

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

The Challenge

We have many talented and creative employees in DOTPF stretched across a huge state with strong Regional/District boundaries. With over 3300 employees spread out over the largest state in the country, communications and sharing of ideas is challenging at best and extremely difficult at worst.

Over the past several years many excellent ideas and innovations have been implemented at the local shops/district/regional levels without other areas of the department knowing about them. Some have been kept proprietary at these same levels because a cost saving idea may have felt like a competitive advantage. Many of these ideas and innovations may have been largely ignored.

Because of the collective brainpower and ingenuity of the DOTPF workforce, and the need to speak as one voice, One DOT&PF, Everyday Lean Innovations & Ideas initiative was developed to provide a mechanism to promote the sharing of the information despite the decentralized nature of the department.

The Vision

DOTPF encourages all employees to –

- identify opportunities to make smaller-scale improvements that are within their control,
- share ideas and innovations regardless of their duty station,
- identify a problem or opportunity and develop an innovative way of doing it better,
- submit ideas or innovations that have been tested and implemented regardless of the size.

DOTPF commits to –

- listen to our employees and encourage them in making the department better,
- engage all employees in the “Everyday Lean Innovations & Ideas”; developing and implementing ideas that will yield numerous benefits for DOTPF and our customers.

The Action

Innovations and ideas may be submitted. Visit the Idea Submission page to learn how.



The Latest Innovations and Ideas

- Transfer Belt Install Tool
- Home Made Reclaimer with Emulsion-Injection Capabilities
- Hydraulic Cabinet
- Diverting Valve for Boiler Truck
- ANC Airfield Shadow "Take Down" Box
- Deflectometer Modification for Transport
- FAI International Garbage Incineration Improvement
- Shaft (Propeller) Balancer
- Rural Airport Emergency Lighting Trailer
- Chain Repair Machine

Above Photo Banner: *Top of Atigun Pass after a July snowstorm.* photo by Doug Campbell, Alaska
DOT&PF

DEPARTMENT OF TRANSPORTATION & PUBLIC



FACILITIES
Contact Information

If you have questions about this initiative, please contact:
dot.everydayideas@alaska.gov


Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Idea Submissions

Submitting your ideas is easy!



1. Download and complete the Everyday Lean SUBMISSION FORM  (this form can be used for innovations, ideas, and challenges)

- Then e-mail the form along with any photos you'd like to include. (Photos are not required, but they do enhance idea sharing.)

OR

2. Send us an email answering the following questions along with any photos you'd like to include. (Photos are not required, but they do enhance idea sharing.)

- What is the innovation/best practice?
- What are the key benefits/efficiencies?
- Who developed the innovation/best practice?

OR

3. If you wish to submit an idea ANONYMOUSLY:

- **Download and complete the Everyday Lean SUBMISSION FORM**  (this form can be used for innovations, ideas, and challenges)
- **Mail the form** along with any photos you'd like to include. (Photos are not required, but they do enhance idea sharing.) to:

Alaska Department of Transportation & Public Facilities
c/o Everyday Lean Innovations & Ideas
3132 Channel Drive
PO Box 112500
Juneau, AK 99811-2500

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

Everyday Lean Submission Form



Nominator: _____

Date: _____

Innovator: _____

Job Title: _____ Region: _____

Supervisor's Name: _____ Section: _____

TITLE (NAME OF INOVATION/IDEA)

DECRPTION

WHAT ARE THE KEY BENEFITS/EFFICIENCIES? (COST SAVINGS, TIME SAVINGS, RISE IN QUALITY OF WORK, ETC.)



Please submit all Everyday Lean Ideas to dot.everydayideas@alaska.gov

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

FAI International Garbage Incineration Improvement

What is the Idea/Innovation:

This innovative idea is a great example of one person taking the initiative to suggest a better way to do things. Frank Walter, Fairbanks International Airport (FAI) Maintenance Generalist, is the primary contact for running the incinerator at FAI. International Garbage is waste that comes off of international flights and it is stringently regulated by the USDA and Customs and Border Protection. Put simply, there is a 72 hour window for destruction of waste that comes off of international flights. Frank and Rebekah Wenger, FAI Environmental Manager had been evaluating the cost of conducting an individual burn and assessed that it was approximately \$450 in fuel for each burn in the incinerator! Frank evaluated the flight schedules and worked with our tenants and determined we could cut a burn per week with a small change in schedule.

Key Benefits/Efficiencies:

In an effort to improve efficiency and reduce operating costs, Frank determined that a minor schedule change for tenants dropping of their international garbage could result in a significant cost savings. This small change will allow FAI to conduct one less incinerator burn per week. Each burn costs the state approx. \$450.00, not including staff time. Therefore, this minor schedule change will equate to a \$20,000 annual operational savings.

Idea/Innovation Developed by:

This incredibly innovative idea was the result of Frank Walter, Fairbanks International Airport (FAI) Maintenance Generalist, taking the initiative to look for a way to improve efficiency and to reduce operating costs. Jesse VanderZanden, Fairbanks International Airport Manager said "This was a great idea by Frank and demonstrates the innovative and pioneering spirit of FAI". This innovation is the epitome of the Everyday Lean Initiative. Kudos to Frank and all the staff at Fairbanks International Airport.

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket
- Deflectometer Modification for Transport

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

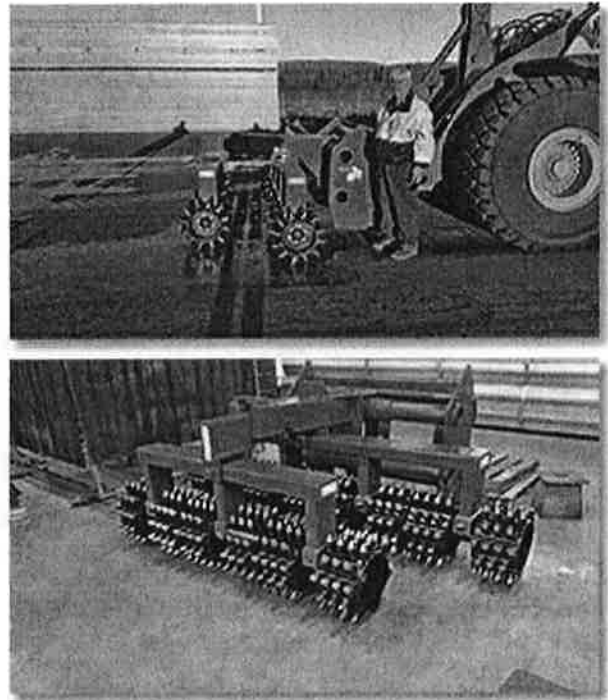
Everyday Lean Innovations & Ideas

FAI Compact Snow & Ice Crusher: The YETI



What is the Idea/Innovation:

Compacted snow and ice are an on-going and yearly challenge for the Fairbanks International Airport's Field Maintenance Crew. Countless hours and dollars are spent trying to mechanically and chemically remove this compacted snow and ice with varying degrees of success. Statewide M&O recently purchased a couple different commercially available ice breakers that worked exceptionally well on the Fairbanks area road system. The ice breakers were loaned to FAI so they could test them on the airport. Clark Klimaschesky, Maintenance and Operations Specialist with Fairbanks International Airport and his team loved the concept of the commercially available ice breakers but they did not quite work for their conditions. They would also be difficult and expensive to maintain because you could not replace individual teeth as they wear out. Rather than just say "it does not work", John Frison took up the challenge and designed his own ice breaking machine that he has named the Yeti. John utilized a follow-me-wobbly axle as the primary frame for the Yeti and schedule 80 pipe for the drums. The Yeti is a front-mounted loader attachment that utilizes grader scarf teeth to crush and break-up compacted snow and ice.



[click image for larger view](#)

Key Benefits/Efficiencies:

The Yeti will provide several benefits and efficiencies for Fairbanks International Airport. First, it will allow field maintenance staff to fracture ice and create pockets with a pathway to the underlying asphalt so the deicing chemical can get under the ice and start to work versus melting down through the ice. It will also help in the actual removal of ice and also leave pockets for sand to sit in and give texture to provide traction for aircraft operating on the active surfaces. Some concern was expressed about asphalt damage but this piece of equipment is just rolling and not powered in any way. The loader is in the float position which puts limited down pressure. The normal ice scraping process using graders with serrated edges does cause damage where this does not. Finally, the unit will be much easier to maintain as each individual tooth can be replaced separately.

The width of the unit is approximately 9.5 feet and cost approximately \$18,000 dollars to fabricate. The commercially available ice breaking units range in cost from \$30,000 to \$45,000 so this represents a significant cost savings to the department.

Idea/Innovation Developed by:

John Frison, Mechanic Auto Advanced Journeyman 53, Fairbanks International Airport. Clark Klimaschesky says, "John Frison did an amazing job with this as he spent his own time at home designing

this and tweaking it until he was happy....(Trust me when I say if John is happy everyone else would be ecstatic). That is how much pride John takes in his work and workmanship. We are very fortunate to have him here at FAI."

Update (02/18/15):

The "Yeti" Jr. has been born. It has ability to angle slightly to give more of a scrubbing action. John continues to impress!



click images for larger view

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket
- Deflectometer Modification for Transport
- Department (District) Safety Coordinator Program
- Dimond P Step
- Diverting Valve for Boiler Truck
- Exhaust Heat for Sander Spreader
- Fabricated Reversible Plow

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Fabricated Reversible Plow



What is the Idea/Innovation:

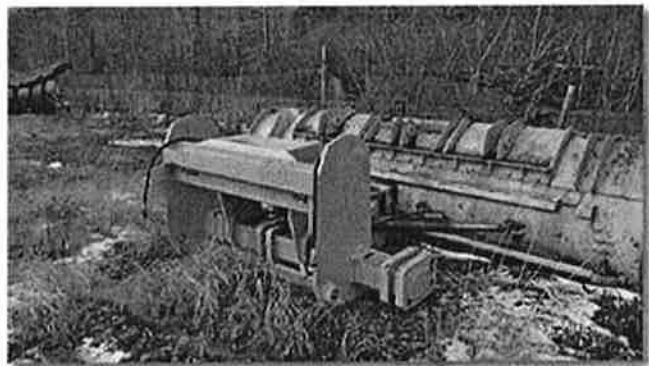
Haines M&O often plow intersections and the ferry terminal in Haines with a loader. Due to our heavy snowfall, this often took several hours with a conventional bucket. The operator had to make countless passes to pick up the wrinkles and leftovers. There was no money available to buy a plow for the loader. Shane Horton, who now works for M&O but was the SEF mechanic at the time, scrounged around the maintenance yard and took an old ripper attachment, an old moldboard off a Champion grader, and other misc. cylinders and valves off broken snowplows and built the Haines Station a reversible plow totally from stuff/junk that was laying in the alders and weeds in the back of the DOT yard.

Key Benefits/Efficiencies:

The "home-made" reversible plow works extremely well for the Haines Maintenance Station. We can now do the entire ferry terminal in about an hour instead of the 3 or 4 hours it used to take. In addition, the operator can even make a pass on the highway on his way to the ferry terminal or anywhere else if the primary plow trucks are busy. Shane built this plow at zero cost to department except for labor and some welding rod. To buy a similar plow commercially would cost the department \$25K or more.

Idea/Innovation Developed by:

Shane Horton, Equipment Operator (previously SEF Mechanic) fabricated the unit at the Haines Maintenance Station in Southcoast Region.



[click image for larger view](#)

If you have questions about this initiative, or ideas you'd like to submit, please email:
dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Dimond P Step



What is the Idea/Best Practice:

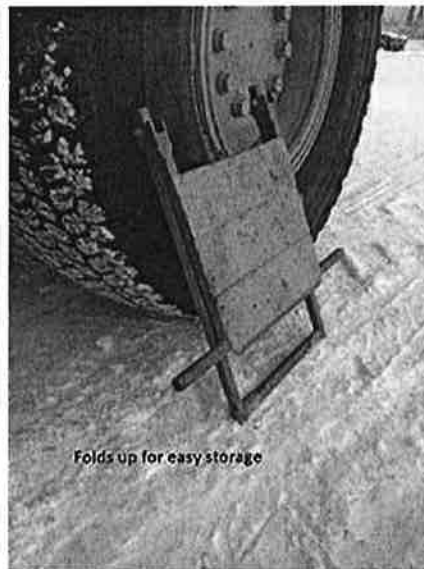
The Dimond P Step was created by Doug (Dimond) Pine to improve safety and to improve access to the engine compartment while servicing a grader. Doug created a step that easily sets between the tandems of a grader allowing an operator or mechanic to step up and have safe and easy access to the engine compartment for servicing. The innovation is portable (hence the "P") and also folds up for easy storage as well.

Key Benefits/Efficiencies:

This innovation improves employee safety and grader servicing efficiency. The Dimond P step improves operator and/or mechanic safety by providing them a safe and secure step versus utilizing an unsecured ladder, step stool, or climbing on the tire. While the first unit was around \$350 to produce, future productions would be less since the design is already in place.

Idea/Innovation Developed by:

This innovative idea is the creation of Doug Pine, Tok area mechanic. Doug is an innovative mechanic who has implemented many great ideas.



[click image for larger view](#)

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Best Practices

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Sand Spinner Guard

What is the Idea/Innovation:

Anchorage Maintenance & Operations had experienced a few instances of the spinners on their sand trucks being accidentally damaged. With the help of the SEF mechanics and the welding shop, they manufactured (in-house) a spinner guard to prevent future damage. The spinner guard can be fabricated with minimal materials and an experienced welder and it provides long-term protection of the spinner unit. This idea has also been adapted by the Anchorage International Airport.

Key Benefits/Efficiencies:

This innovation saves money, reduces equipment downtime, and increases productivity. The in-house sand spinner guard costs approximately \$800 to construct and install while replacing a damaged spinner can cost up to \$5000. In addition, many times replacement parts need to be ordered which causes the truck to be down for a significant amount of time. Therefore, not only does this spinner guard save money, it minimizes equipment downtime due to damaged spinners and keeps productivity at a higher level.



[click image for larger view](#)

Idea/Innovation Developed by:

Dave Rutz (mechanic) and Anchorage State Equipment Fleet shop.

If you have questions about this initiative, or ideas you'd like to submit, please email:
dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Best Practices

- Best Practices Home
- Burn Barrel
- Dimond P Step
- Diverting Valve for Boiler Truck
- Hinged Light Pole
- Marking Tie-down Points on Equipment
- Rural Airport Contingency / Emergency Shelters

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Transfer Belt Install Tool

What is the Idea/Best Practice:

Everyone likes (and expects) to get their baggage on-time when they are traveling on the airlines. There are several steps in making this happen and if even one of these fails, your bag could be delayed for a significant amount of time. Once your bag is checked in, it requires a series of conveyor belts to get it to the bag handlers. The building maintenance folks at Fairbanks International Airport maintain these conveyors and do a great job. There are 7 separate belts that make up a transfer belt unit and when one of them breaks, it is critical to fix it quickly to avoid any delays. Normally all the belts would have to be loosened to fix the one broken belt and then re-tightened to the correct tension. Dana Bowen, FIA building maintenance foreman, designed and built the "Transfer Belt Install Tool" to make this job faster, safer, and more efficient. By using this tool, they can now just release the tension on a single belt and fix it individually. He made it out of scrap angle iron, all thread they had laying around, and some coupling nuts. It is color coordinated to ensure that it is set up correctly and the whole manufacturing process only took him about 4 hours.

Key Benefits/Efficiencies:

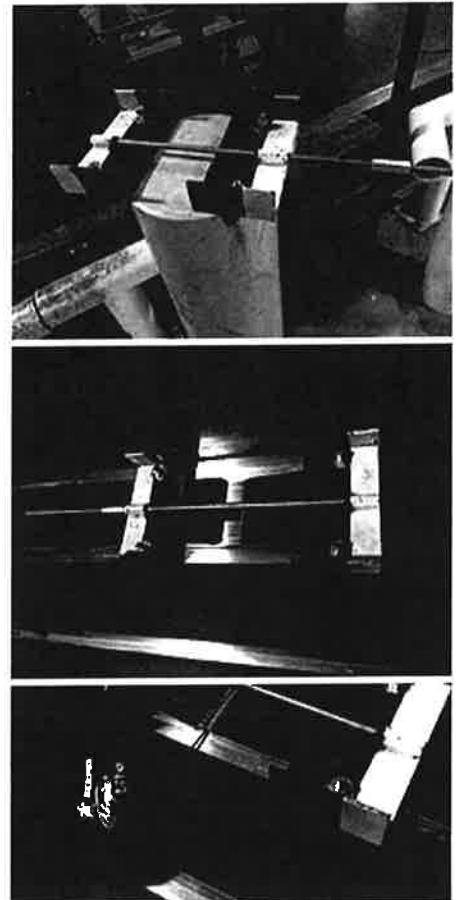
This creative and effective idea saves both time and money. Without the tool, to change a belt could take anywhere from 30-60 minutes for 2 or 3 people. By using the tool, this whole process takes 1 person about 6 minutes to complete. So not only does it save on man-hours but the consequences of a baggage belt being down too long could ultimately cause flights to be delayed.

Idea/Innovation Developed by:

This creative, effective, and inexpensive innovation was designed and built by Dana Bowen, building maintenance foreman at FAI.

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information



As the nut is tightened, the tool brings the 2 halves together and the pin can easily be inserted.

[click images for larger view](#)

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Skid Steer Backup Camera

What is the Idea/Innovation:

With the common and dangerous problem of rear visibility from a skid steer, some talented people from the northern region came up with a great idea. By using some unused brackets from a water spray system, Joel Davidson from Nenana (with SEF approval), added some mirrors which enables the operator to see beside the skid steer as well as towards the back. Still un-able to see directly behind the equipment, the crew also bought a back-up camera and monitor which now gives the operator a 150 degree field of view.

Key Benefits/Efficiencies:

Being able to see behind the machine makes it much safer for the operator, other workers in the vicinity, and whatever else may be in the work area. Adding the mirrors was at a very in-expensive and the camera and monitor only cost \$200. It took Eric Nelson from Nenana about 2 hours to install them. Compared to the increase in safety, these additions are invaluable.

Idea/Innovation Developed by:

This safety conscience and in-expensive idea was developed and installed by Joel Davidson and Eric Nelson from Nenana Maintenance Station.



☞click images for larger view

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Shaft (Propeller) Balancer

What is the Idea/Innovation:

When the Tok area Fecon brush cutter was severely out of balance due to tooth shanks being knocked off and welded back on; Tok SEF removed the shaft assembly and sent it in to a vendor in Fairbanks to have it rebalanced. After being reinstalled, it still had a severe vibration. Doug Pine, mechanic, had an unusual idea to solve this ongoing problem. Doug has an aircraft mechanic background and thought that an airplane propeller balancer might just solve the problem. With this in mind, he borrowed a prop balancing analyzer from a local air carrier in Tok. Doug was able to get the shaft balanced while on the Fecon head for much less than sending the shaft in to Fairbanks; and with good results. Older balancers cost as much as \$15,000 new but they found a Dyna Vibe Propeller balancer for \$1,600 and used it to balance the brush cutter as well as snow blowers. It works so well they put one in Valdez and Fairbanks.

Key Benefits/Efficiencies:

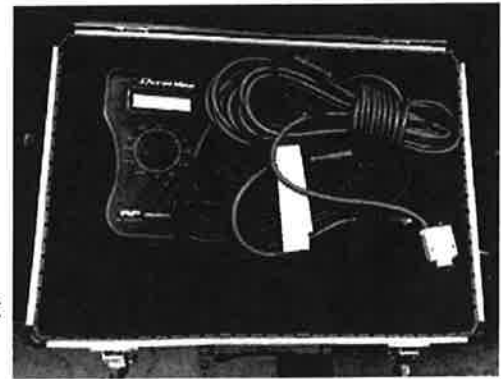
- Allows the mechanic to balance brush cutters and snow blowers without transporting the equipment or shaft assembly.
- Is portable for repairs at rural airports.

Idea/Innovation Developed by:

Doug Pine, SEF Mechanic, Tok

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information



click images for larger view

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket
- Deflectometer Modification for Transport

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Pit Run Gravel Screener

What is the Idea/Innovation:

The Chitina Maintenance Station had a need to provide 4" minus for gravel resurfacing/road patching operations. Rather than spend the \$16,000 or more for a commercially produced screen, the Chitina Maintenance crew utilized scrap metal and other "junk" to fabricate their own gravel screen. The screen was fabricated from discarded snow poles which were 3" pipe. Most of the steel used was miscellaneous material from around the camp and it was built mostly during slow times during the year. Half of the screen is hinged, so it can be cleaned by dropping the loader bucket on the extending bar in front, which helps with safety and time, as the operator does not have to climb out and clean the screen.



Key Benefits/Efficiencies:

This innovation was developed to provide 4" minus material for gravel resurfacing/road patching operations. This cost-effective innovation allows one person with a loader to screen approximately 300 cubic yards a day. Martin Helkenn, Chitina Station Foreman stated "This was very handy last spring at the 34.5 mile slide repair during the construction of "burrito wraps". Also very handy for thin applications of pit run, so you don't have to blade the rocks out".



[click images for larger view](#)

This innovation also improves safety and efficiency because half of the screen is hinged which allows it to be cleaned by dropping the loader bucket on the extending bar in front, which eliminates the need for the operator to climb out of the loader to clean the screen.

Idea/Innovation Developed by:

This innovation was originally designed and fabricated by Cal Datta (retired) and Martin Helkenn, and improved upon some years later by Martin Helkenn and Greg Cooley.

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Hydraulic Cabinet

What is the Idea/Innovation:

To many in the Southcoast region of Alaska, riding a ferry can be as common as riding a bus to others in this great state. Getting on and off the ferry can be a thoughtless activity unless, of course, the terminal transfer bridge isn't working. Hydraulics enables the bridge to connect and disconnect to the ferry allowing the passengers to move back and forth safely. Many of these hydraulic components have met their useful life and are due to be replaced. A couple of intelligent workers from the Alaska Marine Highway System (AMHS) Ketchikan Maintenance Team determined that the generic, off the shelf cabinet that came with the new hydraulic parts would not suffice. Since it was obvious to them that the cabinet was not designed to meet all their needs, they decided to create their own. By making this unique cabinet wider, taller, and deeper, it is capable of holding all of the hydraulic fluid in the system in case of a broken hose or other unforeseen leak. This design also meets all of the required safety regulations.



[Click image for larger view](#)

Key Benefits/Efficiencies:

All of the AMHS ferry terminals have recently been granted Storm Water Permits. Since the old system had no secondary containment and wanting to stay in compliance with the permit, the Custom Hydraulic Cabinet was created. Not only will this cabinet hold the 33 gallons of hydraulic fluid in case of a spill, it also provides much easier access to the equipment for routine maintenance.

Idea/Innovation Developed by:

This innovative and environmentally friendly idea was designed and fabricated by the AMHS Ketchikan Maintenance Team, Stuart Swiger and Michael Norris. It is the intent of these creative individuals to solicit a fabricator to produce this custom prototype for all the State of Alaska ferry terminals.

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations & Ideas

- **Home**
- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Hinged Light Pole

What is the Idea/Best Practice:

The Hinged Light Pole was created to improve access to the lights and security cameras for routine maintenance. The light pole is cut mid-section and a hinge inserted, allowing for the light pole to be lowered for easy access to service the light and cameras at the top end of pole.

Key Benefits/Efficiencies:

The two fixed light poles that have been hinged are located on dolphins N1 and S1 of the Ketchikan Main Berth transfer Facility. The lights and security cameras on these two poles were difficult to maintain because of their location. Typically work would have to be done at high tide, with a rented man lift to extend out to the lights on N1 and S2, via the catwalk. By adding a hinge to the light poles, the AMHS maintenance teams save time as they no longer have to schedule work around tides. As the maintenance teams can access the light and camera without renting equipment, this innovation also saves money.



[click image for larger view](#)

Idea/Innovation Developed by:

This innovative idea is the creation of the AMHS Ketchikan Maintenance Team, Stuart Swiger and Michael Norris. Auke Bay light poles will be the next planned modification.

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Best Practices

- Best Practices Home
- Burn Barrel
- Dimond P Step
- Diverting Valve for Boiler Truck
- Hinged Light Pole
- Marking Tie-down Points on Equipment
- Rural Airport Contingency / Emergency Shelters
- Rural Airport Emergency Lighting Trailer
- Sand Spinner Guard

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Guardrail Cleaner

What is the Idea/Innovation:

Cleaning sand, gravel, and brush under and around guardrails is a necessary but labor intensive job. Always thinking outside the box, the Healy Maintenance Station designed an attachment for a skid steer (Bobcat) that makes this task much quicker and safer. By simply taking a piece of square tubing and welding it to a cutting edge from a grader, they have made themselves a low-profile plow. This then slides into the quick coupling system of the skid steer and it is ready for operation. Adjusting the length is as easy as removing 1 bolt and sliding it backward or forward. It is extremely versatile and easy to use.



[click image for larger view](#)

Key Benefits/Efficiencies:

It is easily attached to a skid steer which makes it very maneuverable. Although the coupler was purchased for around \$600, the man-hours saved have more than made up for the cost. It is estimated that this job is now about 5 times faster than the previous method. The Guardrail Cleaner has also made the task much safer due to the fact that the workers are not walking near the fast moving vehicles. It also reduces lane closures that may be required to do the job.

Idea/Innovation Developed by:

This creative and well thought out attachment was designed by Allan Mortenson and Eric Nelson and built by Eric Nelson.

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket
- Deflectometer Modification for Transport
- Department (District) Safety Coordinator Program
- Dimond P Step
- Diverting Valve for Boiler Truck

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Floor Drain Filter

What is the Idea/Innovation:

In the Northern Region, Maintenance and Operations stations were having problems with their floor drains getting plugged up and requiring routine cleaning. This process was time consuming, costly, and inefficient. At the Healy Maintenance Station, they began to look for a simple and efficient mechanism to prevent or slow down the process of the floor drains becoming plugged. They experimented with lining the floor drain baskets with paint screens (typically used on paint trucks to prevent clogging of the paint nozzles) to catch the finer material and it proved to be extremely successful by alleviating much of their drain clogging problem. Even with new floors being put in, they still use the screens and replace them monthly.



[click image for larger view](#)

Key Benefits/Efficiencies:

The paint screens are very affordable and readily available. They can be changed in a matter of minutes and it saves money and manpower not having to unplug the drain. This innovation can easily be replicated in any maintenance station/shop that has a problem with floor drains plugging.

Idea/Innovation Developed by:

This innovative and cost-effective idea was developed by Scott Killian (mechanic at the time but now an operator at the Healy Maintenance station).

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket
- Deflectometer Modification for Transport

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

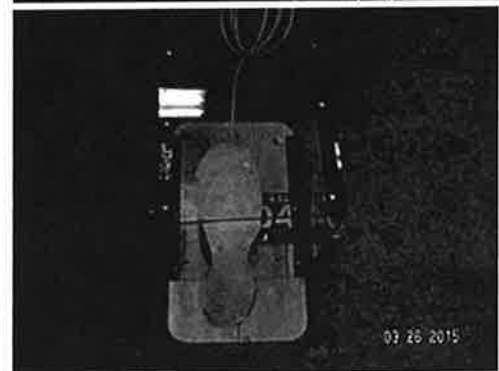
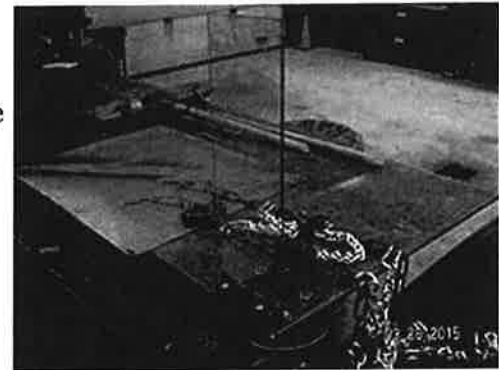
Chain Repair Machine

What is the Idea/Innovation:

This innovation was developed in order to provide a more effective and efficient process for larger scale chain repair, while utilizing material and equipment at hand. To allow mobility during chain repair, the North Kenai Maintenance Crew mounted their "air powered chain tool" to the workbench and equipped it with a foot control pedal to operate the device.

Key Benefits/Efficiencies:

The alterations done to this tool have transformed and modernized the process of chain repair at the North Kenai maintenance shop. When repairing a large number of cross-links in a set of chains, a more mechanized operation increases productivity; opposed to traditional chain repair tools. Operation and productivity of this tool resembles that of an assembly line; improved ergonomics and reduction in time spent performing repairs. With the modifications they have made to this tool along with proper training and PPE, the North Kenai maintenance crew believe they have a safer and more efficient chain repair process.



click images for larger view

Idea/Innovation Developed by:

The fabrication and production of this tool was done largely by Paul Slettedahl, with assistance and contributions from by his co-workers at North Kenai M&O.

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket
- Deflectometer Modification for Transport

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Anti-Freeze Catcher

What is the Idea/Innovation:

Thawing culverts is a winter maintenance activity that occurs annually across the state. Hundreds of culverts across the state have a thaw pipe installed and the thaw pipe is filled with anti-freeze to keep it thawed. In the past, when the steam truck hooks up to a thaw pipe, it blows the environmentally friendly anti-freeze out of the opposite end of the pipe and then turns to steam. Thinking that there had to be a better way, the Healy Maintenance station developed an environmentally friendly innovation that also saved money by recycling the antifreeze that would normally be lost.

The Healy Maintenance Station extended the pipe on the downstream side by adding a section of 3/4" heater hose over the end of the thaw pipe to direct antifreeze in a controlled manner and to provide easy access to the end of the hose. As the anti-freeze is coming out of the pipe, they capture it in a bucket and then the antifreeze is then poured back into the barrel in the boiler truck and it is saved for use in the future.

Key Benefits/Efficiencies:

The Healy Maintenance Station typically recovers approximately 2 gallons per thaw pipe. They are able to re-use the anti-freeze saving money and conducting their maintenance activities in an environmentally friendly.

Idea/Innovation Developed by:

David Talerico, Healy Station foreman developed this innovation. The idea of utilizing the heater hose was Stacey Skrivane's idea. Kudos to the Healy Maintenance Station for thinking outside the box.

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information



click images for larger view

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Rural Airport Emergency Lighting Trailer

What is the Idea/Innovation:

Having functional runway lights at the rural airports is critical to the safe operation of the airport. When airport lighting systems fail, medevac, passenger service and/or supplies coming into a village can be reduced or completely eliminated due to darkness and poor weather conditions. Statewide Aviation has positioned about 700 emergency landing lights distributed in two configurations: a standard six-pack for helicopter Emergency Landing Zone (ELZ) lights, and a full-runway set of emergency lights (38 lights) maintained in a small trailer. The full runway lights can be used in the event regular runway lights fail. Getting these lights to a village airport can be time consuming and expensive. The Dillingham airport crew saw this as a problem and came up with a creative and effective solution. Originally these lights were stored and shipped in a large fiberglass box with wheels which was bulky and very heavy. To fly these around required an aircraft such as an Otter, Beech 18, or a Caravan. The size of the trailer made it unable to fit into a smaller, less expensive aircraft.

Norm Heyano and John Dunson from the Dillingham airport worked with Tom Eveslage (owner of Northern Welding and Machine) to design and fabricate a creative trailer that fits into a Cessna 207. It has 4 removable trays holding 10 lights each. To help distribute the weight in the aircraft, the trays with the lights are placed next to the pilot (seat removed) while the rest of the trailer fits in the back.

Key Benefits/Efficiencies:

This trailer cost \$4820 to build but the return of investment will be quick because of the smaller aircraft required to carry it. In the past, a larger aircraft had to be leased from Bethel and the cost to deliver the lights could run as high as \$5000. By using the Cessna 207, which is more readily available in the villages, the cost to charter the aircraft has been reduced significantly. The Cessna 207 can be chartered for around \$1200 cutting the cost by \$3800 for a single trip. Being lighter, it is much easier getting the trailer on and off the airplane and can be pulled by a 4-wheeler. This makes placing the lights on the runway quick and easy. Not only is this trailer much more convenient, it also serves as a charging station while not in use.

Idea/Innovation Developed by:

Norman Heyano (Rural Airport Foreman), John Dunson (Heavy Equipment Operator 53), and Tom Eveslage (owner of Northern Welding and Machine). Way to think outside of the box (literally)!



click images for larger view

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Sander Storage Trailer

What is the Idea/Innovation:

Twice a year (in the Fall and Spring), most of our 8 yard trucks transform from a dumptruck to a sandtruck and visa-versa. This is why these trucks are so versatile, but it does take man-hours and storage space to make these conversions. Originally, removing or installing sanders or dump boxes on the trucks was a 2 person job. Mechanics and/or operators would perform this task by using a loader so the removed attachment could be carried to its storage location.

By using surplus bridge beams, some used trailer tires, and 4x4 posts, the creative guys from the Valdez shop built the "Sander Storage Trailer". One person can now load the trailer with an overhead hoist and then move it around the yard with a forklift or loader. Once it is parked, they simply raise the wheels to get the weight off the tires.

Key Benefits/Efficiencies:

This innovative and creative idea provides numerous benefits including:

- Allows the operator or mechanic to use the overhead hoist which is much more controlled and safe than utilizing a loader with forks.
- Reduces man-power requirements from 2 people to 1, ultimately saving money.
- Allows sanders/dump boxes to be easily moved to their seasonal storage spot spot.
- By using materials around the maintenance yard, it was very in-expensive to build.
- It is a much safer operation reducing the risk of injury and damage.

Idea/Innovation Developed by:

These trailers were built several years ago but the crews are still using them and are very proud of the work that was done.

The designer and builder was an SEF mechanic by the name of Mark Julien who unfortunately has since passed away. Duain Dunning and Cameron Hursh helped to put the wheels on them.



[click images for larger view](#)

If you have questions about this initiative, or ideas you'd like to submit, please email:
dot.everydayideas@alaska.gov

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Diverting Valve for Boiler Truck

What is the Idea/Best Practice:

Every winter, numerous culverts across the state need to be thawed by utilizing steam from a boiler truck. The boiler truck is connected to the thaw pipe and water is pumped thru the pipe pushing out the antifreeze. The antifreeze is captured for reuse. Steam is then sent thru the thaw pipe that melts the ice allowing the culvert to properly function once again.

One problem with this system is the high volume of water required to operate the boiler. The steam and hot water just squirts out the end of the pipe and is lost. On busy days, the truck will run out of water in 5-6 hours. Many of our culverts are in extremely remote locations and nowhere near an available water source. Although these trucks carry several hundred gallons of water, this quantity is not adequate to last an entire shift. This could require an extensive trip for additional water, up to 25 minutes to reload, and then the long return trip back.

Conserving water on these projects has always been a problem. When steaming long culverts or when the thaw pipe runs through water, it takes several gallons of water before it heats up enough and turns to steam.

A very creative and fairly in-expensive solution was thought of by heavy equipment operator Jeff Summar in the Tok District. Jeff did some research and found a company, ThermOmega Tech (there are others also), that makes a diverting valve. This valve has a temperature gauge built in which diverts any water above 205 degrees (steam) to be released into the air while the water below 205 degrees returns to the holding tank on the truck.

Key Benefits/Efficiencies:

The diverting valve is factory preset to 205 degrees Fahrenheit and will allow steam to go into the air above 205. Below 205 degrees, the water is sent thru a hose back into the trucks holding tank. This will allow some water to be recycled yet keep the hotter steam out of the truck. The diverting valve (\$506 for model M/D-205-E) allows the boiler truck to operate all day without refilling. This can save up to six-person hours (two-person crew) plus the travel time on the truck. By not having to refill just one time on a shift, this valve will have paid for itself. It also allows the crew to be more productive by working on more frozen culverts each day.

Idea/Innovation Developed by:



[click images for larger view](#)

Jeff Summar, heavy equipment operator from South Fork Maintenance Station, Tok District. Feel free to contact Jeff or Dennis Bishop, Tok District Superintendent, for additional details.

**If you have questions about this initiative, or ideas you'd like to submit, please email:
dot.everydayideas@alaska.gov**

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Best Practices

- Best Practices Home
- Burn Barrel
- Dimond P Step
- Diverting Valve for Boiler Truck
- Hinged Light Pole
- Marking Tie-down Points on Equipment
- Rural Airport Contingency / Emergency Shelters
- Rural Airport Emergency Lighting Trailer
- Sand Spinner Guard



Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Home Made Reclaimer with Emulsion-Injection Capabilities

What is the Idea/Innovation:

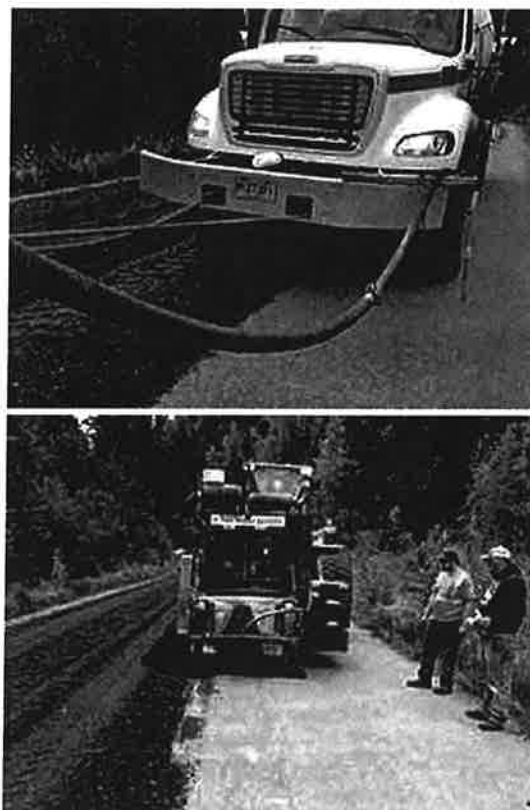
Over the last 15 years, the Southcoast Region has been chipsealing secondary and other local type roads that were previously gravel (known as the “Gravel to Black” program). The intent of the “Gravel to Black” chipsealing program was to cut maintenance costs by reducing or eliminating constant summer grading of gravel surfaced roads. Typically, prior to chipsealing a gravel road, M&O crews prefer to construct an emulsified asphalt treated base course (EATB) to provide extra strength and to help extend the life of the road. M&O crews normally construct the EATB by utilizing the “road-mix” method. This method involves ripping the existing road surface with a grader and then is followed by a distributor truck spraying emulsified asphalt on the top gravel layer. A grader would then mix the emulsion into the D1 surfacing material as best as possible. This process had to be repeated over and over until the correct mixture was achieved. While this system worked, it was very time consuming and created a huge mess. The graders were covered in oil, the trucks tracked the oil down the roads for miles, and traffic control was a nightmare.

Matt Boron, Haines Station Foreman, came to work for the State in 2004 after spending 17 years in the construction industry. He knew there had to be a better, more efficient way to do this job without having to buy the \$500,000 reclaiming machine that was essentially a grinder with an oil injection system.

Matt went to Tim Webb with SEF and said “We have a small grinder which is attached to our loader and a distributor truck so let’s figure out how we can put them together”. Tim built a manifold which connected the homemade spray bar for the grinder to the distributor truck. After some start up frustrations and bar room napkin adjustments, they decided to let the loader pull the distributor truck which made it easier to control the oil output. The crew can now grind up and inject oil all in one pass. Since the grinder thoroughly mixes the oil in, the product can be graded to profile, compacted, and driven on immediately.

Key Benefits/Efficiencies:

The main benefit is not having to purchase a half a million dollar oil injected reclaimer or to rent this piece of equipment at a rental cost of approximately \$50,000 a month. So for the price of a couple of hoses, a tow strap, and several pipe fittings, the creative folks from the Southcoast Region made their own reclaimer with equipment they already had. In addition, the crew can easily work on one lane at a time allowing for normal traffic control. Also, no one seems to enjoy cleaning oil off the equipment and with this new procedure, this has been reduced to just a fraction of the time.



click images for larger view

Idea/Innovation Developed by:

This money and time saving innovation was designed and built by Matt Boron (Haines M&O foreman) and Tim Webb (now retired from SEF).

If you have questions about this initiative, or ideas you'd like to submit, please email:
dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket
- Deflectometer Modification for Transport
- Department (District) Safety Coordinator Program
- Dimond P Step
- Diverting Valve for Boiler Truck
- Exhaust Heat for Sander Spreader
- Fabricated Reversible Plow
- FAI Compact Snow & Ice Crusher - "The YETI"
- FAI International Garbage Incineration Improvement
- Floor Drain Filter
- Grader Sloper Adjustment Modification
- Guardrail Cleaner
- Hinged Light Pole
- Home Made Reclaimer with Emulsion-Injection Capabilities
- Hydraulic Cabinet
- Larger Snow Deflector on MB Broom
- Marking Tie-down Points on Equipment
- MB Broom Rear Steer Remote Grease Manifold

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

ANC Airfield Shadow "Take Down" Box

What is the Idea/Innovation:

Airfield electricians have a very dangerous and demanding job. Many times they are working in the vicinity of airplanes and need to get off a runway or taxiway very quickly. Having the necessary tools close by and handy is essential to do their job as efficiently and safely as possible. A couple of creative electricians at Ted Stevens Anchorage International Airport designed and created a very practical and portable "Take Down (tool) box" that has all the tools they need for a specific but common job. This is actually the 3rd version of the Take Down box with each version being improved in some way.

Key Benefits/Efficiencies:

This tool box contains many of the tools needed every time the electricians need to get into an airport light can. It also holds their clamp-on ammeter and voltage detector which is an important part of their safety equipment. Testing a fixture's lamps in the field prior to connecting it to the transformer and bolting it in can save time and frustration if the fixture has a bad lamp. The tester can also be a quick troubleshooting tool: If the fixture was not working but the lamps are good, it could be a problem transformer.

Every tool has its own slot to fit into so if something is missing, they instantly know if they forgot a tool on the runway or taxiway. Keeping the airfield clear of FOD is extremely important. As far as the cost, according to Dennis, "it's made out of garbage. It often takes as long to scrounge the material as it does to build it". It took a few evenings of slack time for the two electricians to build it. The Take Down box has become an important tool that some of the electricians use every day. It improves safety and efficiency while working on the airport lighting system.

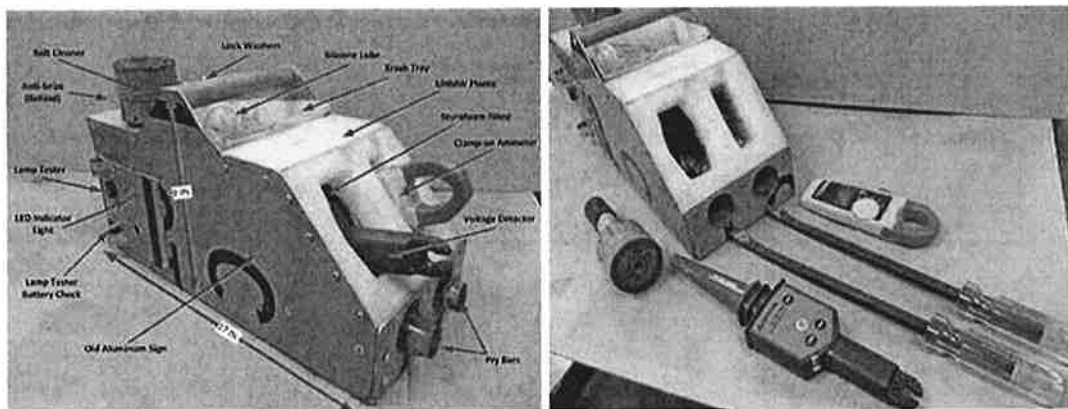
This design has worked well at Anchorage International Airport, but other airports may want to create their own design. The important concept is this: **Incorporate your safety equipment into a tool kit with the basic tools used on most jobs where high voltage could be encountered. If safety equipment is readily available when needed, it is more likely to be used.**

Idea/Innovation Developed by:

This creative, effective, and inexpensive innovation was designed and built by Dennis (Beav) Deering and Phil Doherty from the Anchorage International Airport.



Testing a fixture's lamps in the field prior to connecting it to the transformer and bolting it in, can save time and frustration if the fixture has a bad lamp. The tester can also be a quick troubleshooting tool: If the fixture was not working but the lamps are good, it could be a problem transformer.



Click images for larger view

If you have questions about this initiative, or ideas you'd like to submit, please email:
dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket
- Deflectometer Modification for Transport
- Department (District) Safety Coordinator Program
- Dimond P Step
- Diverting Valve for Boiler Truck
- Exhaust Heat for Sander Spreader
- Fabricated Reversible Plow
- FAI Compact Snow & Ice Crusher - "The YETI"
- FAI International Garbage Incineration Improvement
- Floor Drain Filter
- Grader Sloper Adjustment Modification
- Guardrail Cleaner
- Hinged Light Pole
- Home Made Reclaimer with Emulsion-Injection Capabilities
- Hydraulic Cabinet

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Bollard Visibility

What is the Idea/Innovation:

The Juneau SEF shop typically paints the bollards in front of the shop every two years when the paint starts wearing off and the bollards start to rust. After some research, they discovered a slip on/cover style bollard that has reflective striping making it more visible; especially when backing into the shop the reflective bollards help delineate where that door openings are. It also increases operator/mechanic safety at night and in pouring rain. They also made identification of the wash bay doors easier by making those bollards blue.

Key Benefits/Efficiencies:

Instead of painting every two years these bollards are \$30.00 each and can be fastened to the existing bollard by a \$4.00 can of expandable foam. This creative idea saves money and improves operator/mechanic safety by providing bollards that are highly visible for both and day and night situations as well as during inclement weather.

Idea/Innovation Developed by:

SEF Juneau Staff – Tim Wolfe, SEF District Manager; Tom Miller, SEF Juneau Foreman; Jeff Martin, Roger Hoffman and Patrick Lambrecht, Mechanic Auto Adv Journey; Mike Vuille and Jake Olivit, SEF Parts.



Before



After



After

[click images for larger view](#)

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Burn Barrel

What is the Idea/Best Practice:

This simple yet cost-effective idea was submitted from the Healy Maintenance Station. The Healy Maintenance Station implemented the use of a burn barrel at their maintenance station to help reduce the amount of trash that they had to dispose of. By utilizing an old 55 gallon barrel, the Healy Maintenance Station is able to dispose of burnable material at no cost to the department. Plasma cut the holes in the barrel and the lid is a flatbar ring with expanded steel grating and 1/2" thaw pipe handles. The Healy area does not have burn restrictions and they just needed to acquire a no-cost burn permit from the local fire department.

Key Benefits/Efficiencies:

This simple, cost-effective, and environmentally conscious idea has reduced the amount of trash pickup at the Healy Maintenance Station by 50% saving money and space in the local landfill. This is a simple idea that can be replicated across the state as long as it is implemented in accordance with local regulations regarding open-burning.

Idea/Innovation Developed by:

This simple, straight forward idea was implemented David Talerico, Healy Maintenance Station Foreman. The burn barrel and lid were fabricated by Shane Shields (Healy Operator at the time and now working at the Nenana Maintenance Station).



[Click images for larger view](#)

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Best Practices

- [Best Practices Home](#)
- [Burn Barrel](#)
- [Dimond P Step](#)
- [Diverting Valve for Boiler Truck](#)
- [Hinged Light Pole](#)
- [Marking Tie-down Points on Equipment](#)

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Culvert Bolt Socket

What is the Idea/Innovation:

This innovation is used by the Chitina M&O crew to expedite the installation of culverts. It is a simple deep socket cut in half, with a piece of pipe welded in to make it long enough to fit over a culvert bolt all the way. This coupled with a battery powered impact makes for quick and easy culvert connections.

Key Benefits/Efficiencies:

The installation/tightening of culvert bands are usually difficult and require about 4-6 inches of bolt tightening. With that bolt length, you generally have to utilize a wrench to get the band tight and with four bolts per band, it was a difficult and time consuming process. Before the battery impact, we used air, which required getting the service truck close to the ditch, which could also be a problem/challenge. Since we normally have traffic stopped while we connect the culverts, it is important to expedite the process as much as possible. This simple but effective innovation simplifies the job, makes us more efficient, and saves time (and hence money).



[click image for larger view](#)

Idea/Innovation Developed by:

This innovation was created many years ago by Cal Datta, retired Chitina M&O and submitted by Martin Helkenn, Chitina Station Foreman.

If you have questions about this initiative, or ideas you'd like to submit, please email:
dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket
- Deflectometer Modification for Transport
- Department (District) Safety Coordinator Program
- Dimond P Step

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Deflectometer Modification for Transport

What is the Idea/Innovation:

The Materials Section needed to transport their “Thumper”, a Dynatest trailer mounted deflectometer, by air on a Sherpa size aircraft. The unit was modified by:

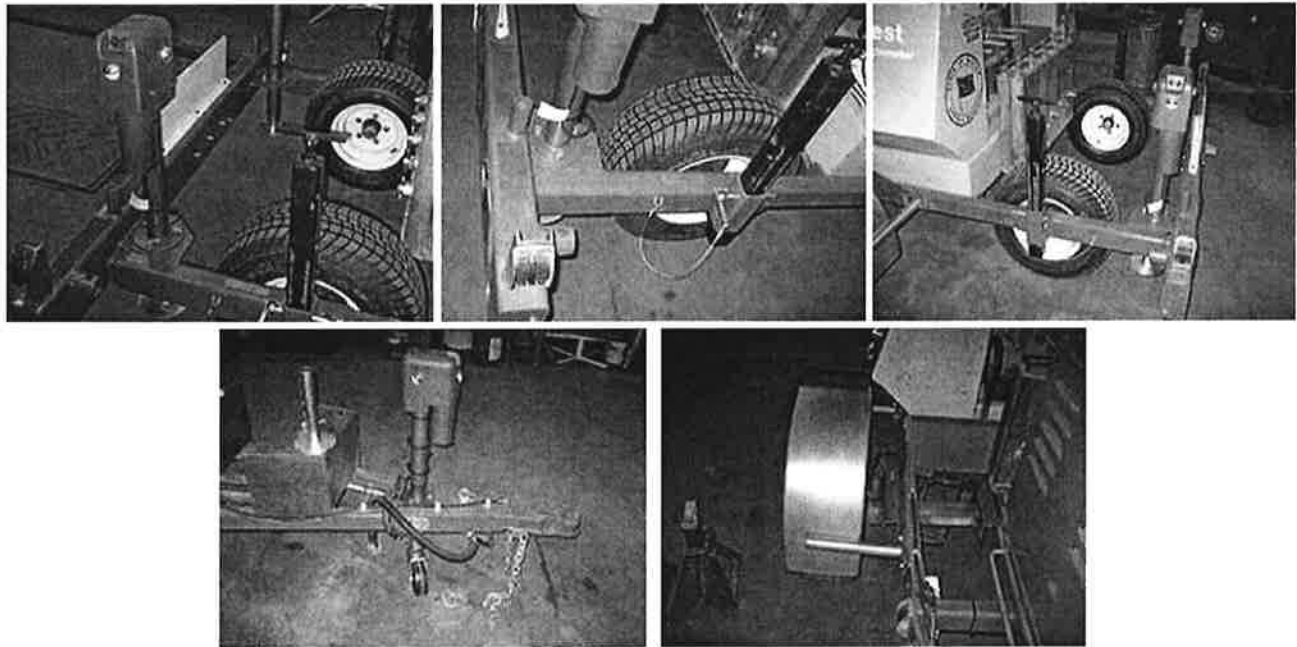
- Lengthening out the frame
- Adding a set of electric tongue jacks and auxiliary drop down wheels to allow the Materials personnel to remove the original equipment manufacturers (OEM) running gear (fenders and wheels) at the departure site. This reduces the size of the unit so it will fit on the Sherpa.
- An electric jack and larger wheel was added to the tongue of the trailer to assist in movement and transition.
- The auxiliary wheels also allow for the unit to be pushed by hand and loaded onto the aircraft. Once on the job site the unit can be unloaded and moved by hand or towed to the test area.

Key Benefits/Efficiencies:

- Allows the unit to be transported on a smaller aircraft saving \$40K over a C130.
- Materials personnel have a simple and safe way to transition the equipment from highway to airport use.
- Can be moved by hand if a tow unit is not available.

Idea/Innovation Developed by:

Roy Stover, Statewide Materials; Al Horcsik, SEF Foreman and Paul Walsh, Mechanic, State Equipment Fleet, Anchorage.



click images for larger view

If you have questions about this initiative, or ideas you'd like to submit, please email:
dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket
- Deflectometer Modification for Transport
- Department (District) Safety Coordinator Program
- Dimond P Step
- Diverting Valve for Boiler Truck
- Exhaust Heat for Sander Spreader
- Fabricated Reversible Plow
- FAI Compact Snow & Ice Crusher - "The YETI"
- FAI International Garbage Incineration Improvement
- Floor Drain Filter

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Department (District) Safety Coordinator Program

What is the Idea/Innovation:

The DOTPF is a huge organization spread out over a vast area. With less than a handful of full time safety professionals, it is challenging to implement a comprehensive safety program. Nonetheless, protecting employees from hazards in the workplace and completing all regulatory requirements is an essential function. In an effort to improve employee safety and maintain regulatory compliance, the Department (District) Safety Coordinator program was created. The Department Safety Coordinator Program was initiated to promote and facilitate a safe, regulatory compliant work environment for employees and visitors. The program utilizes 20 volunteer employees from various sections including M&O, SEF, Anchorage and Fairbanks International Airports, and the Alaska Marine Highway System. This program will help minimize accidents and employee injuries and reduce in property damage.

Key Benefits/Efficiencies:

This innovation increases efficiency in reducing risk to employees by providing preventative measures to minimize accidents, which may cause injuries and could result in property damages. Further the program assists in the completion of all required documentation. The success of the program depends upon positive support by both administration and fellow employees. Benefits and efficiencies include, but are not limited to the following:

- Assisting all levels of management in the development, implementation, and communication of the departments Health and Safety Program.
- Provides a more timely response to safety-related complaints, suggestions, evaluations and remediation efforts.
- Ensures that safety inspections and monthly safety meetings are being conducted and that all regulatory compliance and training requirements are current and appropriate for their district/section.

Idea/Innovation Developed by:

Former Northern Region Safety Officer Mike Oden and Dan Monteleone, Statewide Program Coordinator

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Exhaust Heat for Sander Spreader

What is the Idea/Innovation:

This innovation utilizes heat from the exhaust system to heat sand in the sander box to improve sand retention after it is applied to the pavement via the spinner. Route the exhaust from the engine through the sander box via a flex pipe that is connected to the deflector above the conveyor, then up to top and out the steel tubes.

Key Benefits/Efficiencies:

This innovation improves highway safety, reduces sand usage, and ultimately saves money. Keeping the sand warm in the sander box by utilizing the exhaust heat, helps it stick to the road better. The warm sand melts into snow pack and stays on the road longer. This increases roadway safety and requires less sand to be applied. Utilizing less sand results in a cost savings to the department.

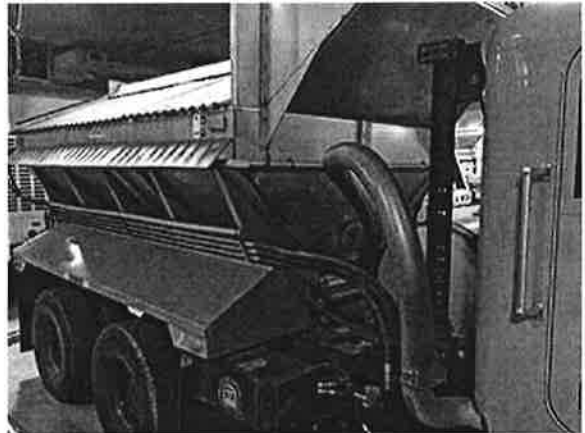
An additional benefit is that sand doesn't freeze in between tubes when truck is full. This makes loading the truck quicker and eliminates the need to beat on the tubes to get the sand to fall through into the sander box.

Idea/Innovation Developed by:

Sitka M&O Operators

If you have questions about this initiative, or ideas you'd like to submit, please email:
dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information



[click image for larger view](#)

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket
- Deflectometer Modification for Transport
- Department (District) Safety Coordinator Program
- Dimond P Step

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Grader Sloper Adjustment Modification

What is the Idea/Innovation:

This innovation replaces the typical grader sloper adjustment bolts with grade 8 ready rods and lock tight to eliminate bolt/bolt hole damage that can be fairly common.

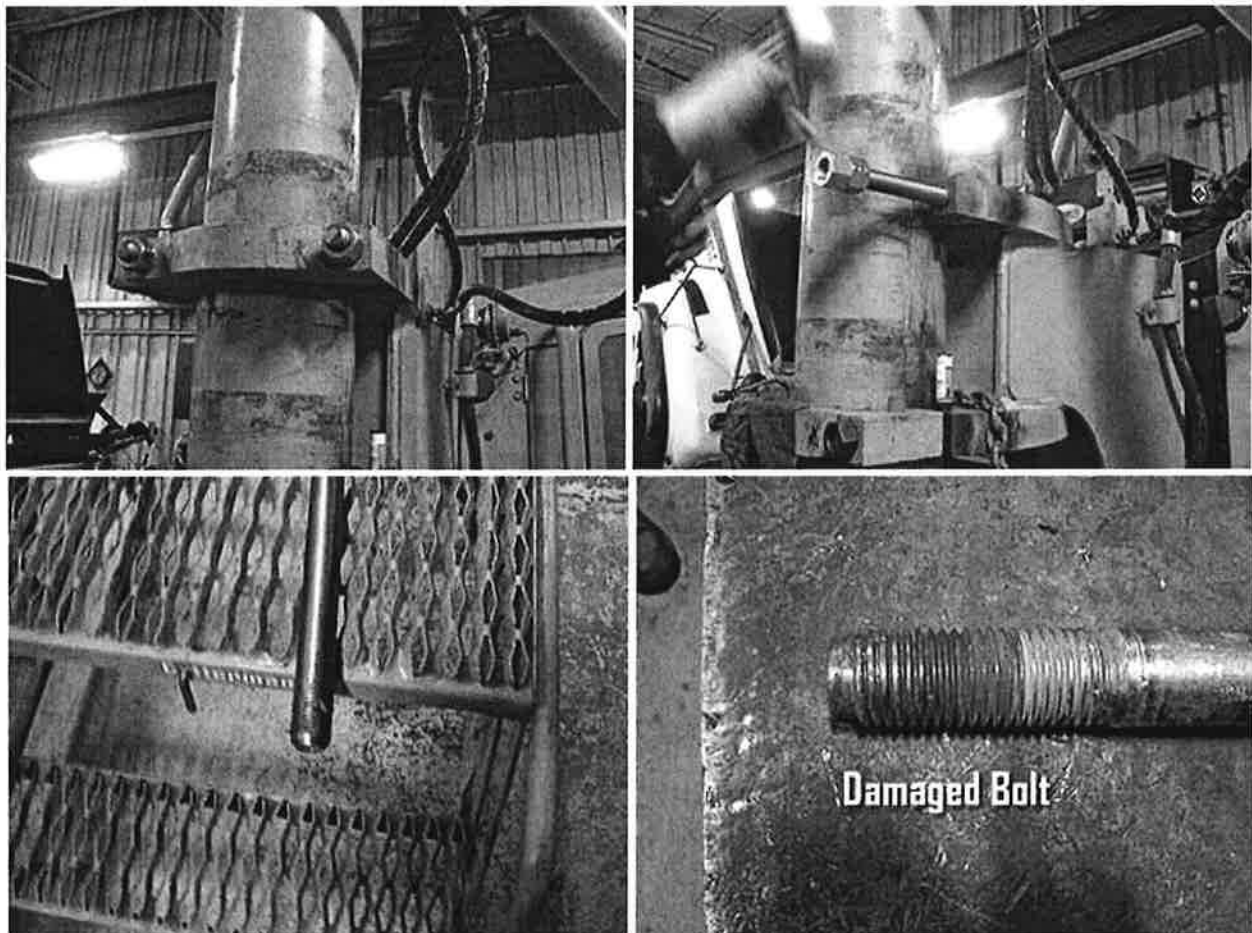
Key Benefits/Efficiencies:

Originally the sloper adjustment consisted of four bolts which can easily become stripped. By using a grade 8 ready rod (all thread) operators can easily adjust the sloper without stripping the bolts by simply removing the nuts on the rods and not damage the bolt holes by unthreading the bolts from the housing.

This innovation saves money by minimizing equipment damage.

Idea/Innovation Developed by:

This innovation was developed by Raymond (Gil) Martel, Valdez SEF Shop.



click images for larger view

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Larger Snow Deflector on MB Broom

What is the Idea/Innovation:

Larger snow deflector on MB Broom keeps snow and debris off hitch/rear steer control. The Sitka Airport utilized used telaspar, old road signs, and mud flaps to develop this low-cost solution to keep snow, water, and debris from covering the back of the truck and the hitch/rear steer controls.

Key Benefits/Efficiencies:

The original deflector consisted of four mud flaps that were fairly ineffective at stopping snow, water, and debris from covering the back of the truck and hitch/rear steer controls. The rear steer control system on the hitch has 7 grease points. The system gets greased after every shift of use. Water was pushed out with every greasing indicating a problem.

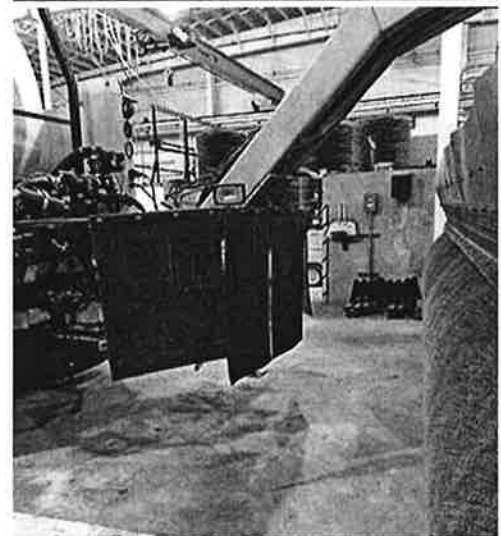
This low cost innovation utilizing old, used material on-hand keeps the hitch/rear steer area much cleaner and free of water, snow and ice. This in turn results in significantly less debris/water getting into bearings/bushings which will help prolong the life of the unit. This innovation also saves time when equipment is rinsed off (no more snow stuck to this area). The snow that is on deflector is easily knocked off with shovel.

Idea/Innovation Developed by:

Steve Bell, Sitka Airport Manager developed this innovation.

If you have questions about this initiative, or ideas you'd like to submit, please email:
dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information



🖱️click images for larger view

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Marking Tie-down Points on Equipment

What is the Idea/Best Practice:

During the 2014 M&O/SEF Manager meeting in Fairbanks, a training class was given by MSCVE regarding the proper way to tie-down equipment for transport on trailers. Most heavy equipment have multiple tie-down points and some of the tie-down locations can be difficult to locate. After the MSCVE demonstration, Tim Wolfe, Southeast District Equipment Manager came up with a simple and inexpensive idea to help identify all tie-down locations and to clearly identify the total number of tie-downs required.

The simple idea is to identify every factory tie-down location and paint them **RED**. The second part of the tie-down system is to simply place red decals that identify how many tie downs are on the vehicle. On this particular piece of equipment, in the photos below, there are 6 tie-down locations on the base machine and there will be additional tie downs for whatever attachments are on the loader (bucket, forks, plows, ect.). Total cost a can of red spray paint \$10.00 and an hour of labor. "That's it"

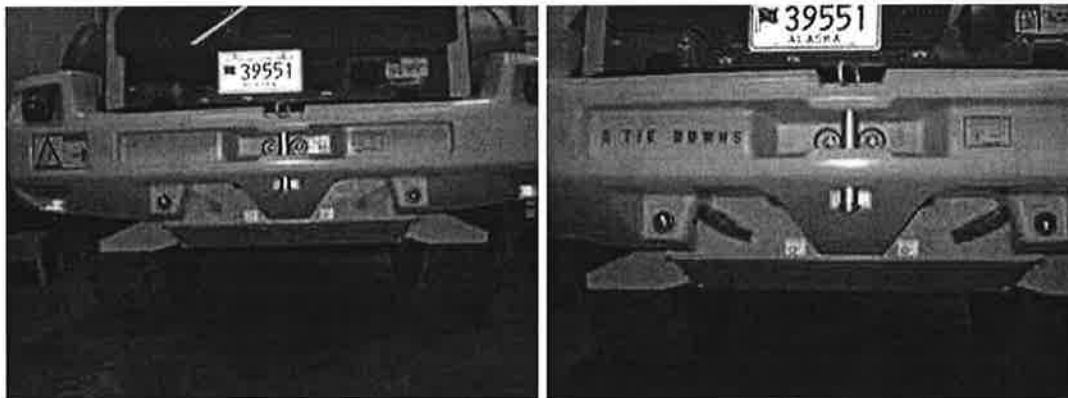
Key Benefits/Efficiencies:

This simple and inexpensive idea takes the guess work out of locating equipment tie-down points on heavy equipment. It also clearly identifies the total number of tie-downs required for the individual piece of equipment. As Tim Wolfe says "I have found that with the entire machine painted yellow, it is hard to see the tie-down because it all just blends in. These are photos of before with factory yellow and after painted Red. Take a look at the photos and decide for yourself."

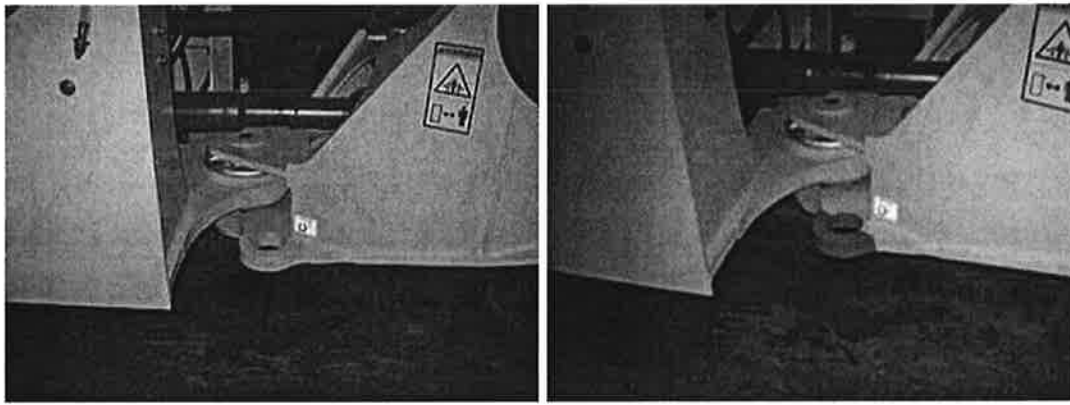
Idea/Innovation Developed by:

Tim Wolfe, Southeast District Equipment Manager in Juneau developed this simple and inexpensive innovative idea.

Click images for larger view



Above: Rear of Loader



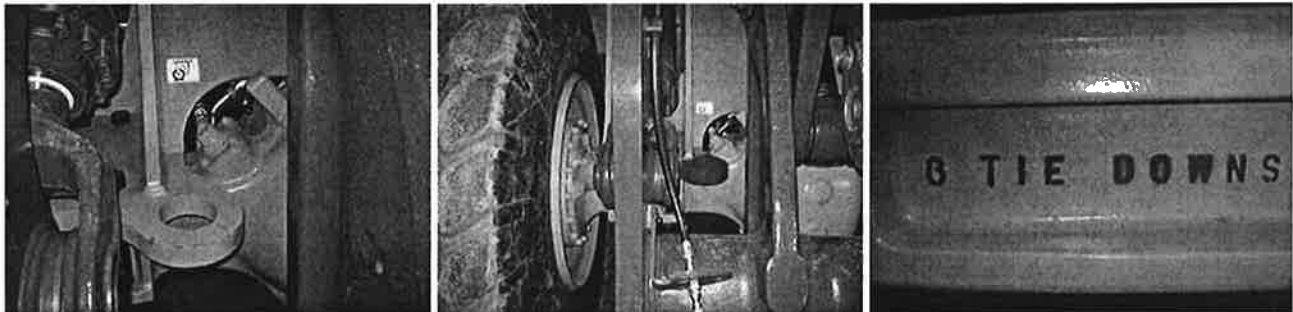
Above: Middle of Loader



Above: Middle of loader arm unlocked



Above: Middle of loader with arm locked



Above: Front of Loader

If you have questions about this initiative, or ideas you'd like to submit, please email:
dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Best Practices

- Best Practices Home
- Burn Barrel
- Dimond P Step
- Diverting Valve for Boiler Truck
- Hinged Light Pole
- Marking Tie-down Points on Equipment

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

MB Broom Rear Steer Remote Grease Manifold

What is the Idea/Innovation:

The Sitka Airport SEF Mechanic Ed Newburg fabricated a remote grease manifold for the rear steer system on the MB broom to insure consistent greasing of all fittings.

Key Benefits/Efficiencies:

Original grease fittings on the MB broom were hard to reach, so they were not getting greased all the time. The new manifold is easy to reach which insures that all area's get greased every time which helps to extend the life of the unit.

Idea/Innovation Developed by:

Ed Newburg, Sitka Airport SEF Mechanic developed and fabricated this innovation.

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information



[click image for larger view](#)

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket
- Deflectometer Modification for Transport
- Department (District) Safety Coordinator Program
- Dimond P Step
- Diverting Valve for Boiler Truck
- Exhaust Heat for Sander Spreader
- Fabricated Reversible Plow

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Metal Halide to LED Conversion

What is the Idea/Innovation:

Field Maintenance Crews at the Anchorage International Airport (AIA) suffered from poor lighting conditions in the AIA Field Maintenance Complex (warm storage building) for years. The old lighting system was not only inefficient in terms of providing adequate lighting inside the building, but it was also extremely energy inefficient and expensive to operate. These conditions brought together two different sections at the airport to develop a cost-effective lighting solution. After detailed analysis it was determined that a conversion from the traditional metal halide lighting system to an LED system was the best solution. The AIA building maintenance section agreed to purchase the new LED fixtures for the warm storage building while the field maintenance electricians agreed to conduct the installation. The end result - the new lights are dramatically brighter and much more energy-efficient.



click image for larger view

Key Benefits/Efficiencies:

There were 90 existing light fixtures that were changed at a cost of \$375 each for a grand total up front replacement cost of \$33,750. The new LED lights have a 5 year warranty and the savings on electricity alone is close to \$13,000 each year. In addition to the electricity savings, there is also an \$8000 reduction in maintenance costs giving the new LED light system a return on investment in under 2 years. After the first two years, the conversion to LED lighting will represent a significant ongoing cost savings to the airport.

This project has also improved safety at the facility due to better visibility as well as reducing the electric bill. It also provides improved lighting for completing equipment pre-trip inspections resulting in less equipment returning from the field with discrepancies that could have been identified before leaving the facility.

Idea/Innovation Developed by:

Zaramie Lindseth Airfield Maintenance Manager, Larry Swanson Building Maintenance Manager, Ron Silva Airfield Electrical Foreman, and the airfield maintenance electricians.

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Portable Anti-icing System

What is the Idea/Innovation:

Robbie Mattson Cordova Airport Manager was trying to find an effective and simple way to apply salt brine anti-icing solution at 30 gallons a lane mile in order to pre-wet their roads before a storm moved into their area. They found an old 275 gallon plastic tank (originally used to ship aircraft deicing fluid) that already had a 2" cam lock ball valve attached and was no longer being used. They placed this in the back of a 1 ton pickup truck and then designed a spray bar consisting of 2" hose and PVC pipe. The bar was deliberately made wider than the truck (7'6") so the operators could see it in their mirrors. The orange ends also make it more visible if snow is present. The bar is supported by the trailer hitch of the pickup truck. They drilled eight 3/8" holes on the bottom of the spray bar but decided to neck 6 of them down to 1/4" after a trial run. They drive 25-30 mph with the valve fully opened which gives them very close to 30 gallons per lane mile.



[click image for larger view](#)

Key Benefits/Efficiencies:

All of the parts cost about \$160 and it took 1 hour to construct the anti-icing unit. This whole system can be installed and put together by one operator in about 5 minutes. This allows for a quick response during freezing rain or snow events. This innovative idea eliminated the need to purchase a commercially available unit and represents a significant cost savings to the department. Robbie reports that this innovation has worked very well for them and is a very efficient way to apply anti-icing solutions in a cost-effective manner.

Idea/Innovation Developed by:

This innovative and cost-effective idea was created by Robert Mattson, Cordova Airport Manager.

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Innovations

- ANC Airfield Shadow "Take Down" Box

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Rural Airport Contingency/Emergency Shelters

What is the Idea/Innovation:

The Northern Region (NR) maintains and operates 109 rural airports across the region in some of the most extreme environments found on the planet. Sixty-four (64) of these airports are off the road system and have a Snow Removal Equipment Building (SREB) as well as a runway lighting system. In order to keep these airports operational 24/7/365, NR M&O must send operators, mechanics, electricians, and building maintenance staff to perform routine and emergency maintenance on these facilities. Unfortunately, at most of these airports, there is no infrastructure to support their physiological needs (reasonable clean housing, toilet facilities, cooking facilities, etc.). These outstanding employees have tolerated horrible working/living conditions in order to keep the airports open for business. Due to the lack of infrastructure in the community, our employees were forced to sleep on the floor in the SREB or in the equipment without access to proper toilet or cooking facilities.


NR M&O began installing basic shelters at NR rural airports to support their employees. These shelters are based upon a standard 20' conex shipping container. They're State Fire Marshall approved, insulated with two bunks and a burner toilet. Our employees have a warm, dry and safe place where they can put their tools down and rest their head.

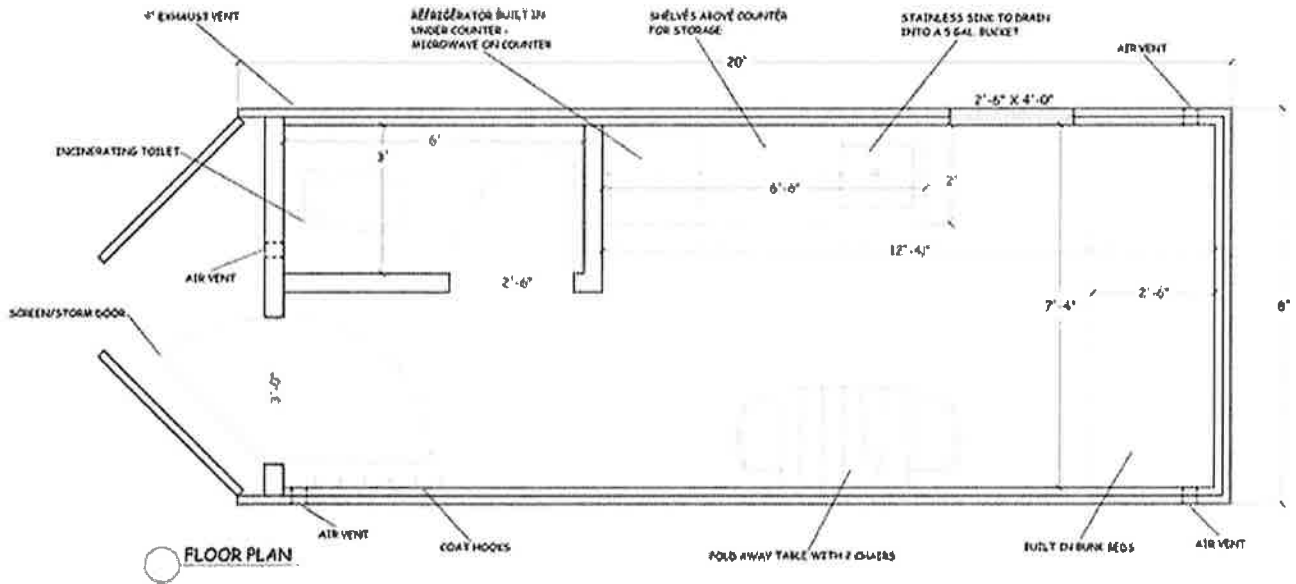
Key Benefits/Efficiencies:

Having this basic infrastructure for our employees at these remote sites is a huge improvement. The days of preparing food and sleeping in the SREB are ending at airports with these shelters. Our ability to service these airports is greatly enhanced. Multi-day trips can now be planned and implemented without undue stress on our staff. This gives airports with shelters a higher level of service, improves efficiency, and the morale of affected employees is through the roof! Travel costs are reduced by doing extended trips now that this physiological support is available. Operational costs per shelter are less than \$1,000 per year. These shelters bring us into compliance with applicable OSHA guidelines, State policy, and contractual language. The cost per shelter is about \$27,000 plus \$5,000 for barge delivery. To date NR has purchased or built 23 shelters. Eighteen of these shelters will be deployed during the summer of 2015 and give our people support in remote locations that they never had before.

Idea/Innovation Developed by:

Rural Airport Contingency Shelter Committee. The committee was created to address employee complaints about unacceptable working conditions at rural airports. Founded in 2012, the committee researched the situation and possible solutions. The converted conex shelter was determined to be the most cost effective way to achieve the infrastructure support our personnel need. Members of the committee include; Jeremy Worrall, Bobby Pace, Dan Moody, Tyler Johnson, Evan Booth, Penny Adler and Steve Meierotto as Chairman. There were many other employees that contributed to the success of the project.

 click images for larger view



If you have questions about this initiative, or ideas you'd like to submit, please email:
dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information

Best Practices

- Best Practices Home
- Burn Barrel
- Dimond P Step
- Diverting Valve for Boiler Truck
- Hinged Light Pole
- Marking Tie-down Points on Equipment
- Rural Airport Contingency / Emergency Shelters
- Rural Airport Emergency Lighting Trailer
- Sand Spinner Guard

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Snow Blower Side Bumpers

What is the Idea/Innovation:

Skagway M&O received an MB snow blower for use on the Klondike Highway but this particular snow blower was designed for airport use. After running the new snow blower they discovered the front housing of the blower head was starting to bend on the sides. Mike Haffner, the Skagway SEF mechanic, came up with a design to modify the right side of the blower head so that it could be utilized against the miles of guardrail on the Klondike Highway without damaging the machine, motor covers, and the guardrail. Mike also modified the brackets and shoe design replacing the rubber shoes with replaceable shoes that can be quickly changed as they wear out.

The original plan was to just do the guardrail side of the machine but it worked so well M&O requested the opposite side be modified so it could be utilized against the guardrail going downhill or clearing an avalanche.

Key Benefits/Efficiencies:

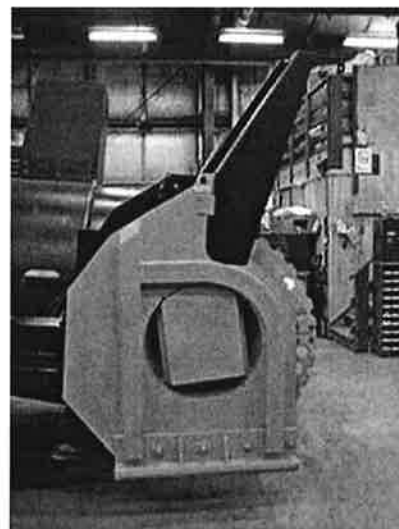
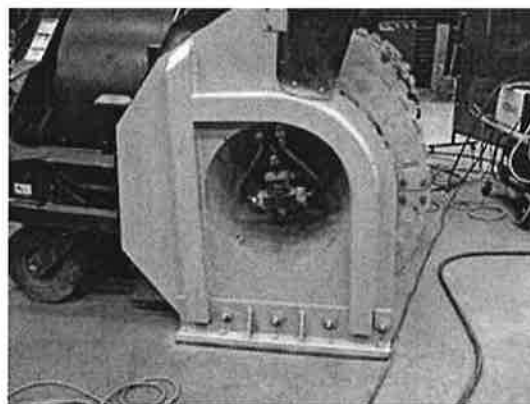
The added support in the blower head and shoe modification will reduce maintenance costs and decrease downtime in the winter.

Idea/Innovation Developed by:

This innovative idea was the brainchild of Mike Haffner, Skagway SEF Mechanic.

If you have questions about this initiative, or ideas you'd like to submit, please email: dot.everydayideas@alaska.gov

DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Contact Information



[click images for larger view](#)

Innovations

- ANC Airfield Shadow "Take Down" Box
- Anti-Freeze Catcher
- Bollard Visibility
- Burn Barrel
- Chain Repair Machine
- Culvert Bolt Socket

Alaska DOT & PF Employee Intranet / Everyday Lean Innovations & Ideas

Everyday Lean Innovations & Ideas

Water Pump Fish Screen

What is the Idea/Innovation:

Many M&O activities require the department to utilize water from local ponds, rivers, and creeks requiring a temporary water use permit. The department must utilize a specific water intake fish exclusion screen design, under certain conditions, to prevent the entrapment, impingement, and entrainment of adult and juvenile fish swimming in proximity of the water intake as required by the Department of Fish & Game. The cost of a commercially produced intake fish exclusion screen is approximately \$1,200 and they can be difficult to handle.

Due to the high cost of having these units commercially manufactured for the department, the Tok maintenance crew determined that they could fabricate these intake screens more cost-effectively themselves. By recycling old highway signs and other scrap materials, the Tok crew was able to fabricate a permit-compliant water intake fish exclusion screen for just \$200.

Key Benefits/Efficiencies:

This in-house constructed permit-compliant water intake fish exclusion screen represents a major cost savings (\$200 in-house versus \$1,200 commercially manufactured) and provides other improvements such as more employee friendly hand holds.

Idea/Innovation Developed by:

Dennis Bishop, Tok District Superintendent thought of the idea. Robert Brooks, Charlie Lamphear, Rick Rallo, and Mark Sakalaskas from the Tok Station took Dennis' idea and made it a reality.



Above: Unit on left under construction, the middle unit is complete (\$200), unit on right is \$1,200 commercial unit.



Above: Finished in-house unit Unit under construction in Tok



[click images for larger view](#)