

The Need for Urgent Action in the WA WUI Code

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Executive Summary

Key recommendation: Defer the defensible space requirements until the next code cycle, for numerous reasons including avoiding much turmoil.

The defensible space portion of the newly adopted WUI code is already creating much confusion and frustration in local agencies who have invested years in developing urban tree canopy management plans that aim to increase tree canopy retention. It also conflicts with WA State's adopted Growth Management Act, Climate Action Plan and Urban Forestry Management Plan as well as a number of other state programs.

The Legislature asked for WUIC with requirements for building hardening, plus a WUI map to guide where it should apply. They did not ask for defensible spaces. Expect a growing uproar by local policymakers, their planning staff, as well as a wide-array of citizens. Whole professions (i.e. the building industry, landscaping industry, city planning, code enforcement) will have to make widespread systems changes.

By deferring the defensible space requirements until the next code cycle, the SBCC can avoid much of the above turmoil. During the next three-year code cycle, all climate/forest/community impacts plus potential conflicts with other Washington State codes can be better examined. That period will also provide time for an *essential* education program to help local jurisdictions and property owners understand their new responsibilities.

Detailed Recommendations & Issues

A) Apply a fuel-based map, not DNR's WUI map.

DNR's Wildland Urban Interface map was developed by DNR staff **to guide *only where* wildland structure hardening should occur, not the removal of trees, shrubs and habitat.** DNR staff have expressed dismay at the unexpected broader use of the map to require defensible space around residences. **The map is not modeled on landscape fuel levels as other states such as California have done for this purpose.** As a result, the map applies fire protections in areas that are not truly at risk for fires and also applies solutions to areas that do not need them. **Washington needs a fuel-based, parcel-level, locally-refinable map** for applying where science-based defensible space buffers should occur.

B) Align with other state goals, policies, and programs.

The defensible space portion of the WUI code conflicts with other Washington State's goals, policies and programs, such as:

- WA State Urban Forest Management Plan ([RCW 76.15.005](#))
- WA State Climate Commitment Act's [carbon sequestration goals](#)
- WA State Growth Management Act, [Chapter 365-190](#) which requires counties to protect habitat, including wetlands and critical areas, and to prepare for climate change.
- WA State DNR's [Small Forest Landowner Program](#)

C) Consider the climate impacts.

We are in a new climate era where atmospheric carbon reduction is essential by decarbonizing our energy and transportation sectors **and by increasing tree canopy to draw down the carbon that's already in the atmosphere.** The new WUI code flies in the face of that urgent need and contradicts climate mitigation plans by numerous local jurisdictions. Significant carbon will be released, and many decades (or longer) of carbon capture will be eliminated, from the immense amount of tree clearing this code calls for. **This will offset a significant portion of the emission savings of the de-gasification portions of the new code.** The net carbon impact should be calculated by the TAG and considered by the BGCC before making such code decisions. Additionally, the defensible space portion of the new code will create unintended higher risks for costly flooding and mudslides on properties in our new era of increased torrential rains and higher-speed windstorms.

The Quick Fix: One Key Change

It is urgent to address the above now, not in three years. The unintended negative consequences of the code as passed are immense, especially with the state's continued population growth and building boom. Defensible space portions of the code ignore its drastic climate, environmental, urban forestry and other impacts. Tree codes that have been developed and invested in by numerous communities over many years will be overrun.

Adverse effects to new properties cannot be reversed. Nor can the lost benefits of *hundreds of thousands* of trees statewide that will be eliminated by removing so many so widely, especially on parcels which are not truly with significant wildfire risk.

Fortunately, there is a relatively painless way to mitigate this pending impact before March that will not require a great deal of SBCC work:

Withdraw all defensible space requirements (primarily Sections 603 and 604) for this code revision cycle, allowing sufficient time in the next code cycle for the SBCC to...

- a) have DNR develop a **wildfire fuel load-specific map** for potential defensible space application instead of relying on the current WUI map,
- b) become more educated about the latest fire science and **the tree/forest/climate impacts in our region** of potential WUI code elements,
- c) figure out a legally-sound process to **resolve conflicts with other WA State codes, goals, and policies**,
- d) examine additional WUI-related refinements to bring forward for later consideration, and
- e) develop *essential* **education materials and an outreach program** to help local jurisdictions and property owners understand the new rules and responsibilities.

For convenient reference, **Appendix 1** summarizes the unintended consequences of irreplaceable tree loss that the current code would create. **Appendix 2** summarizes all WUI code sections about defensible space and/or tree canopy removal.

Thank you.

Appendix 1

Unintended Consequences of Irreplaceable Tree Loss

Climate Change Impacts

1. Everything that climate science is telling us runs in the opposite direction of this policy. One of the critical tipping points is forests' inability to recover from multiple stressors of climate change. Forest fires, but also massive clear cutting, release huge amounts of carbon, thereby heating up the planet and driving more forest fires. The WWUIC will, ironically, lead to more of what the policy is trying to prevent.
2. "The world's total yearly emissions of carbon are about 11 billion tons. However, the net annual increase in elemental carbon in the atmosphere is about 5.4 billion tons, because 5.8 billion tons are sequestered by land, plants and ocean. Of the three, forests are the greatest remover of carbon dioxide on the planet." This is the work of trees everywhere and why we must protect them.

Water Impacts

3. Trees are protective against drought because they draw water into the soil and form shaded areas that are less evaporative of soil.
4. Trees also provide storm water management. Having a regular-sized house lot without trees will lead to more flooding – especially as climate change leads to more intense rainstorms.
5. Clear-cuts on hilled lots can lead to mudslides and move water downhill rather than into aquifers for water recharge.

Irreplaceable Trees

6. Trees are becoming much more vulnerable to heat and pests under climate change. We are losing them under climate change at an alarming rate. We cannot afford this sort of additional loss required by the WWUIC code amendments.
7. Saplings are dying in this heat – it is harder to successfully "replant." That will not be the solution to cutting existing trees.
8. The newest tree science of the last decade shows the largest trees, not the young ones, draw down and store the most carbon per year. Thus, cutting big older trees, even with the intention of replanting, is greenhouse gas (GHG) negative.

Heating and Cooling Benefits Lost

9. Heavily treed areas can in summer heat make the temperature 3 to 10 degrees cooler. As temperatures increase with climate change, we need this cooling. Running air conditioners instead leads to more GHG-producing electrical use and has the potential to overload the electrical grid.
10. Similarly, studies show that having a tree within 6 feet of a house produces a slight warming effect in the winter (protecting against winds) and that year-round there are less heating and cooling costs when a tree is close to a house.

Other Eco Services Lost

11. Trees draw down pollutants, and it is a well-established scientific fact that people living in neighborhoods with trees have lower asthma rates and fewer cardiovascular and other health problems than those living in neighborhoods with few trees.
12. Studies also show that being able to see even one tree out your window or walk among trees is protective against depression.
13. We also estimate the amendments will result in a significant loss of habitat for animals, birds and insects, many already threatened by climate change.

Level of trees lost in the next 20 years

14. WA state is predicted to go from a current population of 7 million in 2020 to 9 million in 2040 with a 27% increase in population—making it the 7th largest growing state in the US. This will result in a corresponding amount of residential development. We estimate that the amount of tree loss mandated by the new amendments will result in significant release of greenhouse gas.

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Appendix 2: Washington WUI Code Tree Canopy-Related Sections

SECTION 301: FIRE HAZARD SEVERITY

301.1 Scope. Wildland urban interface areas shall be determined using the Washington wildland urban interface map (WA-WUI). WA-WUI designations are permitted to be modified, upon approval of a finding of fact in accordance with Section 302. User note: The WA-WUI map is available at <https://data-wadnr.opendata.arcgis.com/apps/wildland-urbaninterface-viewing-app/explore>

301.2 Construction in wildland-urban interface or intermix areas. Where a structure is proposed to be constructed in an area designated by the WA-WUI map as wildland-urban interface or intermix, the construction shall comply with the provisions of this code.

301.3 Construction in wildlands areas. Where a structure is proposed to be constructed in an area designated by the WA-WUI map as wildlands, the applicable wildland urban interface area designation shall be based on a finding of fact in accordance with Section 302.

SECTION 302: FIRE HAZARD SEVERITY

302.2 Finding of fact. The applicable wildland urban interface designation shall be based on a finding of fact. The finding of fact shall comply with the provisions of Appendix E or is permitted to be based on the worksheet and procedures in Section 302.3.

302.3 Simplified wildland urban interface designation worksheet. The wildland urban interface designation is permitted to be established using the procedure outlined in Figure 302(1), using the worksheet in Figure 302(2).

302.3.1 Area to be evaluated. For the purposes of establishing structure and vegetation densities, the area covered by a square of 1320 feet on a side (40 acres) shall be evaluated. The square area shall be located such that the site under consideration is in its center, except where the square would overlap a water body shown on the WA-WUI map with a surface area greater than 200,000 square feet, the location shall be adjusted such that no part of the square overlaps the water body.

302.3.2 Structure density category. The structure density category shall be determined by counting the number of structures within the area to be evaluated per Section 302.3.1. The structure density category shall be determined as follows:

UNINHABITED:	0 structures
VERY LOW:	1 structure
LOW:	2 to 8 structures
MEDIUM:	9 to 120 structures
HIGH:	more than 120 structures

302.3.4 Proximity category. The distance from the site being evaluated to a high-density vegetated area shall be measured from the closest edge of the site boundary to the closest edge of the nearest high density vegetated area. Where the distance is less than 1.5 miles, the proximity category shall be near. Where the distance is 1.5 miles or more, the proximity category shall be distant.

302.3.5 WUIC applicability. The WUIC shall apply, and the site shall be designated as intermix or interface in accordance with Section 302.3.6 under either of the following conditions:

1. The structure density category is very low to high, and the vegetation density category is vegetated.
 2. The structure density category is very low to high, and the proximity category is near.
- The WUIC shall not apply under either of the following conditions:

1. The structure density category is uninhabited, and the site is not located within an area designated as intermix or interface on the WA-WUI map.
2. The structure density category is uninhabited to high, the vegetation density category is non-vegetated, and the proximity category is distant.

302.3.6 Wildland urban interface area designation. Where required by Section 302.3.5, the site shall be designated as intermix or interface in accordance with Section 302.3.6.1 or 302.3.6.2.

302.3.6.1 Intermix designation. The site shall be designated as intermix where the structure density category is very low to high, and the vegetation density category is vegetated.

302.3.6.2 Interface designation. The site shall be designated as interface where the structure density category is very low to high, and the proximity category is near.

For the area to be evaluated in Section 302.3.1:

1. Determine structure density category (uninhabited, very low, low, medium, or high).
2. Determine vegetation density category (non-vegetated or vegetated).
3. Determine proximity category (near or distant).
4. Based on structure density, vegetation density, and proximity categories, determine if compliance with this code is required (WUIC applies, WUIC does not apply).
5. Where compliance with this code is required, determine wildland urban interface area designation (intermix or interface).

Figure 302(1): Outline of simplified procedure for determining wildland interface designation

1. Determine structure density category in accordance with Section 302.3.2. Numbers in table are the number of structures within the area determined by Section 302.3.1.

<u>UNINHABITED</u>	<u>VERY LOW</u>	<u>LOW</u>	<u>MEDIUM</u>	<u>HIGH</u>
<u>0</u>	<u>1</u>	<u>2 TO 8</u>	<u>9 TO 120</u>	<u>MORE THAN 120</u>

2. Determine vegetation density category within the area determined by Section 302.3.1.

<u>NONVEGETATED</u>	<u>VEGETATED</u>
<u>Less than 50% vegetated</u>	<u>50% or more vegetated</u>

3. Determine proximity category to the nearest high-density vegetated area.

<u>NEAR</u>	<u>DISTANT</u>
Less than 1.5 mi (2.414 km)	1.5 mi (2.414 km) or more

4. Use structure density, vegetation density, and proximity categories from above to determine if WUIC applies.

<u>WUIC Applies</u>	<u>WUIC Does Not Apply</u>
<ul style="list-style-type: none"> • Structure density category is very low to high; and • Vegetation density category is vegetated. 	<ul style="list-style-type: none"> • Structure density category is uninhabited; and • The site is not located within an area designated as intermix or interface on the WA-WUI map.
<ul style="list-style-type: none"> • Structure density category is very low to high; and • Proximity category is near. 	<ul style="list-style-type: none"> • Structure density category is uninhabited to high; and • Vegetation density category is non-vegetated; and • Proximity category is distant.

5. Where WUIC applies, the site shall be designated as intermix or interface as follows:

<u>INTERMIX</u>	<u>INTERFACE</u>
<ul style="list-style-type: none"> • Structure density category is very low to high; and • Vegetation density category is vegetated. 	<ul style="list-style-type: none"> • Structure density category is very low to high; and • Proximity category is near.

302.4 Review of wildland-urban interface areas. The code official shall review for approval evaluated areas for new or modified findings of fact. Where a new or modified findings of fact are approved, the code official shall recommend to WADNR a modification to the wildland-urban interface areas mapping.

SECTION 502: FIRE HAZARD SEVERITY

502.1 General. The fire hazard severity of building sites for buildings hereafter constructed, modified or relocated into wildland-urban interface areas shall be established in accordance with Table 502.1. See also Chapter 8 Appendix C.

502.2 Fire hazard severity reduction. The fire hazard severity identified in Table 502.1 is allowed to be reduced by implementing a vegetation management plan in accordance with Chapter 7.

TABLE 502.1
FIRE HAZARD SEVERITY

FUEL MODEL ^b	CRITICAL FIRE WEATHER FREQUENCY								
	≤ 1 Day ^a			2 to 7 days ^a			≥ 8 days ^a		
	Slope (%)			Slope (%)			Slope (%)		
	≤ 40	41-60	≥ 61	≤ 40	41-60	≥ 61	≤ 40	41-60	≥ 61
Light fuel	M	M	M	M	M	M	M	M	H
Medium fuel	M	M	H	H	H	H	E	E	E
Heavy fuel	H	H	H	H	E	E	E	E	E

E = Extreme hazard;

H = High hazard;

M = Moderate hazard.

a. Days per annum.

b. Where required by the code official, fuel classification shall be based on the historical fuel type for the area.

SECTION 503: IGNITION-RESISTANT CONSTRUCTION AND MATERIAL

503.1 General. Buildings and structures hereafter constructed, modified or relocated into or within wildland-urban interface areas shall meet the construction requirements in accordance with Table 503.1. Class 1, Class 2 or Class 3, ignition-resistant construction shall be in accordance with Sections 504, 505 and 506, respectively. Materials required to be ignition-resistant materials shall comply with the requirements of Section 503.2.

**TABLE 503.1
IGNITION-RESISTANT CONSTRUCTION^a**

DEFENSIBLE SPACE ^c	FIRE HAZARD SEVERITY					
	Moderate Hazard		High Hazard		Extreme Hazard	
	Water Supply ^b		Water Supply ^b		Water Supply ^b	
	Conforming ^d	Nonconforming ^e	Conforming ^d	Nonconforming ^e	Conforming ^d	Nonconforming ^e
Nonconforming	IR 2	IR 1	IR 1	IR 1 N.C.	IR 1 N.C.	Not Permitted
Conforming	IR 3	IR 2	IR 2	IR 1	IR 1	IR 1 N.C.
1.5 × Conforming	Not Required	IR 3	IR 3	IR 2	IR 2	IR 1

a. Access shall be in accordance with Section 403.

b. Subdivisions shall have a conforming water supply in accordance with Section 402.1.

IR 1 = Ignition-resistant construction in accordance with Section 504.

IR 2 = Ignition-resistant construction in accordance with Section 505.

IR 3 = Ignition-resistant construction in accordance with Section 506.

N.C. = Exterior walls shall have a fire-resistance rating of not less than 1 hour and the exterior surfaces of such walls shall be noncombustible. Usage of log wall construction is allowed.

c. Conformance based on Section 603.

d. Conformance based on Section 404.

e. A nonconforming water supply is any water system or source that does not comply with Section 404, including situations where there is no water supply for structure protection or fire suppression.

SECTION 603: DEFENSIBLE SPACE

603.1 Objective. Provisions of this section are intended to modify the fuel load in areas adjacent to structures to create a defensible space.

603.2 Fuel modification. Buildings or structures, constructed in compliance with the conforming defensible space category of Table 503.1, shall comply with the fuel modification distances contained in Table 603.2. For all other purposes the fuel modification distance shall be not less than 30 feet (9144 mm) or to the lot line, whichever is less. Distances specified in Table 603.2 shall be measured on a horizontal plane from the perimeter or projection of the building or structure as shown in Figure 603.2. Distances specified in Table 603.2 are allowed to be increased by the code official because of a site-specific analysis based on local conditions and the fire protection plan.

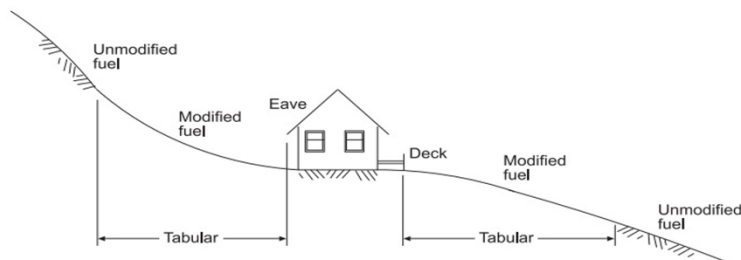


FIGURE 603.2 MEASUREMENTS OF FUEL MODIFICATION DISTANCE

TABLE 603.2 REQUIRED DEFENSIBLE SPACE

WILDLAND-URBAN INTERFACE AREA	FUEL MODIFICATION DISTANCE (feet)^a
Moderate hazard	30
High hazard	50
Extreme hazard	100

For SI: 1 foot = 304.8 mm.

- a. Distances are allowed to be increased due to site-specific analysis based on local conditions and the fire protection plan.

603.2.1 Responsible party. Persons owning, leasing, controlling, operating or maintaining buildings or structures requiring defensible spaces are responsible for modifying or removing nonfire-resistive vegetation on the property owned, leased or controlled by said person.

603.2.2 Trees. Trees are allowed within the defensible space, provided that the horizontal distance between crowns of adjacent trees and crowns of trees and structures, overhead electrical facilities or unmodified fuel is not less than 10 feet (3048 mm).

603.2.3 Ground cover. Deadwood and litter shall be regularly removed from trees. Where ornamental vegetative fuels or cultivated ground cover, such as green grass, ivy, succulents or similar plants are used as ground cover, they are allowed to be within the designated defensible space, provided that they do not form a means of transmitting fire from the native growth to any structure.

SECTION 604: MAINTENANCE OF DEFENSIBLE SPACE

604.4 Trees. Tree crowns extending to within 10 feet (3048 mm) of any structure shall be pruned to maintain a minimum horizontal clearance of 10 feet (3048 mm). Tree crowns within the defensible space shall be pruned to remove limbs located less than 6 feet (1829 mm) above the ground surface adjacent to the trees.

604.4.2 Deadwood removed. Deadwood and litter shall be regularly removed from trees.

CHAPTER 8: FIRE HAZARD SEVERITY FORM

The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.

User note: About this chapter: Its purpose is to provide an alternative methodology to using Table 502.1 for analyzing the fire hazard severity of building sites using a preassigned value/scoring system for each feature that impacts the hazard level of a building site. Included in the evaluation are site access, types and management of vegetation, percentage of defensible space on the site, site topography, class of roofing and other construction materials used on the building (existing or to be constructed on the site), fire protection water supply, and whether utilities are installed above or below ground.

SECTION 801: FIRE HAZARD SEVERITY FORM

Where adopted, Table 801.1 is permitted to be used as an alternative to Table 502.1 for analyzing the fire hazard severity of building sites.

A. Subdivision Design Points		C. Topography	
1. Ingress/Egress		8% or less	1__
Two or more primary roads	1__	More than 8%, but less than 20%	4__
One road	3__	20% or more, but less than 30%	7__
One-way road in, one-way road out	5__	30% or more	10__
2. Width of Primary Road		D. Roofing Material	
20 feet (6096 mm) or more	1__	Class A Fire Rated	1__
Less than 20 feet (6096 mm)	3__	Class B Fire Rated	5__
3. Accessibility		Class C Fire Rated	10__
Road grade 5% or less	1__	Nonrated	20__
Road grade more than 5%	3__	E. Fire Protection—Water Source	
4. Secondary Road Terminus		500 GPM (1892.5 L/min) hydrant within 1,000 feet (304.8 m)	1__
Loop roads, cul-de-sacs with an outside turning radius of 45 feet (13 716 mm) or greater	1__	Hydrant farther than 1,000 feet (304.8 m) or draft site	2__
Cul-de-sac turnaround	2__	Water source 20 min. or less, round trip	5__
Dead-end roads 200 feet (60 960 mm) or less in length	3__	Water source farther than 20 min., and 45 min. or less, round trip	7__
Dead-end roads greater than 200 feet (60 960 mm) in length	5__	Water source farther than 45 min., round trip	10__
5. Street Signs		F. Existing Building Construction Materials	
Present	1__	Noncombustible siding/deck	1__
Not present	3__	Noncombustible siding/combustible deck	5__
B. Vegetation (IWUIC Definitions)		Combustible siding and deck	10__
1. Fuel Types		G. Utilities (gas and/or electric)	
Light	1__	All underground utilities	1__
Medium	5__	One underground, one above ground	3__
Heavy	10__	All above ground	5__
2. Defensible Space		Total for Subdivision	
70% or more of site	1__	Moderate Hazard	40-59
30% or more, but less than 70% of site	10__	High Hazard	60-74
Less than 30% of site	20__	Extreme Hazard	75+