



PART FOUR

Preserving the Trail Continuum





OHV recreation is a great way for people with mobility disabilities to get into the great outdoors.



Chapter Eighteen

Managing and Maintaining a Great Trail

Manage for People, Not Machines

What keeps a great trail great? The answer is effective management and maintenance. Management and maintenance are not the night crew who has to clean up and fix errors made along the way; they are part of the team working as one to produce a great trail. Successful long-term management and maintenance have to be not only a consideration, but a driver in trail and program planning, design, and implementation.

Section 1: Management

One of the goals of this book is to provide proven tools that will result in durable, quality trails, instead of management nightmares. The entire team must understand all of the considerations in a given scenario and make informed choices. Sometimes, that process can be complex and sometimes there is not a clear choice between one option and another. Going through the thought process will almost always produce an outcome that is better for the riders, resources, and programs.

Management Focus

There are four focal areas of management: managing the riders, the trail, the facilities, and the program.

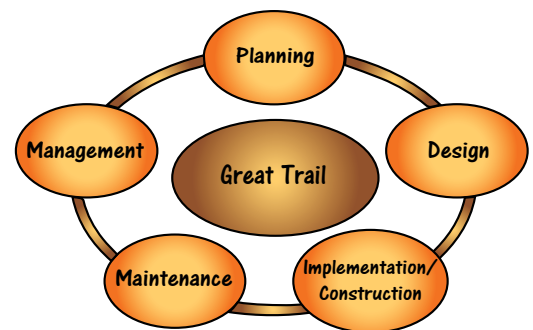
1. Managing the riders. OHV recreation must be managed. To the extent possible, all team members do that by providing for the riders' needs through visionary planning, creative design, and effective communication. They enhance the recreation experience by managing the riders' eyes, providing a variety of experiences and challenges, maximizing recreation activity time, and delivering effective communication.



Wheelers line up to prepare for a run on a challenging trail.

2. Managing the trail. The trail tread and related trail structures are precious resources. Team members manage those resources through sound design. They protect those resources by managing the riders and attaining integrated resource management. They perpetuate those resources through effective maintenance. They protect resource values and the area surrounding the trail through quality design that manages the riders' eyes; incorporates the proper structures; effectively communicates with the riders; and utilizes proper closure, restriction, and control techniques.

THE GREAT TRAIL CONTINUUM



This beautiful trail has the appearance of professional management and maintenance. Just the look of it enhances the quality of the rider experience.

3. Managing the facilities. Facility management includes providing and managing properly designed facilities in the right locations, with adequate capacities and appropriate amenities. For quality customer service, facilities need to have a professional appearance and be kept clean and functional. They also enhance the recreation experience and play an important role in communication that will aid in trail, rider, and program management.

4. Managing the program. There cannot be a great trail without creating a great OHV program. The program consists of conducting timely assessments, ensuring adequate funding, having adequate staff with the necessary skills and training, obtaining the proper equipment, having routine materials and supplies available, obtaining storage and shop space, setting expectations for quality, establishing priorities, setting personnel performance standards and ensuring they are met, fostering a strong volunteer program, developing internal and external relationships, and establishing an effective O&M program.



Neat, clean, and functional, this trailhead provides good customer service and communication.

With all four of these management focal areas, the one constant is the challenge of managing for change. For the rider, it's changes in the level of use, desired rider experiences, type of use and new vehicle types, and rider demographics. For the trail, it's tread degradation, structure deterioration, changes in resource values, changes created by other agency activities such as vegetation management and fire management, catastrophic events such as floods and wildfires, and constantly changing environment. For the facilities, it's changes in use levels, use types, or desired amenities (campground with showers versus day use). And for the program, it's changes in personnel, funding, internal and external politics, and upper level management priorities. The TMO provides the foundation for how a trail will be managed, but it needs to be modified as necessary to stay current with conditions.

The 4Es are a tool for adaptive management that can help the managers effectively adjust to many of those changes: implement, evaluate, make changes, re-evaluate. As long as there is a trail or an OHV program, this process should never stop.

Successful Management

The goal for managers is to avoid management nightmares. The managers can accomplish this by committing to quality, providing exceptional customer service, being pro-active, obtaining knowledge, conducting a status check, implementing recommendations, evaluating and adjusting, and sharing.

Commit to quality. The first step is for all levels of management to commit to providing high-quality OHV recreation opportunities that are supported by a quality OHV program. All personnel involved will need to commit to having great trails. This involves a commitment to adequate staffing and especially funding.

Provide exceptional customer service. There is a saying that positive attitudes equal positive programs. The public is not the enemy. The public and public service is why management and



Tip, Trick or Trap?

Tip: Trail data is a great management tool. Information has been added regarding trail data collection to the website at www.greatohvtrails.com.

the agency exist and their attitude toward the public controls public perception. What agency wouldn't want that perception to be positive? There cannot be a great trail without having a great trail program. That program must be based on great customer service.

Be pro-active, not re-active. Part of that commitment is to take a pro-active approach to OHV management. Dealing with issues now is better than dealing with a crisis later. That is the only way to successfully manage any resource.

Tip, Trick or Trap?

Tip: Positive attitudes equal positive programs

Obtain knowledge. Often, agencies don't know how to provide for and manage OHVs and will shy away from them unless there is someone in the unit who is an enthusiast or activist. Managers shouldn't be deterred by this gap in knowledge, but should be challenged by it. Resourceful managers surround themselves with knowledge and if it isn't available in their unit, they seek it elsewhere. Books like this one can provide a wealth of information. NOHVCC Management Solutions (NMS) was developed to provide strike team support for managers in all levels of OHV implementation from trail management to program management. The tools are out there. Find them and use them.



Conducted as part of a NOHVCC conference, field workshops like this are great places to obtain knowledge.

Conduct a status check. Just like a doctor, the next step is to take the pulse of where the team is compared to where the team should be. This is done by conducting a formal assessment that will give the managers comprehensive information on the status of the trails and the program with detailed recommendations for adjustments. The assessment will help form the vision and provide direction for the agency. If this expertise isn't available within the agency, there are professional contractors who provide these services (NOHVCC Management Solutions, Professional Trailbuilders Association, and others).

Implement recommendations. Implementing recommendations may take some time since it may involve personnel training and acquisition; securing funding through grants or agency sources; planning, design, contracting, and implementation; and equipment and materials procurement. This is also a step that could test the agency's commitment and that is why a comprehensive assessment is necessary. It forms the purpose and need for the actions and gives the agency a firm foundation and justification moving forward.

Evaluate and adjust. The 4Es: is it working? Evaluate, adjust accordingly, and re-evaluate.

Share. An area that needs considerable improvement is the sharing of information, both what did work in a given situation and what didn't work. Some say sound is the number one issue for motorized recreation. While it is certainly a big factor, the bigger issue is fear: fear that the impacts of the past will be the impacts of the future and fear of the unknown that



Field workshops are also a great forum to share knowledge and lessons learned: both those that worked and those that didn't.

can keep managers and agencies from striking off into uncharted territory. Team members don't know OHVs; they don't understand OHVs; they don't know how to manage

Tip, Trick or Trap?

Tip: The biggest issue for OHV recreation is fear

OHV; and they don't fully know the impacts of OHVs. Team members have fears regarding impacts to resources, wildlife, and vegetation; erosion issues; sound issues, etc. Combating fear is what loops us back to surrounding ourselves with knowledge. The primary tool to fight fear is knowledge through education.

Only by sharing can we give others the knowledge and confidence to move forward in providing great trails. Conduct intra- or inter-agency workshops, field trips, or demonstration projects. Invite a state or provincial OHV program administrator to attend the agency's field trip or workshop (see the International OHV Administrators Association, inohvaa.org). Attend conferences like the annual NOHVCC or INOHVAA conference to share the agency's story. Bring in NOHVCC or other professionals for training. Or find another way to get training.

Whatever keyword used; sustainable, durable, quality; the key to creating and perpetuating great trails is knowledge.

Section 2: Maintenance

All trails need maintenance every year, even if it is only a check on the trail conditions. Proper trail location and design will certainly minimize the amount and rate of trail degradation, but effective maintenance is essential to repair the impacts of that degradation process. Maintenance is so important to the Great Trail Continuum; it can perpetuate a great trail, and the lack of it can destroy a great trail.

Maintenance Objectives

Not surprising, the goals of effective maintenance are the same goals used throughout each component in the continuum:

Provide exceptional customer service. There are many objectives, but most of them point back to the underlying objective of continuing to provide quality customer service.

Ensure continued resource protection. The theme throughout this book has been providing for the riders' needs while ensuring resource protection. Effective management and maintenance are essential to continuing that protection.

Protect rider safety and manage agency risk. This does not mean dumbing down the trail and removing challenge. Challenge is an expectation that is outlined in the TMO; risk is a surprise. If surprise moments arise, fix them.

Protect the investments made through planning, design, and implementation. A lot of time, effort, and money have been invested up to this point. Allowing the trail and its related structures to degrade, deform, or lose their integrity or functionality is a waste of that investment.

Perpetuate the intended design. Maintenance protects the investments by perpetuating the intended design of the trail. Tread material will displace and erode away and rock used for cover or trail hardening will wear away over time. Keeping material and hardening to the intended shape and depth helps ensure that the trail will function as designed. Maintaining the integrity and function of structures helps sustain rider safety, resource protection, and rider experience.

Tip, Trick or Trap?

Trick: After construction, reconstruction, or heavy maintenance, keep the trail closed for a couple of weather events



Most structures represent a considerable investment. To protect that investment structures need regular inspection and maintenance which should be identified in the annual maintenance plan. Many structures require eventual replacement which should be identified in the long-term maintenance plan in the budget.

Perform ongoing evaluation. Maintenance personnel are usually the people who are in the field the most; therefore, they become the eyes and ears for management. It is important that they keep an objective eye out to observe and report any subtle changes that may be occurring.

The Maintenance Process

Having a defined process helps the managers and maintenance personnel ensure that maintenance not only occurs but is timely and effective. Managers can increase accountability and quality by assigning the following steps to specific personnel.

Develop a maintenance plan. There are two parts to this. There needs to be a long-term programmatic plan that outlines maintenance objectives and how they will be accomplished. It also establishes personnel, equipment, and material needs so that the required funding level can be identified and management can begin securing sources for that funding. There also needs to be an annual maintenance plan that outlines specific maintenance items, who will accomplish them, and how they will be accomplished. This plan can be used as a tracking tool since items can be checked off as they are performed.



Regular condition surveys will identify maintenance needs so they can be addressed before a structure deteriorates to the point that it is non-functional and a risk to the public and the agency.

Tip, Trick or Trap?

Trap: Avoid having a backlog of maintenance. Once maintenance gets behind schedule, it's very hard to get back on track, so the backlog tends to grow rather than shrink.

Develop maintenance specifications. Many agencies have generic maintenance specifications, but if those are not available or if they do not meet the agencies' specific needs, then applicable specifications need to be written. The specifications are essential for accountability, quality control, and consistency in the maintenance performed. No matter who performs the work, everyone should have the same vision.

Perform condition surveys. Routine condition surveys or assessments form the backbone of the annual maintenance plan by identifying maintenance needs.

Set priorities. Items from the condition survey (or surveys) need to be prioritized and organized in a logical progression that will make efficient use of the personnel and equipment. Sometimes, the needs exceed the capabilities due to a lack of funding, equipment or material availability, or a suitable weather window. The items that don't make it on the annual plan become backlog maintenance items. These items should become maintenance priorities in the next annual plan. The danger of a backlog is that once a program gets behind, it is very difficult to catch up without an increase in infrastructure and funding. The goal of the long-range maintenance plan is to foresee heavy maintenance or replacement needs and get those into the program so there are no surprises or deficiencies in infrastructure when they arise.

Schedule work. The next step is to schedule the work, sequence it, identify who will perform it, and decide roughly when it will be accomplished.

Perform work. Performance of the work can be by volunteers, force account, contract, or a combination of all. No matter who does the work, there is a need for oversight and quality control. The maintenance objectives cannot be achieved without quality work.

Record and report. If it isn't in writing, it didn't happen. Recording the performance of maintenance helps managers and the maintenance personnel track accomplishments of the annual plan and ensure that other work stays on schedule. Progress reports are required for most grants, so accurate record-keeping facilitates the timely preparation of those reports. Sometimes, due to

unusual weather conditions or other unforeseen priorities (fire emergencies, equipment breakdowns, etc.), work that is scheduled doesn't get performed or completely performed. It is important to record any deficiencies so that these work items don't get lost and forgotten. These items also get added to the backlog maintenance list and should be a priority in the next annual maintenance plan.

Required Skills for Maintenance Personnel

The skills maintenance personnel need are often underestimated and undervalued. Just like planning, location and design, and implementation, the required skill set is complex and diverse. Quality and efficiency are dependent on having personnel with journeyman-level skills and experience. Proficient maintenance workers should:

Understand the use. This includes the riders, their machines, their desired experiences, and the elements of challenge.

Understand the physical and natural forces. Many of the tasks and skills assigned to maintenance personnel require knowledge of engineering terms; horizontal and vertical alignments and how the alignments affect sustainability; the physical forces exerted by vehicles; and the natural forces of compaction, displacement, and erosion. Maintenance workers need to have at least a basic understanding of soils and know about tread watersheds, water sources, and the importance of water management.

Understand the equipment. Maintenance personnel need to know the types of maintenance equipment available and the capabilities of each. They must be proficient in each machine type they use.

Understand TMO. Personnel must understand the TMO. Created in planning and fine-tuned in design, the TMO gives important guidance on the intended riding experience and challenge level. It provides consistency in the vision throughout the continuum. There should be a specific TMO for each trail since each trail is different. It's important not to over- or under-maintain a trail since that can change the experience and functionality of the trail. Since volunteers perform much of the maintenance work, maintenance personnel need to understand the TMO so they can transfer that vision to the volunteers. That is not an easy task and is often overlooked.

Understand the 4Es. Effective application of the 4Es is a fundamental principle in successful OHV management and maintenance. It is a process for recognizing an effect, determining the cause, applying the appropriate remedy, and evaluating its success.



A sight like this is commonplace, but it represents a water management issue. It's important for maintenance personnel to recognize that it is an issue, determine the cause, and identify the solution.



The same site after the solution was implemented: an improvement for the riders, the resources, and a sign of professional management.



It is important for management and maintenance personnel to understand the TMO for the trail so they don't unintentionally change the difficulty level or experience of a trail.

Recognize symptoms. Without an understanding of the physical and natural forces, maintenance personnel will not be able to detect symptoms before they become problems. Without a trained eye, they could overlook the rill that can turn into a rut and then into a ravine. This can lead to surprises, reactive maintenance, or heavier maintenance that may result in more work being added to the backlog list.

Identify the cause. Using the 4Es, the next step is to determine the cause: Here is a rill. Why is it forming? Where is the water coming from?

Identify the solution. Maintenance personnel need to understand the possible corrective actions and prescribe and implement the proper corrective action. What tools are required? What type of equipment? Who can best perform the work, volunteers, force account, or is the remedy beyond the capabilities on hand and a contractor is required?

Implement the solution. Finally, maintenance personnel need to be able to either perform or oversee the proper execution of the work. Timely implementation is the key to effective maintenance. Don't put it off. Stay on the pro-active side and avoid the re-active side that could add to the backlog.

Maintenance Frequency

Once a program has been in place for a few years, the frequency of required maintenance on each trail will become evident. A change in that frequency could be an indicator of something else going on.

Weather conditions. Unusually wet or dry conditions that can inhibit effective maintenance work.

Catastrophic events. This could include wild-fires, floods, and windstorms. These events can put a significant drain on maintenance and funding resources.

Level and types of uses. A trail can lose its sustainability if the level of use or type of use changed. It can make a difference if there are 10 vehicles per day or 100. If the vehicle type changes, the forces exerted on the trail tread can change, which can result in the need for more frequent maintenance.

Season of use. As a trail or trail system starts receiving more use, some riders will choose to ride midweek rather than the weekend or during the off-season when there are fewer riders. This can enhance the quality of the rider experience, but it can also create more tread impacts if the off-season is the excessively wet or dry season.

Inattention to red flags. A deficiency in maintenance skills can produce a lack of cognizance of bigger issues and an understanding of what is really going on. Repeated or more frequent repair of the same problem on the same trail is an indicator of a bigger issue that more than likely involves:

- Large tread watershed
- Poor soils
- Poor location
- Poor design



Catastrophic events can be draining to maintenance resources. They will happen, so it is wise to set aside resources for them, if possible.



This road was starting to grow in and look like a trail, but cutting all of the saplings on the cutbank "to improve sight distance" changed that character in a matter of minutes.

Maintenance Tips

Here are some tips and tricks to help maintain the design and the quality of the experience.

Keep the trail treads narrow. Trails tend to widen out over time through use and maintenance, but it's important to keep the tread width as close as possible to the target design width in the TMO.

Doing this:

- **Reduces tread watershed.** Remember, managing water is a primary element in having a sustainable trail.
- **Enhances rider experience.** One of the fundamental principles for success is providing for the riders' needs. It is essential that the maintenance team keeps the quality of that experience.
- **Reduces speed.** Speed causes issues. Reducing speed reduces potential impacts and resulting maintenance. It enhances the seat time and rider experience.
- **Improves trail harmony.** A trail needs to feel like a trail and look like a trail, not a highway through the forest. Having the trail harmonize with the landscape contributes to the riders' overall perception of a great trail.



Trees are a valuable resource for many reasons. Rather than cut the tree, this one was notched to provide handlebar clearance. It keeps the clearing narrow and also increases the rider experience. Know your tree species. Some cannot tolerate a notch or a notch that is too deep.



This is a very common sight: riders cutting out deadfall, but is it cut out properly, wide enough, and is the slash disposed out of the way? Regular inspection by maintenance personnel will answer these questions. A maintenance tip hotline will give riders a medium to report this activity or report other trees that were too big to cut.

Train volunteers. Volunteers are a great asset but only if they know what they are doing. Volunteers need to be trained in proper maintenance techniques and in the importance of complying with the TMO. At a work party, hand out copies of the TMO and typical drawings or sketches of the work to be done.



Unnecessary risk. This log should be cut back at least another 4-5 feet. It would improve the aesthetics of the trail corridor as well.

Keep clearing narrow. Tight clearing has the same benefits as the narrow tread above and helps create a recreation experience, not a transportation experience.



The trail alignment here is pretty straight and there was no real need for any pruning, but wholesale pruning on both sides of the tree trunks created a very open trail corridor. The result? Increased speed and diminished experience.

Manage sight distance. Sight distance is a double-edged sword. Safety is often increased by pruning on the inside of curves so that riders can foresee oncoming traffic. This is good, but the downside is that when riders can see more, they tend to increase their speed, which negates the intent of the pruning. There are definitely places where pruning is desirable for safety, but consider the potential consequences before doing so. Selective pruning, the cutting of a few branches to create a sight hole through the vegetation, is better than wholesale pruning where everything is trimmed and the whole sight corridor is enlarged.

Manage aesthetics. If they have to be cut, prune limbs flush with the trunk. A professional looking trail enhances the riders' perceptions and can increase not only their experience but their compliance with rules and regulations.

Manage risk. This is perhaps the most important objective of maintenance. Trees fall down, treads saturate and fail, and structures break or fail. If something happens that creates an unsafe condition, fix it, mark it, or sign the trail as closed until the condition can be rectified. Logs that are suspended off the ground should be cut back well beyond the trail shoulder. Signs, especially warning and regulatory signs, need to be in place and legible. Prune encroaching limbs that obscure signs and impede adequate sight distance at road crossings, trail junctions, and other high traffic and high risk areas. Good customer service ties directly to how well rider and agency risk is managed.

Tip, Trick or Trap?
Tip: Use clear tape on all trail junction markers using decals

Maintain signs. Replace missing signs and signs damaged by the sun, vandals, or critters. Use a level for correct position when installing posts or signs. Bullet holes beget more bullet holes. A great trail should appear professional. Crooked or damaged signs indicate the agency doesn't care about the area.

Use clear tape. Applying clear plastic tape over the decals on route markers and junction markers can triple the life of the signs. It deters damage from critters, vandals, weather, and UV deterioration.

Find the balance. The TMO provides general guidance, but there is a balance between over- and under-maintaining a trail. If possible, find that balance and stay there. This can be difficult in wet climates and deciduous forests with heavy undergrowth. Maintenance can also be complicated when it is performed by crews from an outside entity that are only on site for a periodic basis.



Broken or illegible signs need to be replaced.

Use the 4Es. The 4Es are important and relevant to all trails.

Avoid bias. Whether force account or volunteers perform the maintenance, everyone has personal bias. Those who don't like riding rocks, remove the rocks; and those who don't like riding over logs, cut out the logs. Try to avoid this bias by training personnel in proper techniques and by following the intent of the TMO.

Groomers. Trail groomers can be a very effective maintenance tool, especially on heavily used trails in poor soil types. Several light passes with a groomer are more effective than one heavy pass, plus it is much easier on the grooming and towing equipment.



Trail groomers are an effective and often necessary maintenance tool.



A few well-placed saplings can deter cutbank riders. Back it up with signing if you need to send a stronger message.

Temporarily close the trail. As in construction, it is beneficial to close the trail immediately after reconstruction or heavy maintenance. Letting the trail sit through several weather events allows natural compaction to occur and the maintenance efforts will last longer.

Manage road riders. Some riders have a tendency to leave the roadbed and ride up on the cut banks. This activity scars the landscape and scars the public's perception of OHV recreation. When cut bank riding occurs, signing alone generally is not effective, but signing and a few well-placed saplings on the cut bank will deter the use and send the message.

Maintain cover. Most geotextiles cannot withstand direct tire contact and some are not UV stabilized. Metal and plastic culverts can be damaged when exposed to direct tire impact. It is important to maintain the designed cover of soil or rock over these installations.

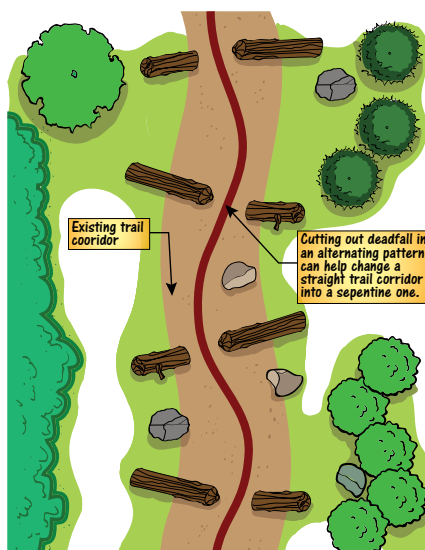
Keep structures functional. This should be an obvious maintenance item, but in traveling around the country, the lack of structure maintenance is all too common and the impacts are evident: plugged culverts; cattle guards filled with dirt; lead-off ditches blocked with debris; breached rolling dips; broken gates, fences, and barriers; broken deck planks or rub rails on bridges and puncheon; and the list goes on. When structures are not functional, the objectives of maintenance are not being met and there is a breakdown in the program that managers need to fix.

Keep facilities clean, functional, and professional. The role that facilities play in communication, effective management, and quality customer service is important. Having maps in the map box or a clean toilet with toilet paper, deodorizer, and hand cleaner sends a positive message to the riders and says a lot about the agency's commitment to quality.

Be proficient. Have a light hand when operating equipment. Spinning a machine around can tear up the trail tread and damage any underlying geotextiles. Steel grousers can break concrete pavers and damage wood decking. This can be avoided by running the equipment on old conveyor belts or wood planks. This takes more time and effort, but it's usually worth it to protect the investment and integrity of the structure. Use easy-outs or carefully find an obscure route around technical challenge features to preserve their integrity.



The top of this culvert has been damaged and will eventually break which compromises the integrity of the structure and increases agency risk.



Due to a lack of training or awareness, maintenance personnel have bladed out the rolling dip at the top of this steep hill allowing water to run down and erode the slope.



Leaving the tree down and routing the trail between the stump and the tree was a creative way for maintenance personnel to enhance the rider experience of this trail, while keeping to the TMOs.

Be creative. When converting a road to a trail, use material that blows down to increase the recreation experience. An uprooted stump can become a gateway. Blowdown trees can be cut out in an alternating pattern to create a serpentine alignment. Going up and around the end of a log can create a drain.

Set up a maintenance tip hotline. The riders are on the trail more often than anyone else, so make it easy for them to report trees down or other maintenance issues. This could be via a dedicated phone line with an answering machine, email, webpage, or social media; whatever would work the best for the area and clientele. A hotline keeps the riders involved and the agency informed. It's a win-win.

Be sociable. OHV recreation is a social experience and one objective is to have fun. It takes time for maintenance personnel to stop what they are doing, but if the riders want to talk, they should talk to them. In the process of promoting goodwill and customer service, it adds to the riders' overall experience and maintenance personnel can learn a lot about the riders' opinions of the trails, facilities, and program. If riders don't want to talk, a smile and a wave of the hand is still communicating positively with the public.

Remove signs and barriers when no longer needed. As part of implementation or closure, sometimes a high level of barriers and signing is needed to control and direct use. Maintenance personnel should monitor these installations. Once the use pattern has been successfully changed or vegetation has become re-established, having these signs and barriers can actually draw unwanted attention to the site as well as detract from the aesthetics. Removing these barriers and signs when they are no longer needed will reduce maintenance and replacement costs, ensure resource protection, and increase the rider experience.

Even with goggles, this stub is a face and eye stabber. Riders will tend to reach up and break it off, but sometimes that can make the issue worse rather than better. Limbs tend to rise and lower as the weather and seasons change. Manage your risk by keeping the height of the trail corridor well-pruned.



Fortunately, the shape still identifies this as a stop sign, but the lack of color and retro-reflectivity makes the sign ineffective and increases risk. In addition, what message does this send to the public? Perhaps it's okay to shoot and deface signs here. Is this the sign of a professional and quality program?



The trail that used to go up this draw is no longer discernable, but the barrier attracts the riders' eyes and indicates that something used to be there and could tempt off-trail use. Management would be better served to photograph this site to document the success of the closure and then remove the barrier.



Recognize when the fix is not the fix. Red flags could be indicators of a trail that isn't where it should be. Taking repetitive bandage actions can't turn a poor trail into a good trail. Over time, it can be more cost-effective to relocate the trail, even if it involves NEPA. This is a fix that is better for the riders, resources, management, and maintenance budget.



Monitoring occurred and off-trail use was discovered to be a fairly widespread issue. Putting up this bright orange closed tape as a barrier was cheap and fast, but it is UGLY. Worse than that, it's a bandage that doesn't address the real problem: lack of education, lack of patrolling, lack of enforcement, and lack of effective closure techniques. The aesthetics of the site was ruined, the rider experience was diminished, and the off-trail use is still an issue today.

The tape was put up, but never maintained or removed. Five years later, what remains is garbage and a testament to ineffective management.



Is this just a puddle or an indicator of something bigger? Upon inspection, the inlet of this culvert was obscured and completely plugged with debris. A lack of maintenance could cause this structure and the trail to fail.



A McLeod is a great maintenance tool. Sometimes, just taking the time to take a few swipes at a berm can keep drainage structures functional. It is important to have maintenance personnel trained to recognize seemingly minor issues before they become major problems and then be conscientious enough to stop their machine, get off, and do something about it.

A Final Thought

Change will always occur. But it is human nature to stay in the comfort zone and fear or oppose change. While that may be the safe place, it may not be the place that is the best for the resources and the riders, which is the underlying premise for this book. Managers should put on their objective hat and go out to look at their trails, facilities, and the quality of the recreation opportunities offered. They should look at them as their customers would look at them. After reading this book, why not do that and see what you see? Is your program at the level that it should be? If not, perhaps it is time for a change.

If people always do what they've always done, they'll never know what they could have done.

Use the tools in this book to manage change, but more importantly, to effect change.

Need more? Learn more here...

International Off-Highway Vehicle Administrators Association, inohvaa.org

National Off-Highway Vehicle Conservation Council, nohvcc.org

NOHVCC Management Solutions (NMS), nohvcc.org

Professional Trailbuilders Association, ptba.org

Standard Specifications for Construction of Trails and Trail Bridges on Forest Service Projects, National Technology and Development Program, October, 2014. <http://www.fs.fed.us/recreation/programs/trail-management/trailplans/>

Trail Construction and Maintenance Notebook, USDA Forest Service, Technology & Development Program, 0723-2806-MTDC, July 2007

A Look Back...

Here are some of the elements discussed in this chapter:

- One of the goals of this book is to provide proven tools that will result in durable, quality trails, not management nightmares
- The four focal areas of management: the rider, the trail, the facilities, and the program.
- Successful management includes committing to quality, providing exceptional customer service, being pro-active, obtaining knowledge, conducting a status check, implementing recommendations, evaluating and adjusting, and sharing knowledge
- The key to creating and perpetuating great trails is knowledge
- The primary maintenance objectives are provide exceptional customer service; ensure continued resource protection; protect rider safety and manage agency risk; protect investments made through planning, design, and implementation; perpetuate the intended design; and perform ongoing evaluation
- The maintenance process includes develop a maintenance plan, develop maintenance specifications, perform condition surveys, set priorities, schedule work, perform work, and record and report
- The skill set for maintenance personnel is diverse and complex. It is often underestimated and undervalued.
- A change in maintenance frequency could be an indicator of unfavorable weather conditions, catastrophic events, changes in level and types of use, change in the season of use, inattention to red flags (large tread watersheds, poor soils, poor location, poor design)
- Twenty-three tips for effective maintenance



The result of creativity and artistic vision: a great location, great trail, and great experience.