heat exchange unit reconditioning is expected to yield significant savings in natural gas use. The Facilities Department has established a baseline in tracking natural gas use (quantity and cost) to be compared to natural gas use during the same months in 2008 to determine exact savings from these efforts. The Enstar Billing for January - May 2007 will be compared to the same period in 2008. *(Copies of Enstar bills for the Anchorage Yard Boiler Plan for January – May 2007 are included in the Supporting Materials Binder (Tab 6))*

	<u>CCF 2007</u>	<u>CCF 2008</u>
January	167,420	
February	112,850	
March	154,650	
April	97,760	
May	37,340	

Heat/Energy Loss Repair Efforts for Buildings All Along the Railbelt:

The \$15,000 investment in the infrared scanning included photo printouts of all of the thermal images. The Railroad is accomplishing repairs during summer 2007, with plans to return with the Infrared contractor to some Anchorage, Fairbanks and Seward facilities to document corrected heat loss problems that were discovered in the first round of scans. This will provide a graphic measure of progress and reduced energy/heat loss. *(Copies of Infrared images taken during September 2006 and March 2007 of facilities in Anchorage, Fairbanks and Seward are included in the Supporting Materials Binder (Tab 6))*

Air Quality Standard #8: Identify future goals to ensure program momentum.

*Please list your future goals to maintain and enhance your Air Quality program. Include at least **three (3)** goals, but you may provide up to six. See Tip Sheet #12 for more details about the future of your Green Star award.*

FACILITY ENERGY LOSS PREVENTION

The Anchorage Yard Boiler Plant is equipped with boilers with 30-year-old technology. These boilers are either on, running 100%, or off, with no in-between. The Facilities Department is proposing purchase of variable speed drives that will allow boilers to run at various capacities, depending on need, which is expected to reduce natural gas use by 1-2%. Another proposal would install trim packages for better gas line regulation, which could yield another 1-2 % savings.

COMMUTER RAIL

Continue to explore and pursue opportunities to promote the concept and operation of commuter rail service in both northern and southern areas of the railroad. This may include operating a pilot program rail commuter service between Anchorage and the Mat-Su Valley. It also includes completion of a North Rail Transit study of commuter/transit opportunities between Denali and North Pole.

PROCUREMENT DOCUMENTS

Add language in ARRC’s Procurement / Supply Management Department’s requests for proposal (RFPs) and/or bid documents that express appreciation for potential suppliers/vendors that are Green Star awardees, and that encourages other companies to consider pursuing a Green Star as a means to demonstrate environmental stewardship.

See Appendix 12: Future Goals for additional details.

