Connecticut Creative Solutions Guide
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**Under Guide Rail Material Pusher**
Town of Thomaston, Highway Department (2005 CCSA Winner)

**Problem Identified:**
Heavy build-up of sand and other material under the guide rails, some actually covering the bottom cable.

**Solution:**
Material Pusher was fabricated to fit under the bottom cable and between the existing posts to push excess material out from under the rail to get the proper grade.

**Cost Estimate:**
$350.00 (cost of mounting plate for skid steer) – all steel was in stock.

**Benefit:**
No need to remove cables, less manual work, no cost of weed control. Only 2 employees needed, Operator and Flagger – frees up backhoe for other jobs.

**Contact:**
Paul Pronovost  
Superintendent of Highways  
Thomaston Highway Department  
158 Main Street  
Thomaston, CT 06787  
Ph: 860-283-4030  
towngarage@snet.net
Catch Basin Top Removal Sling
Town of Woodstock Highway Department (2005 CCSA Winner)

Problem Identified:
In some instances, it is not possible or practical to lift a basin top from the outside of the top.

Solution:
A sling was made that lifts the top from the inside (after grate is removed).

Cost Estimate:
$200.00 - $300.00 – Materials and lift labor.

Benefit:
It makes it easier to remove tops then excavate material around area – less material to excavate and smaller asphalt cuts. One-person operation.

Contact:
Town of Woodstock Highway Facility
215 Coatney Hill Road
Woodstock, CT 06282
Ph: 860-974-0330
Anti-icing Program Using Pre-wetted Salt and No Sand
Town of East Hartford, Department of Public Works (2006 CCSA Winner)

Problem Identified:

The sand/salt mixture being used was so ineffective that multiple applications were required to get down to bare pavement. Treatment was occurring too late to prevent ice and snow from bonding to the pavement. Sand is a primary pollutant of wetlands and water courses as well as a source of particulates that exacerbates respiratory illnesses including asthma. Sand residue is a hazard to cyclists.

Solution:

The new program follows the anti-icing methodology instead of the old de-icing strategy. It works by applying the pre-wetted salt to the road surface before ice and snow can form a bond with the road surface. The material works better than straight salt by sticking better to the pavement and entering into solution faster, which results in quicker melting. The pre-wetted salt works at lower temperatures and is much less corrosive than straight salt.

Cost Estimate:

No cost to implement the program. However, there have been substantial savings associated with the program.

Benefit:

- Vastly improved level of service and fewer complaints
- Less pollution of air and water resources
- Cost savings, primarily in street sweeping and catch basin cleaning
- Much improved appearance of the community
- Greater employee satisfaction

Contact:

Billy G. Taylor, P.E., Director of Public Works
Town of East Hartford, Department of Public Works
740 Main Street
East Hartford, CT 06108
Ph: 860-291-7365
btaylor@ci.east-hartford.ct.us
Dirt Road V-Plow
Town of Woodstock Highway Department (2006 CCSA Winner)

Problem Identified:
Standard steel slush on drift plows tear up the dirt roads pushing material into open drainage ditches on roads. The plows trip quite a lot when the dirt roads are not frozen. This results in a wash-boarding effect on the road surface. Steel plows remove the crown from the dirt road.

Solution:
The highway facility built a wood V-plow to plow the dirt roads – the radical angle of the “V” combined with the length and width makes the plow glide over the road surface, which stops any damage from happening to the road.

Cost Estimate:
Price of wood and some c-channel, round stock and two steel plow blades (not carbide).

Benefit:
Dedicate one plow driver to utilize the V-plow and plow all the dirt roads. The plow can do a dirt road in one pass during a storm.

Contact:
Town of Woodstock Highway Facility
215 Coatney Hill Road
Woodstock, CT 06282
Ph: 860-974-0330
Demolition Debris Tailgate Chute
Town of Bloomfield, Public Works Department (2007 CCSA Winner)

Problem Identified:

Handling demolition or brush can be difficult without the right equipment. Truck tailgates at a 5% angle from horizontal work well for this. However, chain slots easily rip out of the body while dumping and it is not unusual for the tailgate pivot pins to shift out of the locks while traveling.

Solution:

We had some old steel tailgates from trucks we had re-bodied with combination bodies. By adding a box tubing support on each side and closing it in we have created a “skip” profile that is attached in several places and uses the body itself as a support.

Cost Estimate:

$200.00 in structural steel and miscellaneous supplies.

Benefit:

Less spillage, better retention of material, eliminating the time-consuming and hazardous practice of dropping tailgates and increased load capacity (brush/bulk).

Contact:

Pete Joseph, General Foreman
Town of Bloomfield, Public Works Department
PO Box 337, 21 Southwood Road
Bloomfield, CT 06002
Ph: (860) 726-9394 or (860) 243-1487
pjoseph@bloomfieldct.org
Creating a Safety Culture
Town of Glastonbury Highway Division (2007 CCSA Winner)

Problem Identified:
Proactive discussions with members of the highway crew on safety issues have been critical to the reduction of accidents and injuries of the employees. Setting aside time for preventive maintenance of vehicles has reduced the overall cost of maintenance (repairing small things before they become big things) and also has reduced project delays because of equipment being off line for repairs.

Solution:
Formal Safety Huddles are held every Friday during weekly operations meetings. The meeting is used to increase the communications and open discussion among the members of the Highway Department and to address safety related issues.

Maintenance Mondays are a dedicated block of time for the Highway Department staff to address the maintenance of vehicles, equipments, tools and facilities. It is scheduled from 7:00 to 9:30 am. This is also an opportunity to perform pre-trips. Operator level maintenance includes: Visual checks, oil, lube, grease, fluid, wash, clean, tire pressure, etc. Upon the conclusion of this block of time, additional maintenance that has been identified can be scheduled.

Winter Operations Round-Ups – all Town of Glastonbury employees who are involved in Winter Operations are invited to attend the winter operations round-up. Public Works Departments from surrounding towns are also invited to attend to share their experiences. Guest speakers are invited to discuss winter operations, driver safety and new equipment and treatments.

Cost Estimate:
This program requires the management commitment of staff time but not additional budget dollars beyond that.

Benefit:
- Improves the level of communication within the department
- Improves the morale of employees by building a culture of safety
- Reduces the number of worker accidents and injuries
- Improves the maintenance and performance of vehicles and equipment.

Contact:
Town of Glastonbury Highway Division
2155 Main Street
Glastonbury, CT 06033
Ph: (860)-652-7754
Public Storm Water Display
Town of South Windsor Public Works (2007 CCSA Winner)

Problem Identified:

A requirement by the EPA Stormwater Act Phase II, which has been adopted by the CT DEP, is to provide information and education about the importance of regulating stormwater run-off protecting the environment.

Solution:

The display provides a visual concept of why such regulations are necessary and how easily the environment can be impacted by everyday chores that are taken for granted. It has been designed to stimulate the public’s thought process by visually simulating their everyday practices.

Cost Estimate:

The cost is estimated at $750.00 but the display is indispensable to our organization.

Benefit:

The benefit to our organization is two-fold. The project has served the purpose of public information of stormwater management by gaining attention visually rather than just mailing informational flyers to homes, which usually are discarded. We set the display up at well-attended public functions and events such as fairs, festivals, awareness days, schools, etc. In this way, we gain public exposure and support for our department, which seldom gets recognized for its achievements.

Contact:

Ronald R. Asselin, Administrative Manager
Town of South Windsor Public Works
157 Burgess Road
South Windsor, CT 06074
Ph: (860) 648-6366
asseli@southwindsor.org
**Curb Backfill Conveyor**
Town of Southbury Department of Public Works (2007 CCSA Winner)

**Problem Identified:**

To improve the efficiency of crews backfilling new curbing. Reduce scuffing of new pavement if a loader is used to place backfill or reduce the amount of hand work required.

**Solution:**

Moves topsoil from conveyor of all-seasons dump body to deposit material behind new curb.

**Cost Estimate:**

$500.00 – An existing surplus sand-spreader was recycled.

**Benefit:**

Conveyor has allowed crews to restore the area behind curbs quicker and more efficiently. Operation is much less disruptive to traffic and is safer for the town employees.

**Contact:**

Tom Cromwell, Senior Mechanic
Town of Southbury Department of Public Works
501 Main Street South
Southbury, CT 06488
Ph: (203) 262-0671
Drainage Conversion Chart
Town of Hebron (2007 CCSA Honorable Mention)

Problem Identified:

Difficulty in figuring correct slope for pipe installation.

Solution:

Checks pipe slope while out in the field in 20-foot increments. (See two-page chart attached.)

Cost Estimate:

N/A

Benefit:

Workers in the field can check the pipe slope to see if it is installed properly.

Contact:

Andrew J. Tierney, Director of Public Works
Town of Hebron
15 Gilead Street
Hebron, CT 06248
Ph: (860) 228-2871
hebronroadboss@sbcglobal.net
## Pipe Slopes

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Anti-Icing Program (Liquid Brine & Treated Salt)

Town of New Milford (2007 CCSA Honorable Mention)

Problem Identified:

Improves service level, vehicle operating cost, reducing salt usage and environmentally beneficial.

Solution:

Treated salt works at a lower temperature than dry salt alone, stays on the road better by reducing bounce and scatter, can safely be applied prior to a storm event thus preventing a bond from forming between the pavement and snow accumulation and is ideal for treating black ice on roads and frost on bridge surfaces. Can also be used as a concentrate with salt brine to reduce corrosion, lower freeze point and increase working time.

Cost Estimate:

Ice B’Gone $66.41 per ton and Envirobrine liquid melting agent $0.72 per gallon.

Benefit:

We experienced a higher level of service in snow/ice control, fewer phone calls and cleaner streets. We saved $57,600.00 in labor finishing six (6) weeks earlier sweeping town roads. No dust complaints, safer roads for motorists, catch basins easier to clean, (allow highway crew to clean 2,010 basins yearly and allow highway crew to get other work done).

Contact:

Jerry Hollins, Highway Superintendent
Town of New Milford
10 Main Street
New Milford, CT 06776
Ph: (860) 355-6045
Jhollins@newmilford.org
Safety Incentive Program
City of Milford (2008 CCSA Winner)

Problem Identified:
To control the escalating costs associated with Worker’s Compensation.

Solution:
Teams are created in each of the Public Works Divisions. A Team that remains accident free per quarter (3 months) is then eligible for the Safety Luncheon and Award. Any individual who remains accident free for the entire year is eligible for a $500.00 cash drawing.

Cost Estimate:
Approximately $2,000.00 to $2,200.00 quarterly. Cost includes lunch and then award. 150 employees – average 110 winners per quarter.

Benefit:
Each team tends to work just a little bit safer than they did before this program was initiated. “Peer Pressure Works.”

Contact:
Bruce C. Kolwicz
Director of Public Works
City of Milford
83 Ford Street
Milford, CT 06461
Ph: (203) 783-3269
BKolwicz@ci.milford.ct.us
Pinchie the Basin Cleaner
Town of Simsbury (2008 CCSA Winner)

Problem Identified:

Cannot call a Vac Truck for one clogged catch basin. Running water limits the use of a Vac Truck in the event of a flooded basin.

Solution:

Unit quick couples to a skid steer machine and offers a 30’ depth of debris removal capability. Operator can choose a sand-removal bucket or a debris-removal bucket.

Cost Estimate:

Approximately $1,015.00.

Benefit:

This will clean a clogged catch basin without sending a man down in it. It will also remove a catch basin top that has been dropped in.

Contact:

Tony Amaral and Don Bordanaro
Town of Simsbury, Public Works Department (Highway Garage)
P.O. Box 495, 66 Town Forest Road
Simsbury, CT 06070
Ph: (860) 658-5278
cbelli@simsbury-ct.gov
Reuse of Sweeper Brooms on a Bobcat
Town of Mansfield (2008 CCSA Winner)

Problem Identified:

We were sweeping with our Bobcat with a rotary broom.

Solution:

Adapted the front broom attachment of the Bobcat Skid-steer loader so that used sweeper brooms could be reused on the Bobcat.

Cost Estimate:

No cost to implement the program. However, there have been substantial savings associated with the program.

Benefit:

A cost savings has been realized in reusing brooms that would otherwise be thrown away.

Contact:

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Local Work Zone Safety Posters
Town of Mansfield (2008 CCSA Honorable Mention)

Problem Identified:

Crews were experiencing fast work zone traffic.

Solution:

Locally designed signs (posters) displayed at town facilities and some businesses to help raise awareness for work zone speeds and safety.

Cost Estimate:

The price of the paper.

Benefit:

A higher awareness from the crews and others.

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Pipe Site Truck  
Town of Thomaston (2008 CCSA Honorable Mention)

**Problem Identified:**

We needed one truck that could carry our pumps, compactors, signs, barricades, fittings, tools, etc.

**Solution:**

We obtained a truck that the Town of Thomaston Fire Department was planning to use in a “jaws of life” training drill. After replacing the clutch, the entire crew from the Highway Department went to work in their spare time to install shelving for various items. We also installed a trailer hitch which has allowed us to tow our mixer, light tower and trailer that we made to haul 20’ lengths of pipe.

![Image of truck and shelves]

**Cost Estimate:**

$165.00 for a new clutch and one of the guys’ fathers painted a “Hagar the Horrible” to match our department.

**Benefit:**

All the supplies you need are on site. The truck has a security system so it can be locked and kept on the jobsites overnight. This eliminated going back and forth to the garage for supplies and reduced the use of fuel. Also, set-up and clean-up times have been reduced by leaving the truck on site for the duration of the job. We’ve gained about 45 minutes per day in construction time.

**Contact:**

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Multi-Use Water Truck
Town of Bloomfield (2009 CCSA Winner)

Problem Identified:
We wanted to build a water truck with a cab controlled, pressurized spray delivery boom. It evolved into a multi use truck to service many needs for portable water for our dept.

Solution:
We mounted and inter-connected two 500 gallon aluminum tanks on a truck chassis, incorporating a hydrant fill connection. It has a mounted portable pump for water distribution with a mounted hose reel with assorted nozzles. We also mounted a hot water pressure washer, and tool box for additional hoses. The back of the vehicle has a spray boom for street application, with its own cab controlled electric pump. All of the accessories are permanently plumbed, but have ball valves or fittings for service or repair. As the operator of this vehicle also cleans out offset basins and corner, two flat shovels and a street broom were mounted as well. We also added additional surplus safety lighting including an arrow stick with an ample supply of safety cones for hazards found and securing parking areas for sweeping operations.

Cost Estimate:
$950.00

Benefit:
We wanted a vehicle capable of performing multiple tasks efficiently and realized we would have to build one to meet those needs. We utilized an older truck and military surplus tanks (state surplus) and a portable hot water pressure washer (state surplus), previously not being utilized.

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Modified Salt Chute
CT Department of Transportation (2009 CCSA Winner)

Problem Identified:

The modified materials chute is a conceptual model that was created and field tested to determine the feasibility of improving the Department’s effectiveness to apply snow and ice control materials to the State’s roadways during winter storm conditions. Over-scattering of snow and ice control materials is a contributing factor leading to the ineffectiveness for deicing materials to work at maximum capabilities.

Solution:

By bypassing the truck’s salt spinner, this chute allows for maximum flow of a material onto the middle of the roadway, increasing the effectiveness of the material and allowing the brine solution to work more efficiently. Tests show greatly reduced scatter and experience has shown a reduction in the amount of material used.

Link to: DOT Side Chute Testing Slideshow

Cost Estimate:

The cost to research and create the modified materials chute will be minimal to the Department. The chutes were made from recycled street signs that were designed to conform to the various designs of our 9-ton dump trucks. The Department uses three basic styles to accommodate the different types of vehicles in our fleet. The only cost incurred would be the labor to manufacture the modified chute. The testing chutes were created with a few basic hand tools and work bench, our production chutes will be produced by a metal brake to department specifications.

Benefit:

In addition to the benefit of greater control over the placement of snow and ice control materials, operators reported that they noticed they used less snow and ice control materials during various types of storms. It appears that the increased concentration and the placement of snow and ice control materials reduced the time needed to create a salt brine solution. In some cases it extended the time between reapplication of the snow and ice control materials. Some operators decreased their application rate in response to the results of the modified materials chute effectiveness.

Contact:

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Traffic Control Vehicle
Town of Bloomfield (2009 CCSA Honorable Mention)

Problem Identified:

The Bloomfield Public Works Department has always stressed the safety of its employees. Following training, one employee found it challenging to properly apply Work Zone Safety to his work environment. With consultation and assistance from CONN-OSHA, and some additional training with the crew chiefs, it was determined the best way to integrate work zone safety was to make it part of the job, and as easy as possible.

Solution:

Much Traffic control was stored in the building in various locations, or on various trucks, and shuttled around on an as needed basis. A step van surplus to our needs was very slightly modified with some additional exterior lighting, a step platform and grab handles, and some interior lighting for night use.

Cost Estimate:

Exterior lighting and lettering cost maybe $600.00. The van and all the contents were already here, in various locations and it took 2 to 3 workdays in the shop for the step and up-fitting.

Benefit:

All the traffic control devices store in the van, so it is simple to deploy and the truck itself is usable as a barrier to traffic. While a single function vehicle, it is usable as is by Public Works, Police, the Fire Departments, etcetera, so all town traffic control events are serviced by one unit.

Contact:

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Context Sensitive Salt Shed
Town of East Haddam (2009 CCSA Honorable Mention)

Problem Identified:

East Haddam has an area of 56 sq. mi. and 119 miles of road to maintain. Remote storage for sand/salt at a second site is necessary; but budget constraints would not allow a pre-engineered conventional salt shed building.

Solution:

Pre-cast 6'x6'x3' concrete blocks were available at no cost from a bridge job recently completed in Town. Town forces did the site preparation and layout. Sixty blocks were moved to the site and set in place by the Town. The Town issued a performance-based "design-build" scope for a carpentry contractor to create a structure in compliance with performance standards identified by the Town's Director of Public Works. There was no architect or engineering firm employed. Contract administration and quality assurance was performed in house by the Town's Public Works Director and Road Foreman. The Town's Building Official provided plan review through the permitting process.

Cost Estimate:

$29,000 for all carpentry work and material. This does not include the value of the Town's labor or donated concrete blocks. We believe this represents a cost savings of more than $60,000 compared to a conventional dome or gambrel topped structure for this use.

Benefit:

The benefit is an effective covered storage building that will safeguard the environment, reduce over-the-road truck time to refill during storm events and do so in an aesthetically pleasing, economical way.

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Plate Compactor Dolley
Town of Simsbury Highway Department (2010 CCSA Winner)

Problem Identified:
It is very difficult to drag a plate compactor from a vehicle to where it is needed. A laborer would exert a lot of energy without a device such as this.

Solution:
First align the axle to the axle holders. Then slightly lift the plate compactor and the axle pops right into the holders.

Cost Estimate:
$30.00 with new material.

Benefit:
The benefit is this dolley makes a tough job easier to perform.

Contact:
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Sandbag Chute
Town of East Hartford, Public Works Department (2010 CCSA Winner)

Problem Identified:
Change the drop chute of our side dump salt spreader to an enclosed chute to fill sandbags, enabling our department to make sandbags needed to support our levee system and flood control throughout the Town.

Solution:
Using the side dump Tenco body of our 6-wheel or 10-wheel dump trucks, we take off the standard chute and spreader along with the ladder by removing a few bolts. We then attach the enclosed sand bag attachment which is tapered from top to bottom with the bottom opening being wide enough to receive an open standard sand bag (14” x 26”). This device performs well utilizing a 5-man crew, enabling them to fill 350-400 bags per hour.

Cost Estimate:
The cost is approximately $750.00. The chute was made from stainless steel material

Benefit:
The chute allows us to make more sand bags per hour and to make the bags and load them on site.

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Food Waste Recycling & Backyard Composting
City of New London, Solid Waste Division (2010 CCSA Winner)

Problem Identified:

This program is necessary to remove the wet food waste out of the waste stream to reduce costs of disposal.

Solution:

The Solid Waste Division has contacted a local pig farm to collect the food waste. The farm is going to supply 55 gallon drums to each of the city schools. The school cafeteria and janitorial staff will be responsible for ensuring that the proper waste be collected. The farm will stop at every school at least 2 times per week or more if needed. The backyard composting was presented to several of the elementary school students this past spring by the Solid Waste and Fleet Manager and the city’s recycling representative from SCRRRA. This was done by giving a presentation on what types of materials should be recycled and by also supplying each school with a compost bin to demonstrate how to use it and the benefits from it. The compost bins are being used in the science curriculum.

Cost Estimate:

The farm charges $5.00 per barrel to pickup the food waste. The City has 6 schools and if each school produces 5 barrels per week that would be $150.00 per week. The school year is roughly 36 weeks for an estimated annual cost of $5,400.00 for the program.

Benefit:

The benefit is that the food waste is removed from the waste stream going into the incinerator and it is being used as food for the pig farm. Although there is a cost associated with the program, it should be less costly than hauling the waste to the incinerator. Costs will also be reduced by the increased composting and recycling by students and their families.

Contact:

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Welding Machine Organizer
Town of Simsbury Highway Department (2010 CCSA Honorable Mention)

Problem Identified:
The organizer keeps welding equipment off of the gas regulator and tank hand valve. This also allows for reduced clutter on the machine.

Solution:
The organizer sits atop the gas cylinder and securely holds items in place without compromising relief valve operation. This allows for instant access to the hand valve if you need to shut off the tank. All P.P.E. and the fire extinguisher stay secure while moving the welder around the shop.

Cost Estimate:
The cost estimate is $30.00.

Benefit:
The benefit to the organizer is that it keeps all P.P.E. and the fire extinguisher within arms reach for the operator while welding as well as keeping the welding equipment secure while welding machine is mobile.

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**Gantry Lifting Device**
City of Bridgeport Municipal Garage (2011 CCSA Winner)

**Problem Identified:**

We needed a safer and more efficient way to remove and install heavy salt spreaders from truck beds. Our shop space and overhead lifting capabilities are limited.

**Solution:**

It works by means of quick connecting to a wheel loader forks. The Gantry has a telescoping boom and is constructed with 4-5 chain lifting points. The Gantry can lift 2020 lbs. with the boom fully extended.

**Cost Estimate:**

The cost estimate is $1,500.

**Benefit:**

The benefits are: cost effective to build in-house, created a safer work environment and prevented damage to heavy spreader-like equipment from lifting improperly. We now remove and install then repair the spreaders anywhere in the shop or outside. This has freed up shop space, reduced down time and reduced labor costs. We also found many more uses than it was originally intended for.

**Contact:**

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Winter Weather Educational Outreach Program
Town of Vernon, Department of Public Works (2011 CCSA Winner)

Problem Identified:
This presentation has grown over several years. It started when one of our drivers was asked to speak at his daughter’s class. It has grown to the point that all the 8th grade science classes are given this presentation.

Solution:
This presentation teaches the students and teachers about our winter operations. The students can then bring this information home and teach their parents. The teachers talk with each other and the information is passed on to other teachers. Great outreach.

Cost Estimate:
The only cost to the department is the time for our driver and foreman to present this, which takes 2 days.

Benefit:
This presentation shows the youth in our community that science is even a part of our jobs. It shows them the processes that we use in winter operations and how it helps their parents and school buses travel. The students then take some of this information home and teach their parents. The teachers even learn a lot.

Contact:
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Automated Watering System
Town of Hebron, Department of Public Works (2011 CCSA Winner)

Problem Identified:
This modification has enhanced the safety of the driver/operator by not having to exit the vehicle. In the past, each time the water needed to be turned on or off, the driver would have to exit the vehicle, sometimes putting him in harm’s way. The driver would often rush and this could become an unsafe practice.

Solution:
The watering system on the rear of the vehicle was retro-fitted with an airbrake cam, which was spliced into the tailgate air switch located in the cab. The brake cam, when activated, automatically opens and closes the valve that controls the flow of water at the rear of the truck.

Cost Estimate:
$50.00 but brake cam can be used for normal application at any time.

Benefit:
More efficient water is evenly distributed. The number one benefit is safety to the operator, keeping the driver in the vehicle means less chance for strains, sprains or falling accidents. The driver now does not have to rush to turn water off and most of all does not have to exit the vehicle into on-coming traffic.

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Solar Powered Directional Arrow Trailer
Town of Vernon, Department of Public Works (2011 CCSA Honorable Mention)

Problem Identified:
Previously we had an arrow bar on a pickup that seemed to have problems staying on the vehicle. When it was used, it would tie up that truck as it was committed to the task. With the trailer being separate, it can be parked and the truck can be used for other tasks on the job site.

Solution:
The unit can be parked on the side of the road or left attached to the tow vehicle for moving operations. The directional arrow is raised into position and the desired arrow pattern is selected. Power for the unit is solar with battery storage. The unit is performing very well. With it being solar powered, we are lowering our carbon footprint and greenhouse gas emissions as we no longer have a truck idling to keep the battery charged in the vehicle.

Cost Estimate:
There was no cost. The lightbar was in stock, it was removed from one of our foreman’s trucks. The trailer was retired from the police department. It was a radar unit. If you were to build the arrow trailer from new materials, the cost would be estimated at $1,600.00 to $2,000.00.

Benefit:
Having the arrow trailer adds additional safety warning and direction to motorists for job sites. It also eliminates the use of a pickup truck and saves fuel that would be used to run the pickup with a truck-mounted sign (to keep from drawing the truck batteries down).

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911 Change Map
Town of New Milford (2011 CCSA Honorable Mention)

Problem Identified:
Clearly and concisely communicate the changes to 911 addressing during projects and for other development in New Milford.

Solution:
We have seen a decrease in phone calls related to changes.

Cost Estimate:
The cost was $400.00 for license of Adobe Professional software, this could also be done in MS Paint.

Benefit:
The benefit is better communication which means the customers understand the change, the need for the change and how they are not the only party affected.

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Under Vehicle Washer
Town of Vernon, Department of Public Works (2012 CCSA Winner)

Problem Identified:

With the use of the winter deicing chemicals and the corrosive effects on the trucks, the salt material gets caught in a lot of hidden areas under vehicles and cannot be reached by rinsing with a regular hose and nozzle.

Solution:

The unit is connected to a hose – preferably with good water pressure. The unit is then moved under the vehicle and water is turned on. The operator then moves it around under the vehicle rinsing off the underside. The unit performs very well and removes salt, sand, rust and other debris that gets lodged in areas that normally do not get rinsed or can be seen.

Cost Estimate:

Depending on in-house supplies or parts that can be recycled from other things, cost estimate might be around $100.00 – if most parts are needed to be purchased.

Benefit:

The benefit to us is that it allows employees to perform a better wash and rinse to town vehicles which in turn removes the salt and corrosive material in hope to prolong the vehicle and the effects and damage by rust and corrosion.

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Bituminous Asphalt Trench Paving Box
CT Department of Transportation (2012 CCSA Winner)

Problem Identified:

The bituminous asphalt trench paving box was a conceptual model that was created and field tested to determine the feasibility of improving the Department’s effectiveness to apply bituminous asphalt materials on the State’s roadways, during various maintenance repair projects involving the repair or replacement of bituminous asphalt pavement at these work locations. In the particular application, the Department employees developed the trench box to alleviate the hours of manual labor required and to reduce employee injuries from handling large volumes of bituminous asphalt materials.

Solution:

The bituminous asphalt trench box is mounted onto a backhoe bucket using the mounting holes matching the bucket blade. Asphalt materials are then placed into the trench and then the backhoe straddles the ditch with the attached trench box. The trench box is then set onto the roadway and adjustments are made to the screed 0” to 2” for compaction purposes. The trench box then works similar to a paving box by maintaining a head of material in front of the screed and this material is leveled off by the screed as it passes through the back of the box. The trench box follows the profile of the roadway so it will maintain a consistent level of bituminous asphalt materials into the trench located in the roadway. The backhoe operator maintains the skid box forward using the backhoe attachment or as experience is gained, moving the machine.

Cost Estimate:

The cost to research and create the bituminous asphalt materials box was minimal to the Department. The trench boxes were made from metal guardrail post, metal snow plow blade and other common highway maintenance items. Total cost was approximately $300.00.

Benefit:

In addition to the benefit of reducing manpower requirements and increasing production and efficiency of manpower, the trench box allows for greater control over the placement of the bituminous asphalt mix and improves the ride over these repaired sections by the traveling public.

Contact:

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Salt Chute Design for Dump Body Rear Mounted Spinners
CT Department of Transportation (2013 CCSA Winner)

Problem Identified:

The department has many variations of dump bodies with different types of salting and liquid pre-treating systems. The Viking Pro-Line Series 2 dump body is designed with the conveyer chain located in the center of the tub body, running the length of the body, discharging material onto a spinner mounted directly to the rear of the truck. A couple issues were encountered during salting operations. 1. The lack of ability to apply salt directly to the high side or crown of the roadway without crossing over into the opposite lane. 2. Due to the design of the spinner unit, material was being dropped from a height of two feet onto the roadway creating a scattering pattern which became counter-productive in terms of concentrating de-icing materials for optimal effect.

Solution:

A salt chute was designed from in-house materials, including a 60” piece of 15” smooth bore plastic pipe typically used for drainage applications, fabricated the receiving unit out of square and flat stock so it could be mounted onto the truck and added a piece of a rubber tire flap to the end of the chute to channel material directly to the roadway. The original spray nozzle and hose for the pre-wet unit was re-plumbed and attached to the unit. It was also designed so that the operator has the option of swiveling the chute from left to right to best suit the needs of any given moment.

Cost Estimate:

The materials used to build the unit cost less than $200.00.

Benefit:

The cost in terms of procurement of needed materials, labor towards production and installation is minimal to any department or municipality. The effectiveness of the chute, thereby eliminating scatter and using the appropriate amount of de-icing materials also would be less evasive towards environmental concerns of the bituminous asphalt mix and improves the ride over these repaired sections by the traveling public.

Contact:

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Sign Base Carrier
Town of Hebron (2013 CCSA Winner)

Problem Identified:
There was no place to carry the sign bases safely with two people in a truck.

Solution:
It hangs on a standard truck ladder rack. Easily moveable from one truck to another, this device allows crews to safely transport sign bases and crews.

Cost Estimate:
The cost of this solution is less than $50.00.

Benefit:
Easily moveable from one truck to another, this device allows crews to safely transport sign bases and crews.

Contact:
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Curb Feeder Retrofit
Town of Cromwell (2013 CCSA Honorable Mention)

Problem Identified:

The town was in need of a replacement curb feeder. This attachment is used to backfill curbing and fills the curb machine to perform roadside curbing. The unit cost approximately $13,000 and includes the conveyor, auger and mounting hardware. Once the department received the new curb feeder attachment we discovered that the unit sat too low on the truck and when the body was raised, the attachment would hit the ground. This may have been a result of the newer model dump trucks having a lower profile. Unfortunately, this was the only model available and the old model was no longer available. Since this operation is critical and the use of such attachments saves time and reduces man-hours, a solution was needed. After much back and forth with the vendor, it was determined that a solution was not available and was concerning for the vendor on future sales and use.

Solution:

As the need still existed and the vendor had no corrective actions or options, the department decided to modify the attachment. The unit was returned and the department purchased an auger, conveyor unit, hydraulic controls and a small amount of steel. The department installed the conveyor unit and auger on the driver side of the truck located in the vicinity of the salt spreader chute. The spinner was replaced with the auger and the conveyor was mounted allowing the driver the ability to control the conveyor and auger from the cab.

Cost Estimate:

The curb feeder cost approximately $4,000.00, the hydraulic mod. cost approximately $500.00 and minimal steel used to fabricate attachments, etc. cost approximately $200.00.

Benefit:

The benefit of the curb feeder retrofit to our department is that it has allowed the department to continue curbing and backfilling on the new trucks safely and efficiently.

Contact:

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Wheel Hub Strap
Town of East Lyme (2014 CCSA Winner)

Problem Identified:
The town had an issue with wheel hubs over the last few years. The exterior seals get pulled out in the snow and ice banks. When that happens, they end up removing the hubs, wheels and bearings, clean the bearings, replace the seals and refill the hubs with oil. The hubs get full of water from the snow melting inside them. This is a big deal and they have had to be fixed even during a storm.

Solution:
They came up with an idea to strap the rubber plugs in the hub housings. A length of aluminum flat stock was purchased and they worked with the bends until it was just right. The strap goes over the hub rubber seal and keeps them from being pulled out by snow and ice. Two holes mount them and a little hand work makes them fit. There have been no issues since the hub straps have been added.

Cost Estimate:
The materials used to build the wheel hub strap cost approximately $1.00 per wheel.

Benefit:
The benefit of the curb feeder retrofit to our department is that it has allowed the department to continue curbing and backfilling on the new trucks safely and efficiently.

Contact:
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One-Man Plow Installation Tool
Town of Monroe (2014 CCSA Winner)

Problem Identified:
With only one mechanic in the shop, it is difficult to safely and efficiently repair plows and change out plow blades.

Solution:
Dave Clark, Monroe’s mechanic was given a little guidance and came up with the solution they have been using for the past couple of years. An overhead crane with a clamp picks up and lowers the plow blade into the handmade tool. It is then secured into the tool. The plow is brought in. Jacks are installed and the old blade is cut off. The new blade is brought up to the mold board with the tool, two tapered pins are put in bolt holes on the plow and mold board. The plow bolts are put in and torque accordingly with a ¾ inch impact tool.

Cost Estimate:
No real costs were incurred as the tool was made from left-over steel stock.

Benefit:
It works efficiently with one employee. The plow driver was able to continue on the plow route with a spare truck with a minimal loss of production time. This tool has been used for the last two and a half years with no problems or safety issues.

Contact:
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Brake Drum Remover and Installer
Town of Cheshire (2014 CCSA Winner)

Problem Identified:
Removing and installing brake drums presented an injury risk due to the lifting of heavy parts.

Solution:
Doug Pepe, welder/fabricator, adapted an old-style drum tool using an old electric sander motor, gears and chains from an old spinner shaft and added a new battery and switch so the tool will work electronically.

Cost Estimate:
The total cost was under $50.00 since they already had the framework from the old drum tool.

Benefit:
The tool alleviated the risk of injury due to the lifting of heavy parts while making the process more efficient, thus saving time.

Contact:
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Construction Trailer
Town of Bloomfield (2015 CCSA Winner)

Problem Identified: The Town saw inefficiencies in their preparation and clean up of jobs. In many cases, multiple trips to the garage were required to collect forgotten tools and clean up took too long and tools were often misplaced at the end of the day.

Solution: They came up with an idea to design a construction trailer. It is a landscape style trailer that holds all of their equipment in one spot. The ramp allows all of the wheeled equipment to be loaded and unloaded with ease; reducing risk to staff. It is also equipped with a 25 gallon water tank to supply the road saw, rock saw and demo saw and provides additional support for the mason truck and clean up. A toolbox mounted solar panel aids in keeping trailer safety strobe lights on at all times – even if not connected to the truck.

Cost Estimate: The materials used to build the unit cost less than $1500.00

Benefit: The town has seen a great improvement on efficiency and a reduction in wasted time making multiple trips to the garage. Tools are much easier to find and the trailer streamlines their operations significantly; increasing flexibility (the trailer can be towed by any truck) and mobility of their operations (can be left at job site with workers while truck is used for other things throughout the day).

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**Backflow Preventer/Water Meter**
Town of Monroe (2015 CCSA Winner)

**Problem Identified:** The Town is required to meter the water they use for sweepers, tanker trucks and other high volume use. The water company also requires them to have a backflow preventer. Because it is used all the time, they store the meter inside so that it is easily accessible to the staff. It cannot be stored outside due to the expense of the equipment and concerns of theft.

**Solution:** The department created a “wagon” that can be hand pulled or pushed by one person and carries the water meter and backflow preventer. The system can then be pulled to a fire hydrant and used to fill tanks.

![Image of the wagon](image1.png)

**Cost Estimate:** No real costs were incurred – the wagon is made from a discarded jogging stroller, scrap wood and parts from the yard.

**Benefit:** It works safely and efficiently with one employee. The water meter equipment is secure and risk of injury from lifting and moving the equipment is greatly reduced.

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**Winter Operations Pre-wetting System Backflush Apparatus**  
Town of Cheshire (2018 CCSA Winner)

**Problem Statement:** If pre-wetting system on the truck is not flushed between storms and at the end of the season, harsh snow fighting chemicals can damage the system and the filter pump can seize.

**Solution:** A valve and coupler was installed on each system to isolate the pump and filter and allow fleet personnel to flush system with water to clean harsh chemicals out and also add an RV antifreeze with lubricant to the system for seasonal storage and maintenance.

**Cost Estimate:** Approximately $50 for valve, fitting and hose and one hour of labor to install.

**Benefit:** Over the last few seasons, at least 5 pumps needed to be replaced or repaired to make the wetting system work. These repairs took an average of two hours and cost $300-500 per pump in addition to having the equipment out of service.

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Undercarriage Washing System
Town of South Windsor (2018 CCSA Winner)

Problem Statement: Harsh snow fighting chemicals collect on winter operations equipment, causing corrosion and damage and make it difficult for mechanics to maintain the equipment. Washing and rinsing is helpful but is especially difficult to do for the undercarriage of vehicles.

Solution: A drive over flushing system was designed using pressure treated 4x4s that were connected using metal strapping and screws to create protection for PVC pipe. Quarter inch holes were drilled into the pipe to provide a low pressure mass flush capability. Fleet vehicles drive over the system, flushing the chlorides off the equipment and creating a welcome environment for maintenance and repair. The entire system is connected to a two inch water service using a section of fire hose.

You can view the Undercarriage Washing System in action by watching the video at this link: https://www.youtube.com/watch?v=AVr3wuZ6niE

Cost estimate: $300-400 in materials

Benefit: The system has gone through well over 1000 cycles and continues to provide excellent service for the 30+ fleet vehicles during each winter operations activity. Keeping the fleet clean allows for timely service and extension of service life of the equipment.

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