



Toiyabe Trails Institute

Feasibility Study

An overview of demand for trail building, skills gaps, and employment opportunities.

February 1, 2022





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Executive Summary

Assess the demand for skill development and certifications that could prepare students for jobs in planning, design, building, maintenance, and management of trails.

Purpose

The purpose of this study is to assess the feasibility of the Toiyabe Trails Institute (Institute), a trail-building training center located approximately 60 miles west of the Great Basin National Park in Ely, Nevada. This research assesses the need for skill development and demand for certifications at the Institute to prepare students for jobs in planning, design, building, maintenance, and management of trails.

Growth in Trails Infrastructure

Trails provide clear social, emotional, and physical health benefits, and deliver a massive \$689b economic impact in the United States across many sectors (travel, hospitality, retail, etc.). With trails and outdoor recreation nearby, main street businesses gain customers and collect more revenue. From sustained increases in trail use to booked-out campgrounds, outdoor recreation is a vibrant and sustainable economic engine.

Trails are a fundamental infrastructure asset of this sector. They are a destination (e.g. hiking, mountain biking, motorcycling, etc.) or a way to access other forms of outdoor activity (bird watching, fishing, rock climbing, etc.). Yet unlike other infrastructure assets, the need to build or maintain trails does not have a dedicated workforce focus and often volunteers are relied upon to fill labor gaps.

The momentum behind growth in outdoor activity has many positive effects, yet it comes with pressure on outdoor infrastructure that should be better understood and assessed.

To get this insight, interviews with 38 land managers, outdoor recreation professionals, and trail building organizations were conducted. The interviews explored needs and gaps of the current workforce and what requirements for training might be needed.

**\$689
Billion**

Trails Economic Impact Across
the United States

“We are not keeping up with the demand and this manifests in lots of user-generated trails and illegal route proliferation. With social media culture, we are getting tons of use on both formal and informal trails.”

Recreation Planner

Bureau of Land Management

Demand for Trails Experience

While existing trail builders can provide very high levels of expertise, the workforce cannot sufficiently address the demand for new trails. The following assessments reflect this current reality:

A holistic trails-building skills curriculum would advance efficiency and sustainability.

Trail building is migratory, physically demanding work. Turnover for paid entry-level positions is high and while it has not been effectively quantified, estimates range from 25-35%. Organizations will welcome certification if it reduces the cyclical energy and resources that currently go into training a high turnover workforce. Certification could also provide land managers with more assurance that the trail will be more sustainable and would not become a maintenance burden.

Limited workforce capacity is delaying new trails... and associated economic benefit they can create.

Active Requests for Proposals (RFP) for trail building are at an all-time high, and some project completions are getting requested at 1/6th the time. There are immediate opportunities, with funding, that are not getting addressed due to the lack of a skilled trail-building workforce to draw from, resulting in projects getting scheduling out into 2023, 2024, and even 2025. Certifications for trail-specific heavy equipment operation, would be particularly helpful to clear more corridor that would reduce the volume of hands-on labor needed.

Training into other functional areas could help fill immediate needs of growing organizations.

Trail-building organizations are in the early stages of organizational development. Increased trails demands are creating more complex needs. Positions in functional focus areas such as permitting, information management and quality control are getting created.

The new availability of these types of positions could also retain employees that would otherwise 'age-out' of front-line trail-building positions.

Trails industry training for newly hired trails professionals in the government sector is not established.

For those without a trails background, learning about policies, permits and processes as it pertains to trail building is currently relegated to on-the-job learning for outdoor recreation offices at city, county, and state levels. For example, a trails-specific process and permitting workshop designed for internal staff by the International Mountain Bike Association opened registration up to the public in 2019. It resulted in 38 participants (of a 40-person limit) registering from the government sector.

25-35%
Turnover

Estimated turnover for paid entry-level positions.

"For our projects we could absolutely be at the front of the line for hiring full-time employees. Hiring people who are certified would be more productive and can get us more miles of trail than a volunteer would be able to."

District Ranger

US Forest Service

Exploring Need for Certification

For organizations experiencing the pressure of increased demand for new trails, there are multiple areas of training that could guide certification development. Due to year-over-year turnover, **the high-volume need for basic trail-building skill development will remain constant. It is the industry's most prominent pain point.** Addressing this need externally could reduce the time it takes to onboard new employees.

Additionally, having more licensed heavy machine operators would also have immediate benefit, allowing for more built progress on trails and shorter project lifecycles.

With rapid demand, trail-building organizations are also structurally stretched, with specialized focus positions opening for supervisory roles, informational management, and other mid-level positions.

Developing these skills without additional training would be of benefit and does not necessarily require certification. Yet, the bundling of skills for certification may provide staffing flexibility for trail-building organizations during busy build seasons. With more people that can do more things, projects are less likely to be delayed due to lack of skills to address a challenge or an issue.

Certification also offers workers a resume-building credential, increasing the likelihood that the time spent in trail-building would be considered a worthwhile professional investment.

Layered certifications could present a potential path to stay in the trail-building industry, which may be of particular interest when trail builders begin to 'age out' due to the physical demands and migratory realities of the work.

To craft the best path forward for the Toiyabe Trails Institute, other considerations should be explored:

- Is the certification valuable enough that individuals or hiring organizations would pay for it?
- Would having more staff certified bring land managers increased confidence in awarding contracts?
- Would certification of staff provide organizations with a competitive advantage for winning RFPs?
- Would certification of staff bring risk mitigation benefit for insurance costs or legal protection?
- Does the economic benefit of trails recreation warrant a governmental or industry investment through scholarships and/or grants for this certification?

Next Steps

This study provides a starting point for stakeholders involved with the Toiyabe Trails Institute to begin crafting curriculum and facility implementation plans. In doing so, outreach and partnership with existing expertise at trail professional associations and land management agencies will be important, as there is a large knowledge bank and multitude of workshops and trainings that have indeed been developed. With this type of effective collaboration, combined with a physical location for in-the-field training, the Institute is uniquely positioned to meet well-recognized needs for workforce development and skills certification.

Research Overview

The Toiyabe Trails Institute Mission would:

- 1) Expand the trail-building workforce.
- 2) Offer needed credentials and certifications.
- 3) Bolster competency levels and skills in trail planning, design, building, and management.
- 4) Be leveraged by individuals to find jobs anywhere across the United States.

This study is a continuation of effort initially identified by the Great Basin Institute in September 2021 through a successful grant to the Economic Development Association. The effort was met with support from the Nevada Division of Outdoor Recreation, White Pine County Tourism and Recreation, White Pine Main Street Association, and U.S. Senator Catherine Cortez-Masto.

38

of land managers, outdoor recreation professionals, and trail-building organizations interviewed.

Research Objectives

To get more insight into validating the demand for trails and workforce characteristics, the following objectives for this study were established:

- 1 Determine if there is an increased demand for trail building.
- 2 Assess the current workforce capacity to maintain existing trails.
- 3 Frame the needs and gaps for skills around trail design, building, and maintenance.
- 4 Gauge demand for formal certification for trail builders, outdoor recreation professionals, land managers, and other key stakeholder groups.
- 5 Identify potential customers and partners to the Toiyabe Trails Institute.
- 6 Assess the potential demand for employment opportunities for those certified by the Institute.

Methodology

Primary research was conducted using telephone and video conferencing. Diverse perspectives were collected from 38 interviewees from three overarching groups: Land Managers, Outdoor Recreation Managers and Trail-Building Organizations. Individual interviews started on December 14, 2021 and commenced on January 12, 2022. Information collected represented perspectives from these entities:



American Trails



Chinook Associates



Professional Trail Builders Association



Singletrack Trail Company



Sierra Buttes Trail Stewardship

Dreamline Trail Building Company



International Mountain Bike Association



Truckee Meadows Community College



US Bureau of Land Management (NV, CO)



White Pine County Tourism



US Forest Service (NV)



National Park Service (Great Basin)



Washoe County Parks and Open Space



Trinidad State College

Society of Trail Professionals



NV Division of Outdoor Recreation



NV Department of Employment, Training, and Rehabilitation

Washoe Zephyr Consulting



Truckee Meadows Regional Planning Agency

Secondary research was gathered through information shared by interviewees and through web-based data from government agencies, national and regional media coverage and other outdoor recreation-focused websites. Due to similar geography and proximity to the planned location of the Toiyabe Trails Institute, some secondary data in this report is segmented to include only select Western states.

Industry Dynamics & Trends

This study surfaced key dynamics and trends that create headwinds and tailwinds for all participating in this industry. Therefore, this study considers these dynamics as underlying assumptions in the analysis and recommendations.

- Based on long-term projections prior to the COVID-19 pandemic, **the increase in outdoor recreational trail use will continue to trend upward** after the pandemic risk subsides, as will its well-documented economic benefit.
- Funding for the **Land and Water Conservation Fund (currently \$900M)** will be permanent as is currently designated under the Great American Outdoors Act.

- **Existing workforce constraints for federal land agencies will continue**, specific to their ability to manage new or maintain existing trail systems.
- **Environmental reviews and processes will remain constant** for building new trails on publicly held land.
- The convergence of strong demand for trails and significant new funding for outdoor recreation infrastructure will put continued **pressure on trail builders to find skilled labor to build more trails.**

Projected Participation & Use by Activity Group (pre-pandemic)

| OR Trails Activity | Adult Participation | | Days Per Participant | | Total Days | |
|--------------------|---------------------|---------------|----------------------|-----------|---------------|---------------|
| | 2008 Rate | 2030 Rate | 2008 Rate | 2030 Rate | 2008 Rate | 2030 Rate |
| Hiking | 78.3 million | 102.2 million | 22.89 | 23.41 | 1,826 million | 2,437 million |
| Equestrian | 16.4 million | 21.3 million | 16.28 | 16.48 | 262 million | 235 million |
| Motorized OTV | 47.9 million | 57.8 million | 21.65 | 21.04 | 68 million | 1,229 million |
| Motorized Snow | 9.4 million | 10.7 million | 7.25 | 7.16 | 51 million | 77 million |
| X-Country Ski/Shoe | 7.8 million | 9.8 million | 6.58 | 6.72 | 51 million | 66 million |

Source: https://www.fs.fed.us/research/docs/outdoor-recreation/ficor_2014_rec_trends_economic_opportunities.pdf

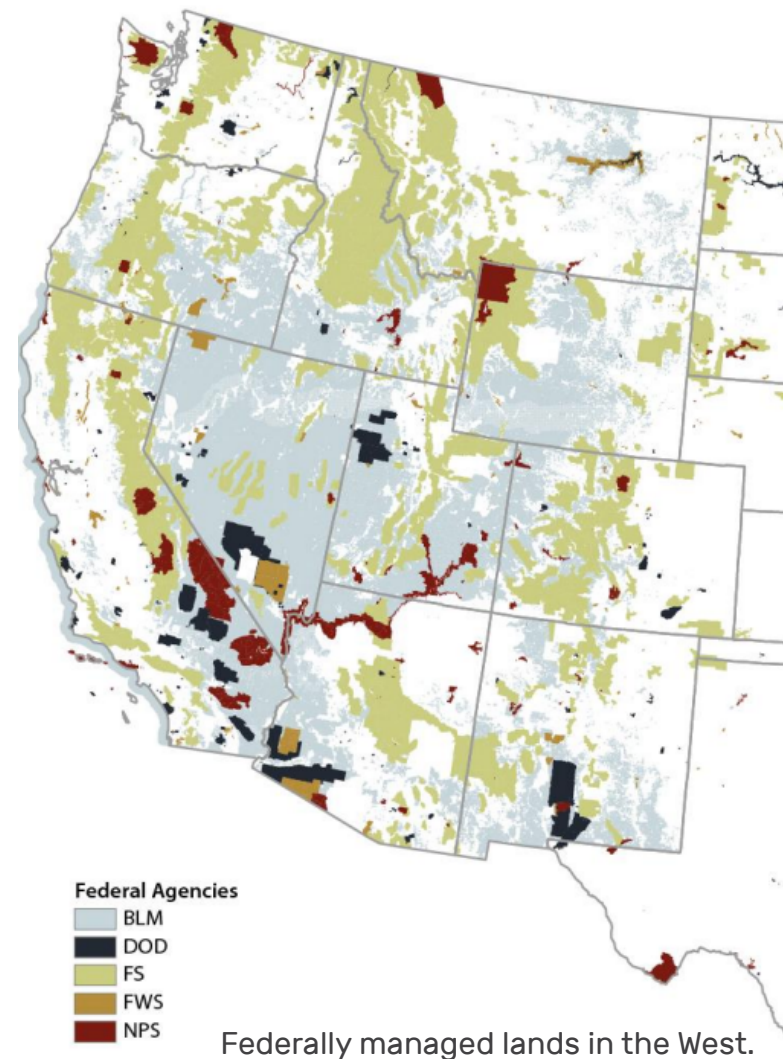
*Mountain Biking was not addressed in this trend projection

Demand for Trail Building & Maintenance

In the western United States, when people access trails into dispersed land, they are usually entering into federally managed areas. Whether using mechanized or unmechanized trails, unseen is the planning, evaluations, permitting, construction techniques, and maintenance required to keep trails viable.

While there are trails built and maintained on private property, most new trails in the West will likely traverse though public land. Due to the thousands of trail miles already on this land, agency land managers are consistently faced with trail upkeep. They often must outsource for not only building new trails but also maintaining them. In turn, these external projects generate approximately 90% of the workload that exists for many trail-building organizations.

| | Land Held | Miles of Existing Trail |
|----------------------------------|---------------------|--------------------------------|
| Bureau of Land Management | 244.3 million acres | 15,000 miles of managed trail |
| US Forest Service | 192.9 million acres | 158,000 miles of managed trail |
| National Park System | 79.9 million acres | 21,000 miles of managed trail |
| National Trail System | Across 25 States | 88,600 miles of managed trail |



262,600

Miles of existing trail managed by the Bureau of Land Management, US Forest Service, National Park System, and the National Trail System

Addressing the significant backlog in trail maintenance is a pressing need.

For federal agencies, there is limited workforce capacity to properly address trail maintenance needs. For both the Bureau of Land Management (BLM) and the National Park Service (NPS), a stagnation of budget increases to keep up with inflation has effectively frozen hiring for trails-focused positions. With this in consideration, large-scale support for new trails must factor in the backlog of trail needs that already exists.

For example, in the USFS's 2019 Comprehensive Capital Improvement Plan, trails and trail bridges represent \$286 million of the its \$5.2 billion deferred maintenance backlog, yet in recent years only 37% of the trail work needed has been addressed.

As it stands, addressing needs of maintaining existing or newly built trails must involve local partners and contractors. This external, seasonal workforce may come through the Conservation Corps system, with workers that still need trails training, or through independent trail building organizations.

To build trails in this current environment, trail builders must fundamentally understand and offset the impact of their project on federal land managers. Managers are always searching for the skilled labor that will make project completion as efficient as possible. And as a matter of diligence, they are consistently looking for ways to make sustainable trails that also can provide rewarding, enjoyable experiences.

Measuring the impact of large-scale climate-driven events: For all three major land management agencies, the threat, response, and recovery to wildfires creates a massive draw on workforce and budget allocations away from projects like trail building. In 2020, the National Interagency Fire Center estimates the cost of fire suppression alone was \$2.3 billion. Ten years ago, this cost was \$4 million.

"It is important from an agency perspective to have a strong local trails group...not only for building the trail but in the maintenance of it as well. It's all about relationships and trust."

Outdoor Recreation Planning
Bureau of Land Management

**\$286
Million**

Deferred Trail
Maintenance from the
USFS

37%

Percentage of Trail
Maintenance Need Met
by USFS

Key Observation

If new trails are to be created, it's most likely to happen on public land. In addition to understanding the processes for each land management agency, having a plan that clearly demonstrates sustainable design and maintenance are not only necessary, but it can create confidence and trust that the trail itself will not become a burden.

Existing workforce unable to meet trail building demand.

Beyond constraints experienced by land management agencies, demand for new trails remains high. The volume of Requests for Proposals (RFPs) for trails is up, but builders have limited ability to take on new projects. Additionally, the standard for project completion used to be about 6-7 years, but some turnaround time requests are as quick as 6-12 months.

For example, the Professional Trail Builders Association (PTBA) reports they have identified numerous RFPs with funding intact for its 115-member network of professional contractors, yet every active trail-build contractor within their organization is scheduling out into summer 2023.

The International Mountain Biking Association (IMBA) is facing a similar scenario. In their pipeline, IMBA plans and designs approximately 45-50 projects a year, yet their build teams are limited to working on 9-10 trails. To address all active RFPs they would have to assemble at least seven more build teams. They are also scheduled out to 2023 and have active requests from 350 communities across the United States.

Having more workforce capacity would create a competitive advantage for trail builders, but attrition rates are high after the first year or two. For example, a private trail-building organization that offers health insurance and worker injury compensation is still experiencing approximately 20% turnover every year. Many move on to establish a longer-term career.

"I'm coming off of a Q4 bidding season like I've never seen. Usually (in December) I am filling jobs for the upcoming summer, now I'm looking toward filling my 2023, 2024, and even my 2025 pipeline"

CEO

Trail Building Company

2-3
Years

Pipeline to Build
New Trails

Key Observation

Trail-building organizations cannot be as responsive as they would like to be. They want to run but they must crawl due to skilled workforce limitations. This is not only slowing down their revenue stream, it is preventing benefit to the economy that can come through outdoor recreation.



Economic benefit could spur more trail building demand.

The increase in RFPs may be correlated to the creation of Outdoor Recreation (OR) offices at the city, county, and state levels. Sixteen states now have OR offices, and eight of these are in the western US.

More will likely follow, as the economic benefit of OR activity has a direct impact on local communities (including possible tax revenue streams). For example, in 2020 the US Bureau of Economic Analysis (BEA) estimated the economic impact of the OR industry to be \$689 billion in gross output that spans across multiple sectors such as retail, travel, and hospitality. Washington state further isolated economic impact

solely for trails activity, finding in 2019 that its trail-user spending generated \$8.4 billion.

This added visibility into the value of trails will likely put additional pressure on trail builders across the United States. With demand clearly outpacing the ability to build trails, as trail project bids increase, so may attention from earth-work contractors from other industries to jump into the trail-building business. While it may add workforce volume, it will increase the need for skills development and knowledge about sustainable design.

Key Observation

With economic benefit of trails quantified, demand to improve or create new trails is increasing. With costs at several thousand dollars per foot, new (untrained) contractors may soon enter into the competitive landscape, creating more need for a trails-building institute.

**\$689
Billion**

Gross Output Across Trail Sectors, Including Retail, Travel, & Hospitality



Multi-use trail building requires planning, design, and guidance.

Until recently, trail development was conceptualized in two broad buckets: Motorized and Non-Motorized. Now, these divisions have numerous subclasses.

For example, how motorized trail users move through a landscape can be different depending if users on are motorcycles, ATV riders, or side-by-side vehicles. The same holds true for non-motorized use: hiking, snowshoeing, and mountain biking (with its various subclasses). All use the landscape in different ways.

In short, different types of use are planned and designed differently.

Factoring in landforms, motion, and user skill level can all impact how a trail line is developed. Yet what is considered great trail design for a hiker may not be suitable as an equestrian trail, and neither may be safe for mountain biking.

There are clear needs for safe, multiple-use trail design, but no standard or industry-recognized guidance has been established.

“People on e-bikes use the trail differently and the technology is evolving. Makes me wonder what are bikes going to be like in five years?”

Education Coordinator
International Mountain Bike Assoc.



Significant Investments in Infrastructure and Public Lands May Increase Funding for Trails.

Currently there is unparalleled policy momentum to both improve access to public lands and create jobs. Trails, high in demand and need, fit into both of these outcomes. For example, within the framework of the Infrastructure Investment and Jobs Act (IIJA), trails qualify as a sustainable and equitable mode of transportation. Additionally the Land and Water Conservation Fund (LWCF), with permanent funding through the recent passage of the Great American Outdoors Act (GAOA), has an overarching objective to improve access to public lands.

\$900 Million

LWCF Funding Through GAOA

“Nearly 1,300 trail projects are waiting for infrastructure funding to help put Americans back to work and meet the burgeoning trail use numbers coming out of the pandemic...creating over 83,000 months of work and putting over \$2 billion back into communities through wages, supplies and other trail spending”

- American Trails, 2020. “Shovel-ready Trail Project Survey” (conducted through Penn State’s Recreation, Park, and Tourism Management Program.)

The graph on the right represents a sample of potential federal funding sources for trails in western states with over 1/3 state land managed by federal agencies.

Sources:
 OR % of GDP - <https://www.bea.gov/news/2021/outdoor-recreation-satellite-account-us-and-states-2020>
 % Federally Managed - <https://sgp.fas.org/crs/misc/R42346.pdf>
 Annual LWCF - <https://www.doi.gov/pressreleases/secretary-bernhardt-announces-227-million-state-outdoor-recreation-and-conservation>

| | % of Gross Domestic Product from Outdoor Recreation | % of Federally Managed across all agencies | Land Water Conservation Fund increase access to public lands | Infrastructure Investment & Jobs Act multi-use transportation fund |
|------------|---|--|---|---|
| Nevada | 2.3% | 80.1% | \$2.89M | \$2.5B |
| Idaho | 2.7% | 61.9% | \$2.26M | \$2.0B |
| Utah | 2.5% | 61.3% | \$2.90M | \$2.4B |
| Wyoming | 3.4% | 46.7% | \$1.84M | \$1.8B |
| California | 1.5% | 45.4% | \$19.27M | \$25.3B |
| Arizona | 2.0% | 38.6% | \$4.56M | \$5B |

Significant Investments in Infrastructure and Public Lands May Increase Funding for Trails (Continued)

The use of any of these funds for trail network improvement also simultaneously contributes toward fulfillment of the “America the Beautiful Campaign”. This overarching policy, by Executive Order, calls for the conservation of 30% of the nation’s land and water by the year 2030 (30 x 30).

One of the outlined principles of this conservation effort is to “unlock

access for outdoor recreation, hunting, angling and beyond” and early focus recommendations include increasing access to public lands in “an equitable, well-managed, and sustainable manner”

This access is primarily offered through trails. They are not only pathways to recreation and avenues to health, they are stand-alone infrastructure assets with massive employment and economic benefit.

Key Observation

With more recognition that trails are a stand-alone asset with multiple benefits, increased trail investment would create more need for trail building services.

Effective Planning is Needed.

Numerous land managers express concern that master plan guidance for trail development is lacking. When trails are not a part of master planning, they more apt to be removed from budgets or face frustrating processing delays.

In one instance, a land manager reports that a master plan that is supposed to be rewritten every 20 years hasn’t been updated for 40 years. In another example, a county-wide regional master plan has been established but hasn’t been put through the proper agency review channels for endorsement.

Even if trails are on master plans, if the guidance is vague or not prioritized, some people simply do not feel comfortable furthering those projects.

While frustrating for trail builders or the public who want trails built and maintained, the pause is warranted.

The value of better connected trail systems is well-recognized, and effective planning is a prerequisite for that to happen. Master plans that are well thought out and broadly endorsed can guide trail development toward its full potential- connecting people to open spaces and new modes of transportation.

Master plans can also be used by trail planners and designers to align efforts as closely as possible to a broader vision, which can help projects gain needed support for approval.

“If there is no planning, it can really hold things back.”

Municipal Trails Coordinator

Demand for Formal Trails Certification

Contextually, the creation of a certification program becomes valuable when it not only addresses needed skills related to the labor of trail building, but also trains into other aspects of the business such as planning, design, budgeting, and other facets of broader project management.

Land Managers: Certification would help qualify the external workforce.

Obstacles: Land agencies are challenged to meet existing trail workload internally; New trails represent added future maintenance where no bandwidth exists; Lack of external contractor knowledge regarding process unnecessarily delays or prevents trails from being built; Lack of specific knowledge regarding the National Environmental Policy Act (NEPA) is a consistent pain point.

Value of Certification: For land managers, skill certifications would raise confidence levels that the work is being done professionally and is sustainable.

Employs Trail Builders: Yes, but budgets are limited to hire people who are dedicated to trail building or maintenance.

Will Invest in Certification: Internally, may train employees if future budgets allow. Externally, a certified trail building staff may become a scoring advantage for awarding RFP contracts.

Trail-Building Organizations: Lack of skilled workers limits efficiency.

Obstacles: High workforce turnover occurs with every build season and training must be a continual focus; Lack of specialization in the workforce for heavy machinery makes trail building less efficient than it should be; Lack of knowledge of requirements for planning and project management can slow down the process.

Value of Certification: For trail-building organizations, skill certifications would increase worker productivity and add efficiencies into the process of building trails, potentially at multiple layers. This could help trail-building organizations retain workers if certification broadens employment options.

Employs Trail-Builders: Yes, through seasonal positions. If builders can travel, the work can continue throughout the year.

Will Invest in Certification: Yes, if it is timed right and results in more productive build seasons.

Recreational Professionals: On-boarding non existent on trail-building processes.

Obstacles: Roles and responsibilities of local, county and state trails professionals require knowledge of the overall process for trail building, but also local regulations and laws; Newly formed positions have external outreach responsibilities yet there is no framework for this outreach beyond having mandated public meetings.

Value of Certification: Depending on certification focus areas, for recreational trails professional certification could add a needed option for professional development not only best do their jobs but also with required levels of diligence.

Employs Trail-Builders: Specific to location and dependent on tax-based or philanthropic funding mechanisms.

Payment for Certification: Would be a training cost for hiring organizations or a reimbursement expense for employer, which is usually a government entity.

"I need a contractor knowledgeable about process so there's not a lot of work put on my desk, and I will not pay for unskilled labor. I will only use my money to pay for professional help."

Recreation Manager | BLM

"I've got retirement. I've got disability insurance. I pay a going rate. I'll hire interns or develop apprenticeships. And I'd likely pay and have an employee go take a training for a week if it was timed right for us."

Founder | Trail Building Company

"When I was hired as a trails coordinator, I was the first in the state. Seems like there would be training and opportunities for that job title, but there weren't. I had to figure it out on my own."

Trails Coordinator | Government/
Municipality

Current State: Gap exists for vocation-level certification in trail building.

While there are opportunities to learn a lot about trails, a structured curriculum to develop a skill that could build toward a career path is exceedingly rare.

| | Strength | Weakness | Cost |
|--|--|---|---|
| Internal / Onboarding | New workers get basic skills understood. Workers are on-the-job while learning. | Takes a consistent level of internal energy and effort that could be applied to advancing the trail itself. | Internal operational expense |
| Consultant | Training is specific to trail environment or to the organizational need. | Can be expensive and limited in scope. | Up to \$10K |
| Land Management Agencies | Extensive offering of trail-building skills with sawyer certification available via the USFS. | Primarily information-based resources. Instructional workshops are not constant. | Free |
| American Trails Management Agencies | Informal training. Provides trail-building education through webinars and workshops. Field work opportunities unknown. | Incrementally offered. No defined tract for progression to certification or career path guidance. | Many courses are free |
| Trinidad State College (Colorado) – Trail Management and Construction Program | Solid formal training. Offers certification at three levels, including field experience. Comprehensive courses in construction and management. Job networking and placement is included. | Time intensive. Developed as a three-year program, 8 courses per year. Students are hired to work often after they get their first certificate, reducing attendance in Levels 2 or 3. | \$350 per class. \$3,000 per certification level. |
| Rockingham Community College (North Carolina) – TRAILS outreach | Associates Degree. Curriculum includes practical Trail-building skills including USFS-led chainsaw safety and mechanized equipment operation. | There is a core curriculum associated with this degree, with courses required that are not directly associated to the building of trails. | \$5,300 for all credits. |

Key Observation

Convenient, comprehensive training is the gap to fill for building a certification program. The most likely area of competition for the Toiyabe Trails Institute would likely come through continued education offerings at the community college or university level.

Potential Certification & Training Tracks

For organizations experiencing the pressure of increased demand for new trails, there are multiple areas of training that could guide certification development based on interviews with land management agencies, trail-building organizations, trails associations, and outdoor trail professionals.

Due to year-over-year turnover, the high-volume need for basic skill development will remain constant. This is the most prominent pain point in the trails industry. Addressing this need externally could reduce the time it takes to on-board new employees. A well-structured training that is timed right can boost productivity, with more workers starting the build season at a more skilled level.

Having more licensed heavy machine operators would also have direct benefit, allowing for more built progress and shorter project life cycles.

Training in functional areas may be of value to consider for certification programming as well. This includes skills like supervising teams, planning, design, and understanding environmental processes to ensure overall project success.

For those who are ready to move out of the heavy labor or frequent travel associated with trail building, but still want to be involved with the industry, these positions offer a potential career path to do so.

"I currently have \$9.8 million.... I need help. I am ready to hire professional trail builders. I need skilled labor."

Recreation Manager
Bureau of Land Management

It's Time to Leverage Tech.

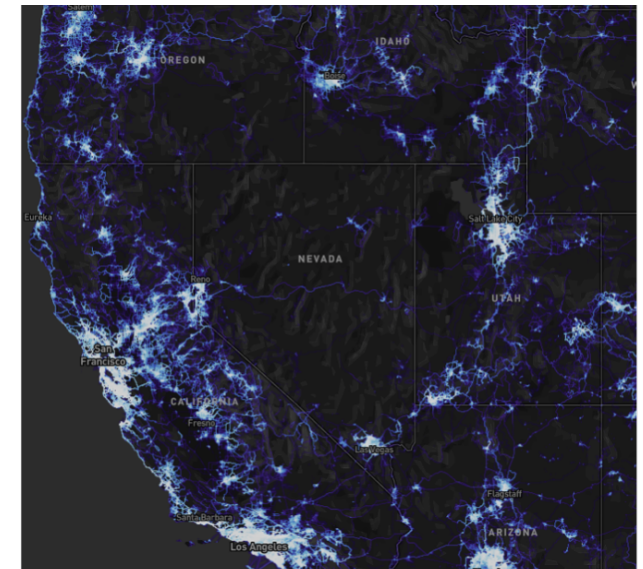
Many respondents identified the potential of technology-based skills for addressing industry needs.

For planning, understanding spatial data with the skill to use advanced GIS mapping tools was seen as an emerging requirement for trails.

For maintenance, conducting drone overviews to assess repairs needed was also seen as potential benefit to save time and expand ability to monitor more trails.

Potential value was also noted for the use of popular mobile applications such as AllTrails and Strava, with a combined 19 million users in the US. For example, app users could pinpoint where repairs are needed or hazards exist on trails.

Image: Trails use in the West over the past year, as captured with a 'heat map' on Stava via open source software.



Potential Areas for Training

While there are opportunities to learn a lot about trails, a structured curriculum toward a certification or a career path is exceedingly rare.

| Essentials | Specialized Operation | Planning & Design | Professional Development |
|--|---|---|---|
| <p>Fill baseline industry needs and provide marketable skills.</p> <p>Such as:</p> <ul style="list-style-type: none"> • Understanding soil layers • Assessing slopes • Working with vegetation • General hand tools • Corridor clearing • Water management and drainage • Wilderness First Responder <p>An onboarding approach that is most applicable in the first 1-3 year of trail building.</p> | <p>Licensure for heavy machinery operation and earth moving.</p> <p>Such as:</p> <ul style="list-style-type: none"> • Chainsaw • Trail dozers • Mini excavators • Micro-blasting • Technical trail features • Rigging / Highlining • Bridge construction • Wilderness First Responder <p>A continuation of skills for those builders who have a high level of trail-building knowledge.</p> | <p>Charting permit-ready, multi-use trails through varied landscapes.</p> <p>Such as:</p> <ul style="list-style-type: none"> • Research • NEPA process • Permitting by agency • Corridor planning • Multi-user design • Single-use segment design • Contracting • Stakeholder engagement <p>A training for those who understand trail use intrinsically and can work within constraints.</p> | <p>Adhering to agency and legal trails requirements.</p> <p>Such as:</p> <ul style="list-style-type: none"> • Project management • Information management • Supervising teams • Budgeting • Contract administration • Partnership collaboration • Agreement development • Policy/Directives/Law <p>For administrative professionals who could be new or not versed to industry requirements.</p> |

Note: Categories above have been informed through primary research. Professional Trail Builders Association, in conjunction with American Trails, is developing a large index of potential trail courses.

Key Observation

Certification offers workers a resume-building credential, increasing the likelihood that the time spent in trail building would be considered a worthwhile professional investment. Layered certifications could also offer a potential path to stay in the trail-building industry by expanding employment options.



Potential Partnerships

Many respondents see the immediate need for a training institute and expressed interest in remaining involved. These include:

Immediate Workforce Partnerships or Internships

- Bureau of Land Management (Ely, NV) with 60+ miles of funded winter and summer use trails.
- Sierra Butte Trail Stewardship with 600 miles of planned trails via the Lost Sierra trail network.
- Professional Trail Builders Association with members have limited ability to respond to RFPs due to labor needs.
- International Mountain Bike Association will have to create seven more crews to start work on approved RFPs.
- Singletrack Trails Company ramp-up every winter, moving from a 30-person build crew to a 75- to 90-person crew.

Potential Instructional Partnerships

- American Trails
- American Institute of Trail Planners
- Professional Trail Builders Association
- Federal Land Management Agencies

Key Observation

The network of organizations in the trail-building industry may represent future customers, employers, instructors, and potentially sources of endorsement and/or accreditation. Some may fill multiple categories. The importance of these relationships cannot be understated, and a strategic stakeholder outreach approach should be planned.



About this Report

This study was initiated and commissioned by the Great Basin Institute and the Nevada Division of Outdoor Recreation.

It is the continuation of effort to assess the viability of the Toiyabe Trails Institute to provide skilled training needed in the trails-building industry. The Institute would also contribute to the economic diversification resiliency of White Pine County, a rural and remote county with a land mass that is 94% federal public land.

This report was delivered by OnStrategy in collaboration with The Blueprint Collaborative, Good Standing Outreach, and Turning Point Incorporated.

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Thank you to the Great Basin Institute and Nevada Division of Outdoor Recreation for providing executive-level support for assisting with interview outreach, which is the foundation of this report.

Continued Study Areas

To continue building from the findings in this report, the following approaches may yield valuable insight:

1. Gather statistics and quantitative data regarding variation how hikers, mountain bikers, e-bikers and equestrians interact with trail design. Use this data to inform multi-modal trail planning and design curriculum.
2. Monitor and assess RFPs for trail use type and specifications to determine market-demand trends. Develop service offerings and associated training to scale this aspect of trail building.
3. Project the impact initiatives like America the Beautiful will have on trails, from increased demand for master planning to the need for enhanced public outreach.
4. Explore interest of trail app companies to leverage technology to maintain sustainability of trails, access to which is a central facet of their business model.

