Town of Telluride

1) What type of water containment mechanism does the rink utilize? If the rink has a below-grade liner, how were CIRSA (or other insurance provider's) concerns mitigated regarding non-winter water collection? The Town of Telluride does not use a water containment mechanism to build our Outdoor Ice Rink. We create our Outdoor Ice Rink by packing a snow layer on top of a turf grass area and then begin applying coats of water to achieve an ice rink. I am not sure about any regulations from CIRSA regarding water collection.

2) Is the rink subjected to regular sunlight? If so, what is the impact on the ice surface and how are these impacts addressed by the maintenance person(s) entrusted with keeping the surface usable and safe? Yes, our rink is affected by the sunlight at the beginning and the end of our Outdoor Ice Rink season (aprx Dec – mid Feb). If dangerous conditions exist at the ice rink, we close the rink as needed. In the past, we have used insulated concrete blankets in order to protect the ice surface during periods of warm weather and intense sunlight; this technique is successful although time consuming. We have also experimented with shading techniques.

3) Assuming water is artificially applied to create the surface, how is this water applied? How often and at what type of velocity? The amount of water that is applied will vary depending on 1) how level the rink surface is 2) how cold the temperatures are 3) what material the rink surface consists of 4) etc. There are various ways the water can be applied to create an ice rink. The most common way is by using 1 ½"- 3" fire hoses with as much pressure as can be provided. Repetitive light coats of water are applied. Results vary depending on weather conditions & personnel time commitments.

4) Besides the creation of the ice surface, what type of maintenance regiment does the rink demand throughout the season in order to be considered safe and usable by the public? We have a John Deere Tractor and a Sweeper that we use to remove snow and ice shavings. Following this procedure, you would again spray light coats of water in order to fill in holes on the ice surface. Larger holes will need to be filled with a "slush" mixture of snow and water. The frequency of maintenance will depend on the level of usage from skaters. Daily inspections of the ice surface are required for safety. We have the luxury of owning a Zamboni machine, which resurfaces the ice. We usually do maintenance with the Zamboni on the Outdoor Rink once a day only if it is NOT snowing.

5) What other challenges/successes/insights can you offer with respect to public outdoor skate rinks? Well, this would be a very lengthy & complex response…. There is a lot of work involved in creating and maintaining an Outdoor Ice Rink.

Town of Mountain Village

1) What type of water containment mechanism does the rink utilize? If the rink has a below-grade liner, how were CIRSA (or other insurance provider's) concerns mitigated regarding non-winter water collection? The Town of Mountain Village Ice Rink is located within a public plaza surrounded by buildings and sits atop an underground parking structure. Non winter water is mainly handled by drains located around rim and around center of rink which was constructed with a water fountain feature with ground level drainage. Still there is pooling of water because of lack of pitch to the rink surface. Water making its way through cracks in concrete is handled by sand drain system which surrounds the cooling system piping.

2) Is the rink subjected to regular sunlight? If so, what is the impact on the ice surface and how are these impacts addressed by the maintenance person(s) entrusted with keeping the surface usable and safe? Direct sunlight is the most negative impact on the ice surface. At this latitude we strongly recommend shading your outdoor rink to greatly extend your skating season. We are forced to use concrete insulation blankets with a reflective side but this surface application to protect the ice makes it unusable during long sunny days. If unprotected from direct sunlight, your cooling system will be forced to run non-stop and your ice will still melt to an unsafe state which will require extensive water and labor to repair nightly.

3) Assuming water is artificially applied to create the surface, how is this water applied? How often and at what type of velocity? The rink surface is created using hot water sent through a 48" wand like device which evenly produces a thin surface. Each pass over the entire rink slowly builds up the ice to ensure a durable air free ice mass. The temp of the water we use to produce ice is around 103 deg F. This allows air to escape faster as well as fuses each layer to the previous. Once we have a half inch surface, we use our zamboni to complete the application of additional layers until 2" thickness is achieved. Layers can be applied as soon as previous pass is frozen.

4) Besides the creation of the ice surface, what type of maintenance regiment does the rink demand throughout the season in order to be considered safe and usable by the public? Snow removal (1" of snow is generally considered unsafe for skating) and ice reconditioning via zamboni are required for daily operation of ice rink venue. Additionally, staff must maintain and monitor cooling system plant which is very extensive for any size rink. Third party contractors are generally needed for specialized maintenance of ice cooling plant. These systems are low pressure and hvac specialists do not typically work on these. From my experience, you don't want to be forced to schedule a maintenance call from a tech during the season because of the amount of rinks up and running vs the number of specialists available.

Town of Crested Butte

1) What type of water containment mechanism does the rink utilize? If the rink has a below-grade liner, how were CIRSA (or other insurance provider's) concerns mitigated regarding non-winter water collection? We have a flat, concrete slab. The dasher boards are the "water collection" system for freezing ice. No issues with summer water collection since all the water drained or evaporated before building the cover over the rink.

2) Is the rink subjected to regular sunlight? If so, what is the impact on the ice surface and how are these impacts addressed by the maintenance person(s) entrusted with keeping the surface usable and safe? Would need to discuss individually to provide detailed and specific feedback on this issue. We operated an un-covered outdoor rink for many years and learned how to mitigate against the effects of solar radiation.

3) Assuming water is artificially applied to create the surface, how is this water applied? How often and at what type of velocity? The ice sheet is made with a series of floods i.e. ¼ inch of water over 16,000 square feet is roughly 5000 gallons applies with a 2.5 inch hose. We have 4 inches of ice total and provide regular resurfaces with a Zamboni.

3) Besides the creation of the ice surface, what type of maintenance regiment does the rink demand throughout the season in order to be considered safe and usable by the public? Zamboni resurface 6-10 times per day. Daily edging, crack filling and slush packing.

4) What other challenges/successes/insights can you offer with respect to public outdoor skate rinks? Too many benefits to name. Please call to discuss when you have a few minutes.

Town of Grand Lake

1) What type of water containment mechanism does the rink utilize? If the rink has a below-grade liner, how were CIRSA (or other insurance provider's) concerns mitigated regarding non-winter water collection? Rink is set up above grade on a basketball court in the park next to town hall; this year it is about 55'x75'. Containment = plastic liner (manufacturer = nice rink) with 2x8 boards at perimeter. See #5 below for related info.

2) Is the rink subjected to regular sunlight? If so, what is the impact on the ice surface and how are these impacts addressed by the maintenance person(s) entrusted with keeping the surface usable and safe? Yes, it is exposed to regular sunlight. There is some surface melting on warmer, sunnier days; it refreezes overnight. We do not do daily maintenance . See #4 and #5 below for related info

3) Assuming water is artificially applied to create the surface, how is this water applied? How often and at what type of velocity? We have a 1 ½" fire hose connection and a garden hose bib connection nearby. We fill the rink in layers for all but the final layer. Most of the time, we are able to do a quick flood with fire hose. 1" to 2" deep per layer seem to work best for overnight freeze, ready for next layer the next day. For the final surface layer, we apply a finer spray with the fire hose or garden hose. See #4 and #5 below for related info

4) Besides the creation of the ice surface, what type of maintenance regiment does the rink demand throughout the season in order to be considered safe and usable by the public? We have a Zamboni (1964 vintage) that we use on the ice once or twice a week, depending on weather and need (judgment call in the field by pw staff; no hard and fast rule). Re-water the final surface layer from time to time (judgment call in the field by pw staff; no hard and fast rule). Pw staff clears off the snow build up from time to time with a snow thrower attachment on our John Deere mowing tractor (we also use this piece of equipment to do an initial snow clear of downtown boardwalks). We keep shovels at the rink for skaters to use to clear snow if they desire

5) What other challenges/successes/insights can you offer with respect to public outdoor skate rinks? It takes steady, cold weather to freeze the ice and keep it frozen. At the start of the season it can be difficult to build up the ice (for example, this fall has been very unusual with lots of days above freezing; even today – Dec. 17 -- the ice rink is not yet open); it takes patience to get it open for use at the end of the season, it can begin to melt out early
    - CIRSA
        - They are aware of the rink via discussions
        - They have provided feedback on issues
        - I am unclear if they have seen it in operation (our property inspection has typically been in the fall)
    - Skates

    - Apparently, we had extensive discussions with CIRSA on this matter
    - A local business owner donated skates to the town for use by skaters (2+ dozen)
    - We have an arrangement with a nearby coffee shop to loan out the skates for free while the rink is open (we store them in the off-season); things operate on the honor system – no formal checkout or return process
- White surfaces (ground and liners) work best; dark surfaces absorb heat and contribute to melting
- Liners have limited life
    - Each year the exposed edges get worn, so we cut off the shredded edges as we pack up the liner; the rink gets a little smaller the next year as we move the boards in a bit so we can wrap the smaller liner over the board edges
    - Small punctures occur each year during set-up and tear-down, so there is some patching that occurs during the next year's set-up
    - Practical life span seems to be 3 or 4 years; this year is the 4th for our current liner; due to leak issues during set-up this year, the pw staff is now wishing they had bought a new one this year; we have budgeted for a new one in 2013 ($2000)
- Perimeter board set-up
    - We use kickers anchored into the pavement around the perimeter to stabilize the boards from tipping over and shifting sideways
    - Boards follow the ground surface, so the top edge is not level
        - Because water-filling creates a more or less level surface, the upper edges of some perimeter boards end up exposed
        - 2x8s work better than 2x6s because you can get a greater ice thickness at the most shallow point
- Until several years ago (5-10?), the rink was set-up on a sandy area near the lake
    - No liner was used – sand was packed in around the bottom of the boards, then water was applied in thin layers to the sand and boards to build up a leak free seal; then began the build up of the thicker filler layers
    - Sand/gravel was used as a backer on the outside of the perimeter boards (no kicker boards); moistened and compacted, it froze into a good solid support
    - This location and process was more labor intensive than the current location/process

City of Aspen

1) What type of water containment mechanism does the rink utilize? If the rink has a below-grade liner, how were CIRSA (or other insurance provider's) concerns mitigated regarding non-winter water

collection? We currently use a system we made ourselves. Our staff built a frame system similar to those which can be purchased commercially. Once the frame is down we cover it with a plastic sheet that will hold water, flood it and wait for it to freeze to acceptable levels. We haven't had any issues with CIRSA regarding this system.

2) Is the rink subjected to regular sunlight? If so, what is the impact on the ice surface and how are these impacts addressed by the maintenance person(s) entrusted with keeping the surface usable and safe? In the winter months the sun is low enough in the sky that it doesn't affect this ice much. After a warmer day we will we might come back the next morning and do a light flooding of the rink or particular areas to fill cracks/holes. We try to run our ice resurfacer across the outdoor rink once per week to provide better ice conditions. We always have designated individuals who are to work on the ice each day to remove snow, trash, or provide ice maintenance.

3) Assuming water is artificially applied to create the surface, how is this water applied? How often and at what type of velocity? Our initial application of water is flooding which involves levels from 8" to 24" deep. Following the freeze of the initial flood to acceptable depths, we do ice maintenance as identified above. Ice resurfacer, use of a hose to spay areas which might need some cracks filled.

4) Besides the creation of the ice surface, what type of maintenance regiment does the rink demand throughout the season in order to be considered safe and usable by the public? The regiment of ice maintenance is daily. Some days higher maintenance than others. We must remove snow, as mentioned we run the ice resurfacer over the ice about once per week, we hose down the surface as needed due to sun load and use. We spend about $10,000 each winter in man hours to supplement the existing staff working our indoor ice rink in order to maintain the outdoor ice sheet. We estimate about $40,000 is spent each winter in materials and labor to set up, maintain and take down the outdoor ice rink. Our season is early December to late February.

5) What other challenges/successes/insights can you offer with respect to public outdoor skate rinks? Our challenges have been safe access to the outdoor rink from our Recreation Facility. We have managed to combat that with the use of rubber mats and maintaining a designated walkway. Other challenges have been getting the ice off of the field as quickly as possible so the grass comes back in an acceptable time. We have had to assist the ice in melting a couple seasons to get if off. Outdoor rinks do take a great deal of attention, time and money, but at the same time it is greatly appreciated in our community by both our guests and the local kids. Our outdoor rink is free to use, we just charge for skates.

City of Ouray

The ice rink is City owned and operated. Until this year, volunteers took care of the rink but they have given up so the City Council has directed us to hire a seasonal worker to make and maintain the ice. Because of many factors, this is not an easy task to accomplish. Even in the best of times, our ice rink is only open about six weeks.

It is very labor intensive, especially to get the rink started. However, it gets a lot of use. I imagine you may not have as many issues as us with your altitude. When the sun shines, our temperatures warm up enough that we can see significant melting and need to close the rink on sunny days.

1) What type of water containment mechanism does the rink utilize? If the rink has a below-grade liner, how were CIRSA (or other insurance provider's) concerns mitigated regarding non-winter water collection? We have a concrete footer that surrounds the rink, where the boards sit upon. This helps with containment of the water prior to freezing. As stated to you earlier, we pack snow as our base and everything just melts into the ground at the end of the season. There is no issue during the rest of the year.

2) Is the rink subjected to regular sunlight? If so, what is the impact on the ice surface and how are these impacts addressed by the maintenance person(s) entrusted with keeping the surface usable and safe? This is the biggest problem that we have. Even when it is cold, direct sun causes a lot of problems, especially on the north end. We often need to close off this end because it gets too slushy. In addition, if people try to skate on it, they do more damage so that it is that much harder to fix once temperatures get cold again.

3) Assuming water is artificially applied to create the surface, how is this water applied? How often and at what type of velocity? We start by waiting for a good snow. We need at least a foot of snow to fall and then we compact it and use the snow as the base. Once the snow is there, we use old fire hoses and nozzles to spray a mist over the snow and let it freeze. We then repeat this over and over again until we have about an inch of ice. If the weather cooperates, we like more but an inch at least gets things started. Once the rink is operational, we have a small Zamboni that attaches to the back of a tractor and we use that to maintain the ice. We also regularly need to spray more water on the ice. The biggest thing is getting snow off after a storm. If the snow sits there too long, it really messes up the ice. We use our tractor, snow blowers, and shovels to get the snow off. Again, we use a fire nozzle and spay it on with the setting closure to a fog than a stream. When creating the ice initially, it requires putting a layer down and then waiting a couple of hours before applying another layer.

4) Besides the creation of the ice surface, what type of maintenance regiment does the rink demand throughout the season in order to be considered safe and usable by the public? It is hard to pin down the required maintenance per week as it is total weather dependent. If it is very cold and there's no snow, the maintenance is minimal because the ice stays hard. If temperatures get warm and a lot of sunshine, it takes a couple of hours a few nights a week to spray the surface to keep a good layer of ice. If there is snow, this can take anywhere from two to four hours to clear, depending upon the amount of snow. Likewise, if the snow sits there too long, we then need to do additional ice maintenance.

5) What other challenges/successes/insights can you offer with respect to public outdoor skate rinks? We try to be open by the beginning of Christmas break for the school (Saturday before Christmas). The rink hardly ever gets used, but when it does, there are a lot of people on it and it is a very memorable experience. Skate rental is a major issue. People come and want to skate but do not have their own. You need to come up with some skates and a way to rent them out. You do want to charge because it costs money to sharpen/replace. Maintenance of the boards to make sure they are not damaged or unsafe.

Teton, WY.

1) What type of water containment mechanism does the rink utilize? If the rink has a below-grade liner, how were CIRSA (or other insurance provider's) concerns mitigated regarding non-winter water collection? We do not use any sort of water containment system. We construct our ice sheets by

compacting a base layer of snow and then applying water to freeze the snow layer. Then we apply thin layers of water to build up the ice.

2) Is the rink subjected to regular sunlight? If so, what is the impact on the ice surface and how are these impacts addressed by the maintenance person(s) entrusted with keeping the surface usable and safe? Yes, all 4 of our outdoor ice rinks are subjected to sunlight and any other weather conditions. Sunlight doesn't really impact the rinks until it gets higher in the sky and the days get longer in February but even then the daytime temps also contribute greatly as to how much damage the sun does. Last winter we had good ice until the first week of March. In other years we have been out of the ice rink business by the third week of February. Typically in Jackson Hole we can make it until the end of February (The sun is the same every year but temps vary so that is why I say the temps have a lot to do with it). The 2 rinks where we have dasher boards start showing the effects of the sun first along the base of the boards on the northwest side. The 2 rinks where we have no boards melt out more evenly and don't show these effects as early. By mid-February we are sometimes having to add compacted snow along the boards on the west and north sides of the rinks and place layers of water over it to maintain some thickness so the dark earth beneath the ice doesn't absorb the sun's warmth and cause even more rapid melting. In December and early January we make hay when the sun doesn't shine so long and is relatively weak and we get zero or below temps by building up the thickness of the ice sheet with the intention of the extra thickness helping to make the ice sheet last longer in February. We try to be diligent about removing dark objects such as goals, hockey pucks, leaves, gum wrappers, chew, etc. from the ice as they absorb heat and melt into the ice causing divots, holes or whatever shape they had. As the sun gets stronger we start to see a phenomena we call "boils" or "pimples" appear on the ice surface. We are lucky enough to have a tractor mounted Zamboni which has a very sharp cutting blade that is able to shave these mounds down to retain flat ice. We have also been known to apply a coat of white paint to the ice sheet at the beginning of the ice sheet making to lighten the surface and make it more reflective to combat any dark areas that would absorb the sun's heat quicker. We apply it along the west and north sides of the rinks with dasher boards especially.

3) Assuming water is artificially applied to create the surface, how is this water applied? How often and at what type of velocity? We are pretty basic or primitive in our water application method. We use 11/2" fire hose with a variable nozzle that can be adjusted from straight stream to fog depending on weather and ice conditions. The water is just broadcast out in thin layers and allowed to freeze before applying another coat. At the start of the winter if the temps are below 10 degrees F we may spray all day building thin layer upon thin layer to build up the thickness. We may apply 15 to 20 layers in a day. We find layering the applications thinly prevents air pockets and creates much stronger and denser ice. Once we are satisfied with the thickness of the ice sheet then it is a matter of resurfacing to keep it as smooth a surface as we can. We re-surface the rinks every day in the mornings, weather permitting. On days when the temps are in the 20's or more or it is snowing then we are just doing snow removal. Over the years we probably have averaged 3-4 re-surfacing days per week.

4) Besides the creation of the ice surface, what type of maintenance regiment does the rink demand throughout the season in order to be considered safe and usable by the public? Resurfacing every day that we have the opportunity to is the number one factor in maintaining safe ice and ice that the public will enjoy using. On days when we can't spray we at least inspect the surface and patch any holes or deep skate marks or cracks. Our philosophy is if you are going to have an ice rink you need to commit to maintaining the best ice your resources will allow for or don't bother. We feel that if you can't maintain consistent, skatable ice people won't make the effort to come to the facility, which is the whole reason we are providing the rink in the first place.

5) What other challenges/successes/insights can you offer with respect to public outdoor skate rinks? We are in the second full season of using a tractor mounted Zamboni. It is the best thing since sliced bread. It helps us remove any rough spots on the ice and puts a finishing touch on the surface that on some days rivals indoor ice surfaces. We also have an edger that we use periodically to keep the ice surface perpendicular to the boards. Even before we had these tools though it is, like with everything else, you only get out of it what you put into it. Diligently maintaining an ice rink and paying attention to the little details is not any different than taking care of a baseball field. We would love to have a pavilion over any of our rinks as we could extend the ice skating season and wouldn't be so dependent on the vagaries of the weather.

Town of Silverthorne

1) What type of water containment mechanism does the rink utilize? If the rink has a below-grade liner, how were CIRSA (or other insurance provider's) concerns mitigated regarding non-winter water collection? Our rink is on a pond which was a former gravel pond but is now part of a public park. We have an adjacent building with warming area and restrooms, as well as a dock. It is fed strictly by ground water and is 40 feet deep in the center. We control the water level only via an outlet culvert that flows in the spring/summer when the pond fills as the groundwater comes up. During the winter the pond level drops about 3 to 4 feet. There are a few springs that also flow into the pond, sometimes on top of the ice. This pond has no liner of any type.

2) Is the rink subjected to regular sunlight? If so, what is the impact on the ice surface and how are these impacts addressed by the maintenance person(s) entrusted with keeping the surface usable and safe? Our ice pond is fully exposed to the sun. We typically are able to have our rink open from around Xmas to the first week of March. After that the sun makes the surface too soft and slushy. Breckenridge has an outdoor rink as a component to their indoor rink and has hockey leagues that use this outdoor rink. Despite being at 9,600 feet, they had to construct overhead shade to keep the sun off the outdoor rink, due to their experience with slush.

3) Assuming water is artificially applied to create the surface, how is this water applied? How often and at what type of velocity? We flood our ice surface via a fire hydrant and a large nozzle which we spray high in the air, letting the water fall and spread naturally. This is done 3 or 4 times per season, as needed.

4) Besides the creation of the ice surface, what type of maintenance regiment does the rink demand throughout the season in order to be considered safe and usable by the public? Every year we face a catch 22 of ice vs. snow. If we get cold temps with little snow, we get good early ice, then when it does snow, we can safely take equipment out to clear snow from the ice, starting with ATV's at 6 inches followed by pickup plows at 18 inches. But if we get early snows on top of thin ice, it becomes challenging as we can't clear the snow off to help the ice thicken, but we need thicker ice so we can take equipment out. We also have some issues with the spring flows coming in on top of the ice from time to time. We do not do any other surface maintenance other than the occasional flooding noted above, and the clearing of snow. We do have an annual pond hockey tournament in late February, for which the tournament organizers bring in a Zamboni for the ice before the boards are set up.

5) What other challenges/successes/insights can you offer with respect to public outdoor skate rinks? You should consider things like skate rentals? Charges to skate? Lighting for night skating?

Special events? Staffing and equipment to clear the ice vs other duties when it snows? We find that our ice, which is provided free to the public, is very popular, and the public understands that it is pond ice, not a skating rink, and they are happy with what we provide.

I will add that, from my previous job in Minnesota, we had ice rinks in the parks on grass surfaces with hockey boards. We hired teenage rink attendants, and one of their tasks was to flood the rinks when they closed at 9 p.m. Hydrants can be dangerous and if not operated properly can freeze, too. I don't remember if we allowed the teenagers to operate the hydrants or if there was some other system. A thin layer of water at night is crystal clear ice in the morning, however, the ice was always a little slushy along the south facing hockey boards, even though they were painted white. Snow accumulation can make ice bumpy, too. Outdoor ice is hard to maintain in quality condition, due to weather and sunshine.

About the time I left Minnesota (2000), a suburb (Roseville, MN) built a huge outdoor speed skating facility and to ensure quality ice (Olympic training) they refrigerated the outdoor track. As my PW Director notes, our public understands that pond ice is going to fluctuate in terms of ice conditions and that is part of the public message we put out and the signage at the site, as well. We also emphasize safety, with the ice thickness guidelines I sent earlier. Good luck.

Town of Snowmass Village

1) What type of water containment mechanism does the rink utilize? If the rink has a below-grade liner, how were CIRSA (or other insurance provider's) concerns mitigated regarding non-winter water collection? Plastic liner laid on sand. It is in grade with the edge turned up and held by sand.

2) Is the rink subjected to regular sunlight? If so, what is the impact on the ice surface and how are these impacts addressed by the maintenance person(s) entrusted with keeping the surface usable and safe? The rink does get partial sun and is problematic. We cover the sunny area with reflective foam insulation that is 3/8" thick. It is of some help but avoid sunlight if possible.

3) Assuming water is artificially applied to create the surface, how is this water applied? How often and at what type of velocity? We have a fire hydrant close by and spray the surface in ¼" layers. When thick enough we have a Zamboni to contour the ice.

4) Besides the creation of the ice surface, what type of maintenance regiment does the rink demand throughout the season in order to be considered safe and usable by the public? If you have no Zamboni you will need to shave off the loose ice and put more water on the ice.

5) What other challenges/successes/insights can you offer with respect to public outdoor skate rinks? You will need some way to contain the water. A set of boards may be useful. They can be made of plywood or buy hockey boards.

Town of Estes Park

We have just put in our first Ice rink this winter. We have less than a month under our belts, but I'll try to answer questions as best as I can. The Town paid for the installation and operation, but the actual operation is done by our local Parks and Recreation district.

1) What type of water containment mechanism does the rink utilize? If the rink has a below-grade liner, how were CIRSA (or other insurance provider's) concerns mitigated regarding non-winter water collection? Ours is a fully refrigerated chiller supported unit. We installed it above ground just for the winter season in an existing parking lot.

2) Is the rink subjected to regular sunlight? If so, what is the impact on the ice surface and how are these impacts addressed by the maintenance person(s) entrusted with keeping the surface usable and safe? It does get some sunlight and can get a little soft, but since it is a refrigerated rink, we have had it stay frozen and very skateable even with temperatures in the 50's

3) Assuming water is artificially applied to create the surface, how is this water applied? How often and at what type of velocity? We have a poor man's Zamboni. It's a water wand with a spray bar that pulls strips behind it to smooth the ice. We use heated water for the resurfacing. Cold water doesn't bind to the surface and chips. By using hot water, it melts the surface and then freezes into the ice, creating a stronger more durable ice.

4) Besides the creation of the ice surface, what type of maintenance regiment does the rink demand throughout the season in order to be considered safe and usable by the public? Ours is monitored and has specific hours. We are leasing the rink from the City of Fort Collins and are following their protocols. We resurface the ice each night.

5) What other challenges/successes/insights can you offer with respect to public outdoor skate rinks? It's been very popular so far, but it's not cheap. Installation and tear down will probably cost us around $50-$60K. After this season we will re-evaluate and see if it was worth the investment. Our goal is to attract more winter visitors to town, as well as provide a nice amenity for residents.