

DECISION PAPER



Date: June 17, 2016

Issue: New Replacement Reserve Items - Ski Areas Trail and Slope Maintenance

Background:

As has been discussed with the General Plan Committee (see attached PIP), the past few drought winters have highlighted the importance of maintaining the assets that are our winter ski trails. Well maintained trails and slopes not only elongate our operating seasons adding critical revenues to the association’s financial results, but also reduce potential damage to our grooming machines and snowmobiles. Additionally, with over 20,000 member uses this past season at our winter ski operations, providing these recreational opportunities to our membership is critical. Currently, trail and slope maintenance funds have been accounted for in the association’s operating budget; approximately \$12k - \$15k annually for both ski operations. Identifying these assets in our reserve replacement schedule, affords the opportunity to appropriately fund trail and slope maintenance through the reserve fund. To assist in this matter, staff has drafted five year trail and slope maintenance plans for each winter operation. Maintenance projects include: mastication, tree thinning, rock removal, minor grading, drainage improvements, ground stabilization, and ongoing maintenance. Specific details are addressed in the attached *draft* plans. These plans include *rough* estimate costs for the planned projects which are summarized below to provide an idea of the potential impact to the reserve study.

Year	Downhill	Cross Country	Total
2016	\$59,000	\$53,200	\$112,200
2017	\$56,000	\$42,400	\$98,400
2018	\$36,750	\$23,000	\$59,750
2019	\$28,700	\$28,400	\$57,100
2020	\$28,700	\$16,000	\$44,700

Again, staff has estimated these totals based on historical information and will not know the exact resources needed until we seek input from contractors regarding the projects identified in the plans. Beyond 2020 is estimated to be in the \$20,000 to \$25,000 annual range. The approximatley \$12,000 to \$15,000 will be removed from the Operating Fund budget.

Options:

Option 1: Accept the concept of including the slopes and trails as assets for the association that are funded for maintenance through the reserve study, with *potential* funding levels as described above.

Option 2: Continue our current practice of budgeting limited funds in the operating budgets for each operation to address trail and slope maintenance issues.

Recommendation:

Staff recommends the approval of Option 1 above – adding ski trail and slope maintenance to the reserve study, as detailed in the attached Project Information Paper, with the intent to follow the plans for the maintenance as outlined in the attached *draft* slope and ski trail maintenance plans.

Prepared By: Robert McClendon and Sally Jones – Ski Area Managers /Miguel Sloane – Dir of Operations

Reviewed By: Bill Houdyshell – Forester

Reviewed By: Christina Thayer – Trails Manager

Reviewed By: Forrest Huisman – Dir of Capital Projects

Reviewed By: Michael Salmon – Dir of Finance

General Manager Approval: _____ **Date:** _____

PROJECT INFORMATION PAPER



June 6, 2016

Issue:

Summer Trail Grooming at Nordic and Downhill Ski Areas

Background:

During low-snow conditions, ski trails open earlier, and remain open longer, with regular summer grooming and removal of underbrush and obstacles, improving safety, seasonal visitation, and financial results.

Project Scope Detail:

Brush, rocks, and stumps will be removed by qualified vendors and necessary equipment.

Considerations:

1. Regulatory:
2. Service Level:
3. Gander Matrix:
4. Financial impact:
5. Health and Safety:
6. Alternatives available:

Prepared by: Director of Capital Projects, Forrest Huisman

Approved by: General Manager, Robb Etnyre _____ Date: _____

Approved by: General Plan Committee, Dwight Walker/Michael Sullivan _____ Date: _____

Approved by: Board of Directors, Steve Miller _____ Date: _____



Trail Maintenance and Mastication Plan – 2016-2020 - DRAFT

Tahoe Donner Downhill Ski Area

This plan is to address the next five years of the slope maintenance and mastication for the Downhill Ski Area. Several low snow seasons have illustrated the importance of well-maintained slopes to the ability of the ski area to operate.

Description: This plan is developed to address designated ski runs with a ground cover of native brush and grass, small fir/pine trees, rocks and stumps. Growth of brush and small trees requires more snow to open runs and machine groom. Brush, small trees and rocks are a hazard to skiers and riders, especially in low snow conditions, as exposed obstacles and hidden obstacles underneath un-compacted snow, as well as obstacles exposed through machined groomed snow. Maintaining brush and small tree growth can be accomplished through a program of tree and brush mastication and mechanical brush cutting. Areas between designated run, tree skiing areas, and other off-piste areas are overrun with large brush, willows and small fir/pine trees. These areas are only appropriate for skiing and riding during high snowfall years. Details about the various areas follow:

Front Side:

- Snowbird Run- 10 acres. Novice run, ground cover mainly native grass and brush, areas of exposed dirt, and a service road.
- Christy Bowl- 8 acres. Intermediate run; ground cover mainly native grass and brush.
- Race Course- 7 acres. Intermediate run; ground cover mainly brush, bordered by a tree island on right and dense trees on left.
- Gully- .5 acre. Intermediate run: ground cover thick native brush
- Dart- 1.2 acres. Intermediate run; ground cover of native brush, two small tree islands border either side.
- Scarlets- 3 acres- Intermediate run; ground cover of native grass, brush and plants, bordered by Eagle Rock chair line on right and small tree island near top left.
- Drop-in- .5 acre – Intermediate run: ground cover of native brush.
- Vista- 3.5 acres. Novice run; ground cover of native grass at top, native brush through mid and lower run.
- Donner Face – 4 acres. Advanced run : ground cover of native grass and brush
- King Size Park- 3 acres. Terrain park area: ground cover of native grass and brush.
- Mini Size Park- 1 acre. Terrain park area; gully with native grass and brush.

Backside:

- Mile Run- 9.5 acres. Novice run; groundcover of native grass and brush, woodchips, larger trees interspersed in the middle and a service road.
- Hans Down- 2.8 acres. Intermediate run; extremely rocky at top, ground cover mainly native grass and brush, a few small trees, bordered by dense trees on either side.
- Skips Plunge- 3 acres. Advanced run; open with trees and willows interspersed.
- Fire Break- 4 acres. Advanced run; extremely rock at top, ground cover mainly native brush with some small trees, bordered by dense trees on either side.
- Rocky Road
- Leary's Laugh- 1.7 acres. Intermediate run, ground cover a heavy mix of native brush and small trees, bordered by trees on either side.
- Bite size Park- 2.5 acres. Terrain park area
- Back Slide- 2.75 acres. Advance run; extremely rocky at top, ground cover mainly native brush and small trees, bordered by dense trees on either side.
- Walt's- 2.3 acres. Intermediate run; ground cover mainly native brush with some small trees and rocks throughout run, bordered by dense trees on either side.

Project Types: Each project type may require the services of a different contractor. Some projects may be completed with in-house labor.

- Mastication – Masticate to remove small trees and brush from areas designated in the plan.
- Drainage - Improve issues of riling and gullyng on service roads and associated runs by directing surface runoff to established seasonal runoff areas.
- Rock Removal - Remove larger rocks, on the surface and partially buried, to reduce hazards and minimize damage to grooming machines.
- Ground stabilization - Re-vegetate disturbed areas with native grass seed mix.
- Road Improvements - Install water bars and rolling dips to divert runoff damaging roads. Rebase and compact damaged road surfaces. Cover high traffic areas with wood chips to reduce dust and deflect water from rain events.
- Tree Removal - Identify and remove unhealthy and hazardous trees from designated runs and chair lines.
- Tree planting on hill - Identify areas to establish new stands for trees.

Plan Summary:

- Masticate to mechanically brush cut designated runs to reduce growth of brush, willows and small trees. This work will allow skiing/riding and machine grooming with less snow cover on designated runs.
- Masticate tree and brush growth between designated runs to facilitate skiing/riding in these areas.
- Masticate off-piste areas to reduce brush and small tree growth. Reduction of this growth can facilitate increased use of these areas for skiing and riding.

- Masticate and mechanical brush cutting the entire ski hill would be done in a revolving five-year cycle. Addressing different areas of the ski hill over five years will allow areas of high growth to be prioritized while making sure that all areas are treated before regrowth can become a problem again.
- Remove rocks in designated ski runs to reduce hazards and damage to snow grooming machines.
- Improve forest health by reducing undergrowth and reduce wildfire hazard by eliminating ladder fuels.

Plan Details:

Year 1: Total \$41,750 to \$59,000

- Mastication: Race Course, Dart, Leary Laugh, Walt's, Mile Run sides of trails, Gully, snowbird top skiers right. Total of acres 15 out of 120 skiable acres of mastication work done on trails and open areas. Estimate \$1,250 to \$2,400 per acre. Price range running from \$18,750 to \$36,000 for this mastication project.
- Rock Removal: Snowbird, Mile Run and Bite Size. Using in house skid-steer, loader and relocate to drainage areas. Estimated fuel, labor, and equipment usage \$5,000.
- Drainage Improvements: Water drainage swales located at bottom of hill, Snowbird, in front of deck and mile run near wells. Estimate includes rental of mini excavator and additional rock for drainage areas \$15,000.
- Ground Stabilization: Chip and Seed dirt areas.
- Tree Removal: 5 large trees located on mile run to improve beginner terrain. \$3,000

Year 2: Total \$41,750 to \$56,000

- Mastication: Bowl, Vista, Donner Face, Non-trailed areas Race Course to Firebreak. Total of acres 15 out of 120 skiable acres of mastication work done on trails and open areas. Estimate \$1,250 to \$2,400 per acre. Price range running from \$18,750 to \$36,000 for this mastication project.
- Rock Removal: Bowl, Walt's, race course, estimated fuel, labor, and equipment usage \$5,000.
- Drainage Improvements: Water drainage swells located along mile run to base area, bowl drainage, and mile run road improvements. Estimate includes rental of mini excavator and additional rock for drainage areas \$10,000
- Ground Stabilization: Chip and seed dirt areas.
- Tree Removal: Thinning area between Backside and Hans Down. Estimated at \$5,000.

Year 3: Total \$25,000 to \$36,750

- Mastication: Backslide, Drop-in, thin between Mile run and Walt's. Total of acres 10 out of 120 skiable acres of mastication work done on trails and open areas. Estimate \$1,250 to \$2,400 per acre. Price range running from \$12,250 to \$24,000 for this mastication project.
- Rock Removal: Rock removal as needed \$5,000.
- Drainage Improvements: Maintenance to drainage \$5000.
- Ground Stabilization: Chip and seed dirt areas.
- Tree Removal: Remove dead trees on ski area property or tree that cause risk in the future. Estimated at \$2,500.

Year 4: Total \$19,500 to \$28,700

- Mastication: King Size, Snowbird, Mini Size, and Bite Size. Total of acres 8 out of 120 skiable acres of mastication work done on trails and open areas. Estimate \$1,250 to \$2,400 per acre. Price range running from \$10,000 to \$19,200 for this mastication project.
- Rock Removal: Rock removal as needed \$2,000.
- Drainage Improvements: Maintenance to drainage \$5000.
- Ground Stabilization: Chip and seed dirt areas.
- Tree Removal: Remove dead trees on ski area property or tree that cause risk in the future. Estimated at \$2,500.

Year 5: Total \$19,500 to \$28,700

- Mastication: Race Course, Dart, Mile run. Total of acres 8 out of 120 skiable acres of mastication work done on trails and open areas. Estimate \$1,250 to \$2,400 per acre. Price range running from \$10,000 to \$19,200 for this mastication project.
- Rock Removal: Rock removal as needed \$2,000.
- Drainage Improvements: Maintenance to drainage \$5000.
- Ground Stabilization: Chip and seed dirt areas.
- Tree Removal: Remove dead trees on ski area property or tree that cause risk in the future. Estimated at \$2,500.



Trail Maintenance and Mastication Plan – 2016 to 2020 - DRAFT

Tahoe Donner Cross Country Ski Area

This plan is to address the next five years of the ski trail maintenance and mastication for the Cross Country Ski Area. Several low snow seasons have illustrated the importance of well-maintained ski trails to the ability of the ski area to operate in an efficient manner.

Description: Approximately 100km of ski trails on 3000 acres with several dozens of locations with a ground cover of native brush and grass, small fir/pine trees, rocks and stumps. Growth of brush and small trees requires more snow to open trails. Brush, large and small trees, limbs, and rocks are a hazard to skiers and have caused significant damage to grooming equipment and snowmobiles in low snow conditions. There are also several areas throughout the system where drainage impact the ability to maintain suitable ski conditions.

Home Range

- 22 ski trails and 4 snow shoe trails.
- Mostly beginner and intermediate terrain with 2 advanced trails.
- Approximately 33km of trails.

Sunrise

- 12 ski trails and 2 snow shoe trails.
- Mostly intermediate and advanced terrain.
- Approximately 34km of trails

Euer Valley

- 16 ski trails and 2 snow shoe trails.
- A mix of beginner, intermediate and advanced terrain.
- Approximately 33km of trails.

Project Types: Each project type may require the services of a different contractor. Some projects may be completed with in-house labor.

- Mastication – Masticate roadways to remove small trees and brush 10-15 feet from the edge of trails.
- Rock Removal- Remove larger rocks from the road surface and sides to reduce hazards and minimize damage to grooming machines.

- Tree Removal - Identify and remove unhealthy and hazardous trees from designated ski trails to reduce hazards and minimize damage to grooming machines.
- Drainage - Improve issues of riling and gulying on service roads that are also ski trails by directing surface runoff to established seasonal runoff areas. Improve areas runoff where high flow during rain events washes away snow.
- Grading – minor grading to widen or repair roads.
- Ground stabilization - Re-vegetate areas with native grass seed mix where necessary.
- Herbicide Application – Spray masticated locations to maintain brush levels.

Plan Summary:

- Masticate and mechanically brush cut designated locations to reduce growth of brush, willows and trees. Apply herbicide as necessary.
- Limb designated locations to reduce damage to the grooming equipment.
- Remove trees from several designated locations next to trails to reduce hazards and damage to snow grooming machines.
- Remove rocks in and next to designated locations to reduce hazards and damage to snow grooming machines.
- Widen trails to accommodate homologation requirements for FIS races.
- Improve drainage in several areas throughout the trail system.
- Improve forest health by reducing undergrowth and reduce wildfire hazard by eliminating ladder fuels.

Plan Details:

Year 1: Total \$42,950 - \$55,200

- Mastication: Mastication to occur on prioritized trails in the Home Range and Sunrise trail systems – Last Round Up, Hastings, and Firewalker. Estimated at 7 acres (this equals 3.5 km of trail masticated at 15 feet from edge of trail). Estimate \$1,750 to \$2,100 per acre. Cost estimate - \$12,250 – \$14,700
- Rock Removal: Rock removal to occur at prioritized locations throughout the entire trail system. Estimate includes equipment rental, fuel, labor, erosion control, and contingency. Cost estimate - \$35,000.
- Drainage Improvements: Prosser Creek crossing improvement to the existing bridges. Estimate includes materials and labor. Cost estimate - \$2,000
- Ground Stabilization: Chip and seed dirt areas. Cost estimate - \$500
- Tree Removal: Tree and stump removal to occur at identified areas throughout the trail system. These are high priority obstacles. Cost estimate - \$3,000

Year 2: Total \$39,250 to \$42,400

- Mastication: Mastication to occur on prioritized trails in the Home Range and Sunrise trail systems – Crazy Horse, Dogs in Space, and Blue Extra. Estimated at 9 acres (this

equals 5.5 km of trail masticated at 15 feet from edge of trail). Estimate \$1,750 to \$2,100 per acre. Cost estimate - \$15,750 – \$18,900

- Drainage Improvements:
 - Water drainage improvements in the Home Range trail system at prioritized locations – North Fork Return and Big Dipper and Aspen intersection. Estimate includes equipment rental, fuel, labor, erosion control, and additional rock for drainage areas. May require a permit. Cost estimate - \$10,000
 - Drainage Improvements: Water drainage improvements and water crossing improvements in the Euer Valley trail system at prioritized locations – Coyote and Piate. Cost estimate - \$5,000.
- Ground Stabilization: Chip and seed dirt areas. Cost estimate - \$500.
- Tree Removal: Removal of 18-20 large trees and ~20 small trees on Euer Valley Rd. - north. Estimated at \$8,000.

Year 3: Total \$21,250 to \$23,000

- Mastication: Mastication to occur on prioritized trails in the Home Range trail system – Sundance, Boot Hill, and White Lightning. Estimated at 5 acres (this equals 2.5 km of trail masticated at 15 feet from edge of trail). Estimate \$1,750 to \$2,100 per acre. Cost estimate - \$8,750 – \$10,500.
- Grading: Widening of Sundance and White Lightning to meet FIS homologation standards, to take place in very limited and specific locations. A permit may be required for this project. Cost estimate - \$6,000.
- Herbicide Application: Apply herbicide to year 1 mastication locations. - \$1,000
- Ground Stabilization: Chip and seed dirt areas. Estimated cost - \$500
- Tree Removal: Removal of 6-8 trees in the Sunrise trail system – Far Side. Estimated at \$5,000.

Year 4: Total \$25,250 to \$28,400

- Mastication: Mastication to occur on prioritized trails in the Euer Valley trail system – I'm OK, Miller Time, Coyote. Estimated at 9 acres (this equals 4.5 km of trail masticated at 15 feet from edge of trail). Estimate \$1,750 to \$2,100 per acre. Cost estimate - \$15,750 – \$18,900.
- Drainage Improvements: Maintenance to previous drainage improvements. Cost estimate - \$3,000.
- Herbicide Application: Apply herbicide to year 2 mastication locations. - \$1,000
- Ground Stabilization: Chip and seed dirt areas. \$500
- Tree Removal: Removal of trees in the Euer Valley trail system – Crab Tree Canyon and Showdown. Estimated at \$5,000.

Year 5: Total \$14,250 to \$16,000

- Mastication: Mastication to occur on prioritized trails in the Sunrise trail system – I'm OK, Drifter, Andromeda. Estimated at 5 acres (this equals 2.5 km of trail masticated at

15 feet from edge of trail). Estimate \$1,750 to \$2,100 per acre. Cost estimate - \$8,750 – \$10,500.

- Drainage Improvements: Maintenance to previous drainage improvements. Cost estimate - \$3,000.
- Herbicide Application: Apply herbicide to year 3 mastication locations. - \$1,000
- Ground Stabilization: Chip and seed dirt areas. \$500
- Tree Removal: Removal of 2-3 trees in the Home Range trail system – Lion’s Leap. Estimated at \$1,000.

Draft