

Suggestions to the subjects of Amendment of the Town of Brighton Code, Section 19.72.110 TREE AND VEGETATION PROTECTION:

1. Consider to the purpose statement - **Recognize that hazards are associated with working on trees near high voltage overhead lines, along highways and in urbanized settings.** *Perhaps there is a potential to integrate recognition of Utah Code Title 54; Chapter 83 into the ordinance. The town is eligible to grant or maintain franchise to the electric and telecommunication utilities I expect. The high voltage overhead line infrastructure is a common issue of concern for many affected stakeholders. UDOT is also involved in highway regulation, including traffic control operations that may need to be employed due to the movement of tree materials on the roadway or trees dislodging from private property onto the public rights-of-way.*
2. **Consider the risks and potential negative outcomes of felling “dead”-standing trees and why it might not be strategic to exclude the action as a purpose of the ordinance.** *In the built, or to-be-built development setting, a tree strike occurrence may be realized through felling operations. Property owners, or their contractors, may be influenced by self-remedy solutions to perceived liabilities and risk mitigations. Brighton might consider an arborist licensure, bonding and insurance requirement for conducting business within the community - the action might be premised on the concept that tree felling risks might include live and dead-standing trees both. Felling dead-standing trees may be as, or riskier, than felling live trees based on the decayed condition of wood and its inherent instability. Felled trees both live and dead, can unfortunately impact structures, traffic control signs, roadways, and mailboxes. Property damage to a neighbor’s resources may result from felling dead-standing trees – including striking and injuring substantial live trees that the ordinance is constructed to preserve.*
3. **Consider expanding the prescription of nursery stock types to include container-grown seedlings and sapling products.** *Perhaps there is potential to reference to ANSI Z60.1 -2014 as a source of common terminology and nursery industry specifications, including Sections 1, 3, and 10 in that standard. For example – seedling stem diameter is specified according to the crown height measure.*

*The historic use of bare root seedlings to foster tree cover is relevant to Brighton and the surrounding area. The last great push to use seedlings to reforest Big Cottonwood Canyon was achieved by the placement and output of the federal nursery situated at The Spruces. That site enabled a bareroot tree seedling harvest and distribution scheme that was significantly more localized and in-tune with seasonal seedling attributes (cold hardening and dormancy) and conditions of the outplanting environment base, largely based on the advantage of geographic proximity.*

“The natural selection that occurs after outplanting can be attributed to nursery practices to the extent that the nursery has engendered a growth rhythm or physiological balance incompatible to that required by the plantation environment. For example, the proportion of nutrients allocated to roots, shoots, and needles may not be appropriate for the season or conditions at outplanting. Or the plant’s dormancy cycle may be slightly out of phase with existing

environmental conditions at outplanting”. (Forest Nursery Manual, Production of Bareroot Seedlings, Forest Research Laboratory, Oregon State University, Corvallis. 1984)

*Can you gain those same bareroot seedling use advantages reflective of the past? – it depends on many detailed planning and production requirements, as well as unforeseen situational risks that must be addressed to sustain the quality of the seedling. The challenge with conifer seedlings and saplings is that their physical appearance does not immediately convey physiological depletion, disruption, or dysfunction - a detrimental occurrence that perhaps took place up to 6-weeks prior, may not be discovered for several weeks after the seedling has been handled and outplanted. There is great trust reliance that accompanies the acceptance and use of seedlings. Bareroot seedlings require protections and handling standards – freeze protection, physical protection from crushing, root structure moisture availability, root structure UV light avoidance and heating avoidance to name a few. Container-grown stock does mitigate some of the above mentioned needs for protection, but not completely.*

*The bareroot seedling production sector has significantly fewer operators compared to the number of nurseries that produce and distribute container-grown stock. Container-grown stock may enable an extended outplanting period by weeks, including a fall-season period that generally don't factor well with bareroot stock use prescriptions. Container-grown stock allowances may invite small-scale nursery production volumes, whereas bareroot seedling crops require extensive field cropping area to recover operational costs with are then offset by sales volume. Bareroot seedling crop products may not offer or enhance the potential for localized tree genetics or seed-zone advantage. The allowance of container-grown seedlings or saplings may enable property owners and Brighton Town to achieve objectives of the ordinance more readily.*

4. **Consider prescribing a Critical Root Zone, or a Root Protection Zone while promoting the retention and preservation of significant trees.** *The “drip line” reach of tree branches may be constrained by competition between trees and may not contribute to a meaningful protection zone. In urban settings, there is a suggested alternative formulation to establish and honor a protection zone - The area equates to 1- foot radius per inch-diameter measured at Diameter Breast Height. Example; a 16” DBH tree would require 16 ft. radius distance of exclusion surrounding the trunk of the tree. The total square foot area would equate to 803 square ft. ANSI a300-2014 – Tree, Shrub, and other Woody Plant Maintenance of Trees and Shrubs During Site Planning, Site Development and Construction, may be relevant to understand and embrace as a more detailed specification within the community.*
5. **Consider situation-based crown and branch pruning as a mitigation to root destruction in limited circumstances, if not abandoning the prescription entirely.** *The practice of crown reduction to alleviate water-loss potential may be situational. The effects of the practice are not well-understood in a high-elevation (short growing season) native conifer tree type from my perspective. Conifer tree crown reduction should be considered with caution because of the tree form and the concentration of important growth buds at branch tips. Additionally, conifer trees than grow in close companionship to other trees may have experienced a natural crown*

*reduction already because of a prolonged competitive setting. Further crown reduction through pruning may diminish a trees photosynthesis potential and the status of a balanced energy cycle.*

- 6. Consider prescribing the removal, or significant modification of blue and Engelmann spruce green-tree trunk wood (significant tree) to lessen potential for insect brood sites and subsequent build-up of spruce beetle and Ips bark beetle populations. Consider the removal of chipped – green branch materials from the community to reduce natural volatile compounds that could attract bark beetles to sites where host trees are present.**
- 7. Consider the designation of a Town Arborist or Town Tree Warden to accomplish provisions of the ordinance.**
- 8. Consider describing a tree’s live crown decline estimate - that could be applied to qualify if a tree in a “dying” condition. Also consider the progression of tree lean as an allowance for removal. Would >50% successive live branch decline be a reasonable assessment to qualify the term “dying”? Forest tree insects can cause acute tree damage and a branch/crown decline as described above. Balsam woolly adelgid (BWA) causes a slower, but steady decline (chronic) through branch tissue and bud disruption. BWA is present in the community and mortality is being observed. As well, a tree can develop a lean by natural causes like wind – thus demonstrating root dysfunction as a precursor to acute death or structural tree failure.**
- 9. Consider designating the Trunk Replacement Method as the standard for appraising Landscape tree monetary value. Consider prescribing a Tree Risk Assessment to be allowed/performed in conjunction with a tree valuation appraisal.**

*The Trunk Replacement Method generally adapts more realistically to larger diameter trees. It is an appraisal technique for landscape trees and generally should be used for appraising trees in cultivated, developed landscapes where the tree(s) lend considerable aesthetic contribution and functional contribution to the site. The Trunk Replacement Formula valuation takes into consideration the largest available nursery stock, which in the industry, is 2.4-inch trunk caliper measure. The ordinance suggests that planting seedlings is the prescribed solution to mitigate loss of significant trees. This may result in a \$480 appraised value reduction (per significant tree) because seedlings are obviously cheaper and less costly to install. Refer to Species Ratings for Landscape Tree Appraisal in Utah – June 2018 for more detail. Periodic updates to that Fact Sheet are provided by USU Forestry Extension.*

*With respect to the defensible space activities allocated in the ordinance, how might the resulting modified environments in the Home Defense Zone 2 affect the structural stability of trees within the same zone or in Zone 3? I perceive there could be unintended consequences that might challenge the 80% canopy coverage area objective coordinated with the significant tree preservation intent (if significant specimen trees are large and mature). Spruce are particularly vulnerable to windthrow. However, open-grown spruce with full crowns do demonstrate acclimation and resistance to routine wind events. I perceive that open grown spruce sites that present 80% canopy coverage are rare exceptions. Mature conifer trees may offer challenge*

*because of the role of tree decay organisms (fungi) diminishing wood quality required for structural stability. Tree decay diseases may be present in the conductive tissues of trees, including roots. When wood decays affecting tree trunks and roots are combined with wind forces common to the mountainous landform, tree instability may be the outcome.*

*If, and when, a trees structural stability is of concern, it is recommended that a Tree Risk Assessment be performed prior to a valuation appraisal. Does that imply that a structurally unstable tree has no value? Perhaps when a trees liability costs out perform its appraised valuation. The assessment of tree risk could be determined by employing a Level 2 – Basic Tree Risk Assessment or Level 3 – Advanced Tree Risk Assessment. Refer to ANSI A300 - Tree Risk Assessment Standard a. Tree Failure – Part 9 (2017).*

- 10. Consider pertinent parts of the ANSI A300 Tree Care Operations and companion Best Management Practice publications while formulating ordinance, plans and specifications.**
- 11. Employ ANSI Z133.1 Arboricultural Operations – Safety Requirements in the assignment of work conducted by Town of Brighton employees, contracted service providers doing tree work on behalf of the town government, and volunteers. *This would be applicable to day-to-day work as well as tree emergencies or natural disasters, like a catastrophic wind event or insect epidemic. This may help buffer town against a claim of negligence and more importantly, broaden the scope of heath, safety and well-bring expressed.***
- 12. Consider the potential to require that pesticide application work require both Utah Department of Agriculture and Food pesticide applicator licensure for Ornamental and Turf category and Forest category when work is conducted in the town.**
- 13. Consider establishing a Definitions section to the ordinance.**