



# High Mountain Arborist

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**100 Callahan Tree Survey Addendum #1:**

**Tree Replacement Plan Recommendations**

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**For**

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**On**

**6/17/2021**

## **Introduction**

This tree survey report is an addendum to the report dated 1/18/2021. This is intended to provide a tree replacement plan for the development project at 100 Callahan in Mammoth Lakes and addresses TOML replacement requirements for trees removed due to new construction. In addition it is my hope that this information will also provide practical guidelines, tailored specifically to this project, for maintaining a safe, enjoyable and sustainable urban forest landscape in a community defined by not only by it's natural beauty, but also a specific set of environmental challenges. These challenges in the Mammoth area are endemic to both it's proximity to a wild-land-urban interface and an arid climate. Thus a planned landscape involving trees underlines a need to address sustainable forest health practices compatible with existing natural resource limitations, defensible space and water conservation.

## **Findings**

Although there are no exceptional tree specimens on the property, as previously noted in the tree survey report, there are a few high quality trees worth retaining. Before construction takes place these trees will be clearly marked with green flagging so as to avoid confusion. According to my count on the site map, there are approximately 410 trees required for removal due to new construction involving buildings, roads and other infrastructure. There are also however 212 trees previously marked with blue paint that were assessed as either dead or dying. Unfortunately a site visit on 6/17/2021 reveals yet more trees in decline and in need of removal. There is the result of a significant outbreak of bark beetles (quite likely both turpentine beetles and Jeffery Pine beetles) that is active and adversely affecting this tree population. Considering the current drought conditions and early time of year, I expect this outbreak to progress through the growing season and more trees are at certain risk. These diseased trees should be removed as soon as possible to prevent further damage to trees in the area. The majority of these trees, with some exceptions are less than 50 years old, and despite fuels reduction work in recent years, there are still areas of high density for a mixed conifer forest stand of this type. Generally speaking a spacing of around 20 feet between trees in a post-thinned mixed-conifer forest is appropriate. I have based the below recommendations on the current forest stand conditions outlined here.

A realistic and sustainable tree replacement plan needs to be based on available planting sites. Any landscape will have a carrying capacity of sorts and as newly planted trees grow, they will require space to maintain health and reach maturity. An densely vegetated landscape in an arid mixed-conifer ecosystem becomes a fuels hazard for wildfire, and requires large quantities of water to maintain. A 1:1 tree replacement strategy here does not seem practical. On the other hand this is an opportunity to plan a landscape with new trees in appropriate sites. In this situation, a philosophy of simply maximizing a sustainable green space according to local forest ecosystem limitations seems to apply. The newly built neighborhood will have 18 units. Given the variables outlined above, planting in the realm of 4-6 new trees per unit according to the availability of adequate planting sites is likely appropriate. This will hopefully compliment existing retained trees and create biodiversity in the landscape. A few planning principals to keep in mind follow general rules of maintaining healthy tree and vegetation stocks in the urban forest environment: Adequate tree spacing, consider tree size at maturity, regular maintenance requirements, defensible space and tree diversity (Santamour's 10-20-30 rule). These principals ultimately point to the importance of tree site selection in relation to the overall landscape. Tree diversity addresses the benefits a tree population that spans a range of species, size and tree age . A major challenge to our area is related to available tree types that grow successfully in Mammoth. This is largely due to the relatively short growing season, and the high altitude and mountain climate which places additional stress factors to many typical landscape trees. I would suggest simply assessing available resources and aim to implement the above principals as much as possible.

## Recommendations

The tree replacement plan should include 72-110 trees. Along with tree type, perhaps the most important aspect of this plan is site selection. Select tree planting sites away from buildings and in areas that provide adequate space for growth of the selected tree species. Matching the tree to the site is crucially important. Adequate defensible space for the development should also be considered. I would suggest consulting the CALFIRE recommendations and specifications on defensible space. In addition, consider planting indigenous tree species that tolerate drought conditions if possible (such as the Jeffery Pine if a large tree is desired.) Try and choose tree types that fit the landscape goals without over crowding. For example, Aspens will often vigorously reproduce through root sprouting, so keep that in mind while selecting a location for this tree type. Consult the TOML recommended tree list for other ideas and suggestions. Also keep in mind water requirements of new trees. The successful establishment of new trees requires irrigation. For trees, drip irrigation is superior to sprinkler-type emitters, which tend to spread water superficially leading to evaporation while causing potentially damaging mildew issues on stems and trunks. I would recommend mulching new trees (avoid mulching against the trunk) with around 2” of wood chips while avoiding bark-type mulch. This will conserve water resources by reducing watering intervals, protect the critical root zone and help prevent erosion. In general following a simple quality over quantity principal here will reveal a newly treed landscape which is healthy, resistant to insect pests, use less water, protect buildings and infrastructure and be wild fire resistant.

In closing it is worth mentioning the importance of tree protection zones. A tree replacement plan integrates new trees into an environment of existing trees that have been retained for their value in the landscape. Thus any retained trees close to construction activity should be protected as valuable assets, with the added benefit that they are indigenous, well adapted and if well cared for will provide enjoyment for many years to come. All too often construction activities cause mechanical damage, root damage, root loss, or soil compaction. This in turn leads not only to tree decline but tree mortality, and costly tree removal work later on. An ISA Certified Arborist can assist in setting up specifications for the TPZ's, monitor for potential issues, and make recommendations leading to a successful tree replacement project.

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