(note: this version includes minor page number corrections from what was hand-delivered.)

BEFORE THE HEARING EXAMINER
FOR THE CITY OF SEATTLE

CLOSING STATEMENTS From TreePAC Relative to our Intervention in the appeal proceedings of the Queen Anne Community Council	MOTION TO INTERVENE HE File Number: W-18-009 Non-Project Action of the Department, Seattle City Council Accessory Dwelling Units FEIS

I. INTRODUCTION

By the March 21, 2019 Pre-Hearing Order of the Hearing Examiner in acceptance of TreePAC's Motion for Intervention, TreePAC has participated in providing legal argument including our opening statement and this post-hearing briefing with respect to issues 2.4, 2.12 and 2.13 as they relate to the environmental impacts resulting from the reduction of tree canopy. TreePAC includes herein our closing statements that clearly identify the inadequacies of the Accessory Dwelling Units (hereafter 'ADU') Final Environmental Impact Statement (hereafter 'FEIS') relative to the impacts to the tree canopy within Seattle's Single-Family zones. Inadequacies are demonstrated by sworn testimony, contents of City ordinances, lack of code enforcement, practiced city policies and administrative procedures, and other hearing evidence – all of which the Examiner may take judicial notice.

TreePAC's closing request to the Hearing Examiner is to remand the ADU FEIS to allow the City to bring tree retention and remediation into compliance under appeal Issue 3.02. A thorough analysis of the scope and impacts of the proposal to tree canopy is required. The FEIS was inadequate relative to the evaluation of tree canopy existing conditions, and potential impacts to the tree canopy in both the 10 year and Full Buildout scenarios. The proposal has failed to adequately consider the resulting short term, long term, and unavoidable environmental impacts to one of Seattle's most valuable resources: trees.

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III. THE EIS FAILS TO ADEQUATELY ADDRESS IMPACTS TO TREE CANOPY

A. Seattle's 2035 Comprehensive Plan for Growth Requires Mitigating Impacts.

B. As identified in the Opening Statement of TreePAC for the Hearing Examiner's judicial notice, one of Seattle's four core values is environmental stewardship, according to the Seattle's 2035 Comprehensive Plan. The Plan is deliberate in its objective to mitigate the impact from Seattle's growth on the tree canopy. Key points of the environment were omitted from the stated objectives of the ADU FEIS. The witness from the Office of Planning and Community Development stated that Page 1-3 of the FEIS identifies just two objectives of from the Comprehensive Plan:

   a. "Remove regulatory barriers to make it easier for property owners to permit and build attached and detached accessory dwelling units." And

   b. "To increase the number and variety of housing choices in the single-family zones."

   Environmental issues of the Comprehensive Plan – such as Seattle's tree canopy – was not included as an objective to this proposal.

C. This ADU FEIS failed to adequately address the policies and objectives in regard to the environments as clearly stated in the 2035 Comprehensive Plan as follows:

   1. "Although the region looks very different than it did when European settlers first arrived 150 years ago, Seattle's trees, vegetation and soils still make up a vitally important system that manages water runoff, cleans the air, mitigates climate change emissions and impacts, improves human health, and reduces the heat island effect."

   2. "This natural system also provides wildlife habitats, supports invaluable neighborhoods, and is integral to the essential character of the Emerald City."

   3. "2035 Comprehensive Plan Goal No. EG1: To foster healthy trees, vegetation, and soils, and improve human health, provide wildlife habitats, reduce drainage costs, give residents across the city access to nature, and increase the quality of life of all Seattleites."

   4. "E1.1. Seek to achieve an urban forest that contains a thriving and sustainable mix of tree species and ages and creates a continuous and healthy ecosystem that is valued and cared for by the City and all Seattleites as an essential environmental economic and community asset."

   5. "E1.2. Strive to increase the citywide tree canopy coverage to 40 percent over time. (Emphasis added)."

   6. "E1.3. Use *trees, vegetation*, green stormwater infrastructure, amended soils, green roofs, and other low-impact development features to meet drainage needs and reduce the impacts of development. (Emphasis added)."

7. "E1.5. Promote sustainable management of public and *private open spaces, trees, vegetation by preserving or planting native and naturalized vegetation*, removing invasive plants, improving soil health, using integrated pest management, engaging the community in long-term stewardship activities. (Emphasis added)."

8. "E1.6. Strive to manage 700 million gallons of stormwater runoff each year with green stormwater infrastructure by 2025." (Note: This objective may be achieved with retained trees as a green stormwater infrastructure compared to construction of cisterns that Mr. Kaplan testified may be required on some lots with ADU's.)

9. "E1.7. Promote the *care and retention of trees and groups of trees* that enhance Seattle's historical, cultural, recreational, environmental and aesthetic character. (Emphasis added)."

10. By the *lack of* FEIS content, lack of evidence, lack of testimony content and tree-expert witnesses, TreePAC is rightfully concerned that the ADU-FEIS does not comply with the above 2035 Comprehensive Plan principles.

B. SEPA Requires that the ADU FEIS Closely Examine Environmental Impacts.

1. SEPA requires agencies to take a "hard look" at environmental issues. PUD No. 1 of Clark County v. PCHB, 158, 151 P.3d 1067 (2007) (internal citation omitted). To comply with the "hard look" requirement, a Final EIS must "provide a reasonably thorough discussion of the significant aspects of the probable environmental consequences of the proposed action." Weyerhaeuser v. Pierce County, 124 Wn.2d 26, 37, 873 P.2d 498 (1994). See also PUD No. 1, supra. "General statements about 'possible' effects and 'some risk' do not constitute a 'hard look' absent a justification regarding why more definitive information could not be provided." Neighbors of Cuddy Mt. v. U.S. Forest Serv., 137 F.3d 1372, 1380 (9th Cir. 1998).

2. From 'Findings and Decision' page 10 of the ADU DNS Hearing Examiner Case W-16-004 (Exhibit 32), the courts have held that the policy underlying SEPA is "to promote the policy of fully informed decision making by government bodies" to ensure that environmental values are given appropriate consideration. Moss v. Bellingham supra at 14, quoting Norway Hill Preservation and Protection Assoc. v. King Cy. Council, 87 Wn.2d 267, 272, 552 P.2d 674 (1976). Further, "one of SEPA's purposes is to provide consideration of environmental factors at the earliest possible stage to allow decisions to be based on complete disclosure of environmental consequences." King County v. Washington State Boundary Review Bd., 122 Wn.2d 648, 663-64, 860 P.2d 1024 (1993) citing Stempel v. Department of Water Resources, 82 Wn.2d 109, 118, 508 P.2d 166 (1973)."

C. The Appropriate Level of Detail within an EIS

1. Simply put, the bigger the environmental risks, the more thorough the analysis must be. Accordingly, more detail is required if 25 acres of Seatttle's tree canopy are to be clear-cut compared to just one acre being clear-cut. The risks this proposal poses to neighborhood tree canopy and other resources throughout the City compels more

detailed analysis, not less. Applying SEPA's requirement for a reasonably thorough analysis requires consideration of two factors: (1) the severity of the anticipated impacts and (2) the specificity of the proposal. City of Des Moines v. PSRC, 98 Wn. App. 23, 35 (1999). (References from the MHA FEIS appeal: Seattle Coalition for Affordability Livability and Equity).

2. WAC 197-11-960, Part D, has not been addressed or adequately completed within this ADU FEIS as required for nonproject actions in regards to the following SEPA Part D questions:
    - Question 2: How would the proposal be likely to affect plants, animals, fish, or marine life? However, not all trees that make up the Seattle Tree Canopy are protected. The FEIS protects only large or Exceptional trees *if* the tree does not limit the maximum allowed lot coverage of 35 percent. The FEIS states "The City's existing tree regulations are established in the Seattle Tree Protection Ordinance (Chapter 25.11 of the SMC). Under 25.11, the City reviews tree removal proposed as part of an application for a development permit. For development in single-family zones, an Exceptional tree[1] *can be removed only if necessary to achieve the maximum allowed lot coverage.* (Emphasis added). Site plans must identify Exceptional trees and trees more than two feet in diameter. Section 25.11.090 also requires mitigation for tree removal. In all zones, each Exceptional tree and tree more than two feet in diameter removed during development must be replaced with one or more trees."

      Note that the study's aesthetic and land-use diagrams do not attempt to demonstrate how Exceptional trees would be replaced two for one.

    - Question 3: How would the proposal be likely to deplete energy or natural resources? Trees are not only an evident natural resource, it was testified that trees also provide natural shade to reduce energy consumption of buildings for heating and cooling. The FEIS and appeal proceedings ignored any providing any measures to protect or conserve energy and natural resources. This includes the loss of protected Tree Groves with a loss of a tree within the grove. Loss of trees also reduces stormwater retention.

[1] Per FEIS 4-44, "Exceptional tree" means a tree or group of trees that, because of its unique historical, ecological, or aesthetic value, constitutes an important community resource and is deemed as such by the Director according to standards promulgated by the Seattle Department of Construction and Inspections. (SMC 25.11.020). See SDCI Director's Rule 16-2008.

IV. ADU FEIS FLAWS WILL NOT BE CURED BY SUBSEQUENT REVIEW

The ADU Final EIS failed to adequately address many critical issues relative to the tree canopy. Because the City Council should be referencing the findings from this Final EIS to make informed decisions about effectively changing all of Seattle's Single-Family zones to Multi-family zones (up to three dwellings per lot including lots as small as 3,200 square feet), this information about the impacts to the tree canopy must be accurately presented within this EIS. Its absence renders the EIS fatally flawed.

A. Aesthetic impacts of tree canopy loss inadequately illustrated and evaluated within the EIS.

1. Argument:

a. The FEIS Chapter 4-2 Aesthetics is flawed in that it does not study the aesthetic value of the tree canopy within Single-Family zoned neighborhoods. With the testified 63% of Seattle's tree canopy cover, Single-Family zoned represents the largest repository of canopy. Protection of this resource is a great responsibility, as defined in Seattle's Comprehensive Plan 2035 (applicable sections cited above). The FEIS fails to adequately demonstrate with illustrations, figures, or photos, the significant role that the tree canopy plays in the well-being of health (i.e., reducing stress from employment, commuting, and personal issues) and environmental conditions (i.e., shading of surface heat stress in summer, shielding heavy storms in winter, sequestration of carbon year around.)

b. The FEIS does not adequately consider the aesthetic and ecological values of birds and wildlife that depend on trees habitats.

c. The FEIS does not consider any aesthetic value differences in large tree driplines/canopies compared to smaller canopied trees within communities. (Consider Seattle aesthetics with primarily just street-lined small trees in-lieu of larger native deciduous and coniferous trees.)

d. The FEIS has not engaged public opinion or professional arborist expertise relative to the aesthetics of trees. There was no evidence or testimony provided that demonstrated that Seattle's residents were interviewed or surveyed as to their aesthetic values of trees. The FEIS does not evaluate the

enjoyment of residents within Single-Family zoned neighborhoods to enjoy the tree canopy within or bordering private property.

2. Statements of Fact:
    a. Mr. Welch of OPCD testified that "In 2016, the City conducted a new tree canopy study using a technology called LIDAR. And with this LIDAR data, it's able to measure the amount of area that is covered by tree canopy. Some of the key findings that are listed on page 4-52, it concluded: Overall, Seattle's tree canopy coverage citywide is 28 percent; most of Seattle's trees are found in residential areas, many of them in single-family residential areas specifically; those areas account for 63 percent of the City's tree canopy cover." (March 27 transcript, Page 193 , Lines 1-10) [also reference Appendix to this Closing Statement from Examiner Exhibit 037 "2016 0000 Seattle Tree Canopy Assessment Report" page 7.]
3. Necessary Relief: Remand the FEIS to provide the impacts within Single-Family zoned areas rather than suggested impacts the City as a hole. Aesthetic and environmental impacts are to consider the equity of the tree canopy being available to all despite any mobility issues that may limit one to their residential neighborhood. An FEIS should not assume access to tree canopy, shade, and wildlife habitats is limited to designate public park areas or streets unobstructed by overhead power lines.

B. The diagrams and illustrations within the FEIS are false relative to the impact on trees.
1. Argument:
    a. There are no illustrations reflecting real data of Seattle's tree canopy. Any resemblance to an actual canopy, as some might think exist in Chap 4-2 Aesthetics, are false, and merely are an artistic rendering of a generic street, not trying to mimic actual conditions.
    b. The trees found in Chapter 4-2 Aesthetics: Pg 4-136, Exhibit 4-3-35, Preferred Alternative, existing conditions, Exhibit 4-3-36 at 10 years, and Exhibit 4-3-37, Full buildout, are representative of illustrations that suggest trees. However, these figures are misleading and inaccurate, as a reader of the FEIS would likely assume they reflected Seattle's tree canopy, which

they clearly do not, even in a generic 31% canopy cover, Seattle's city Single-Family zoned zone average. Nor are they representative of the highly variable canopy covers that are found in this diverse city.

c. The FEIS consultant who prepared the diagrams on aesthetic impacts, Mr. Kuehne testified that he was to make good depictions of the study areas, but without adequately addressing the issue that Single-Family zones contain 63% of Seattle's tree canopy. TreePAC argues that these renditions are not accurate for the study areas. Testimony has revealed these diagrams are not much different than what HDR had prepared for a city in the Southwest of United States.

2. Statements of Fact:

a. Seattle Single-Family zoned Canopy Cover averages at 32% (Exhibit 4.2-9). The Plan View and Visual Representation illustrations provided do not clearly represent a 32% canopy cover. The testimony of Mr. Kuehne details that trees and canopy were created ad lib, just to show a trees in possible locations, but not based on any evidence of actual tree cover in Seattle's single family neighborhoods.

b. Although the testimony of Mr. Kaplan - an architect who has been practicing architecture within the City of Seattle for several decades – was repeatedly objected to by the City when it came to how much space a tree needs to be planted and sustained because he was an architect, the same standard was not held to the City's witness Oliver Kuehne, who is a planner and urban designer with HDR in Portland Oregon. Kuehne, like Kaplan, was identified to testify on 'aesthetics' (March 27 transcript page 96, line 16).

c. Mr.Kuehne testified that "…in the existing conditions, the two-block model in that alternative had 121 trees. In the 10-year scenario, it's 115. In the full build-out, 86 trees that are shown in the model." That would signify a 5 percent loss within Seattle's single family areas (including the credit of street trees) within the first ten years and an ultimate 35 percent loss if there was a full buildout. (Page 149, line 9). The FEIS aesthetic model appears to far

exceed the City's methodology of only 0.3% tree canopy loss, but it does not inform the FEIS analysis to tree canopy loss.

d. Mr.Kuehne testified that "The street trees were really not my focus of the analysis. My primary focus was to analyze lot size, lot configuration, and the housing typology." (Page 142, line 4). He also testified is was only familiar with a few neighborhoods of Seattle. His testimony continues "The tree canopy, to my recollection, was never part of that discussion." (Page 160, line 5).

e. Mr.Kuehne made assumptions about the modeling of trees or took direction from Mr. Welch, neither of which are qualified to assess the canopy diameter and what trees would need to be removed under development conditions.

f. Mr. Kuehne testified he was not instructed to create a visual which showed any known measure of canopy cover, but instead simply made a generic street designed to reflect bulk and scale at know specifications, but definitely not for any specific tree canopy cover. "Yeah, so the attempt was not to have a comprehensive indication of what the tree coverage is going to be" (line 16-17) "So what's represented here is not the actual existing or proposed tree coverage. That was never the intent of these drawings" (lines 8-10). Additionally, he stated the software used has no option to allow canopy cover as an input. So, when comparing these drawings to aerial photos of actual sample streets in the FEIS [comparison shown in Appendix to this Closing Statement from Examiner Exhibit 028 "Aesthetic Evaluation" page 19], we see few street trees, though many trees on private property, whereas the illustrations showed street trees in front of every home, and only a few trees on private property. The canopies of the trees seen in the aerial photos were in many cases seen as much larger, than the smaller canopy sized trees seen in the illustrations.

g. In cross examination of Mr. Kuehne, Mr. Kisielius suggested an canopy cover map overlay would obscure much of the 2 block illustration area, and so blocking the views of lots and structure, as to make the buildings and lot

lines disappear, negating the value of the illustrations purpose of showing density on lots.

h. "Q. Okay. And let me ask you on the tree piece, what (22) would happen if you showed 30 percent coverage on (23) aerial shots of the lot? (24) A. My guess is you probably wouldn't see much on the (25) lot."

i. His testimony failed to identify that obscuring of the buildings and lots shows the real potential of impacts to the canopy (existing conditions) and so opportunities to accurately assess the potential losses of canopy and mitigation are also lost. The FEIS failed to include tree canopy cover within Single-Family zones as an environmental criteria to be included by the City's consultants for illustrations of Existing Conditions, 10 year, and Full Buildout. An illustration showing the canopy as an overlay was necessary project a transparency into the process of informing the community as to real existing conditions. [Reference Appendix to this Closing Statement from Examiner Exhibit 028 "Aesthetic Evaluation" page 19.]

3. Necessary Relief: Remand the FEIS to provide diagrams and illustrations within the FEIS are that accurately depict the impact on tree canopies with the proposal. Include City's GIS information that shows interactive maps through the city. There is much to gain from the actual data already available rather than model a diagram that is based on the judgement of an individual preparing the document.

C. The FEIS considered the 10-year impact to the tree loss verses the full buildout impacts.

1. Argument:

   a. Environmental issues of tree loss extend well beyond 10 years. The ADU DNS appeal required for parking impacts a full buildout scenario, which should be requested of the Hearing Examiner in the study of impact to tree loss rather than only just parking full-build out impacts.

2. Statements of Fact:

   a. Trees are not a renewable resource with the land where the trees are removed and have been replaced by a permanent structure and inadequate space is available to allow for new trees to grow and equivalent canopy.

3. Necessary Relief: Remand the FEIS for the City to extend the study duration relative to the environmental impact of tree loss well beyond the current 10-year duration used by the FEIS, as inadequate an assessment as it was. The FEIS should justify the duration period rather than simply select an arbitrary period of time. Some trees take 8-10 years to die from construction impacts that may not be apparent initially.

D. The impacts to tree canopy loss will differ throughout the scope area of Seattle given greater degrees of existing tree canopy.

   a. Many of Seattle's neighborhoods are highly variable in their canopy cover, as detailed in LiDAR Exhibit 37, Figure 10. [Reference Appendix to this Closing Statement from Examiner Exhibit 037 "2016 0000 Seattle Tree Canopy Assessment Report" page 8.] This shows Delridge with 38%, having the highest neighborhood canopy cover, Ballard with 25%, to Downtown with the lowest at 10%. Figure 10 evaluates all of Seattle's neighborhoods, not just single family. However, it shows that the possibility remains that a detailed evaluation of single family neighborhoods was possible, but not chosen to be done. Why did the FEIS fail to evaluate existing conditions by neighborhood, considering that 63% of Seattle's canopy is in single family zones? Apparently no effort was made, nor value found, in trying to represent the diversity of canopy found Seattle's neighborhoods. Instead, the FEIS chose to have only one neighborhood "type," which in no way reflected real neighborhoods, and thus, the assess potential impacts to parcels and neighborhoods with different canopy cover.

2. Statements of Fact:

   a. It was testified that each neighborhood may be impacted differently depending on the market level of production and the tree canopies with the neighborhood. FEIS Page 4-29, Exhibit 4.1-15, titled "Estimated Production of AADUs" -- "ADUs in New Homes by Neighborhood Profile" was referenced to document the estimated number of ADUs built by alternative, by price category, and those numbers are then documented in terms of in the text around the number of total ADUs that may be produced. [3/28 transcripts Page 168, lines 7-13]

3. Necessary Relief: Remand to study tree-loss impact by neighborhood in a similar fashion to that done in the 2016 LiDAR study prepared for the City.

E. Of utmost significance is the OPCD's and City's lack of explanation to validate the loss of tree canopy.

a. The City claims that only 0.3% of Seattle's Tree Canopy when FEIS evidence shows new single-family construction (without one added ADU) reduces Seattle's average tree canopy cover within Single Family lots from 30.8% down to 22.7%. Given the facts that at least 63% of Seattle's tree canopy is within the privately-owned lots of single-family lots combined with the statistical average loss of 8.1% within single family lot development, it is clear that the 0.3% assessed loss of tree canopy is significantly flawed.

Using the recent 2016 LiDAR dataset, we compared average tree canopy coverage on study area lots with DADUs and the average for other study area lots. Exhibit 4.2-9 summarizes this analysis.[2]

New in the FEIS

Exhibit 4.2-9 and Exhibit 4.2-10 are new exhibits in the Final EIS.

Exhibit 4.2-9 Average Tree Canopy Cover on Study Area Parcels in Single-Family Residential Use

	Average percentage tree canopy cover
Study area lots without a DADU	30.8%
Study area lots with a DADU	28.6%
Study area lots with new single-family houses constructed since 2010	22.7%

b. Inadequate/ Invalid evaluation of current and potential tree canopy losses

c. Exhibit 4.2-9 shows an average canopy cover on study area parcels in Single-Family zoned.

d. Without ADU = 30.8% with ADU = 28.6 % New Single-Family zoned (since 2010) = 22.7%

e. This data implies that canopy cover declines 2.2% with the construction of an ADU, significantly larger than the 0.3% calculation projected in the FEIS for declines in canopy cover. And new single family homes result in a decline of 8.1% canopy cover. If properties with small single family homes are replaced with new Single-Family zoned homes plus an UADU (and perhaps an AADU), a question raised by the Appellants, does this imply that canopy cover will decline 8.1% + 2.2% = 10.3% under these circumstances?

What percent of the properties are more likely to convert to new homes + ADUs? The risks of inadequately analyzing the impacts of new ADU's to Seattle's tree canopy are inadequately evaluated in the FEIS.

f. Additionally, was the impact analysis in Exhibit 4.2-9 measuring differences in canopy cover using the I-Tree Canopy Protocol? Did the analysis compare canopy cover from 2007, 2010, and/or 2015 imagery from Google Earth + compare it to the 2016 LiDAR assessment? The margin of error stated on page 2 of Exhibit 37 LiDAR study speaks of a +/- 3% error. So, how accurate is the 2.2% suggested decline in canopy cover in 4.2-9? It appears this evaluation is only a rough estimation of potential impacts. But looking at the LiDAR Exhibit figures 19 and 20, where figure 19 clearly shows the new development is an UADU removing large canopied trees, and figure 20 detailing large declines in canopy from development, we do know that development can play a significant role in canopy cover decline. [Reference Appendix to this Closing Statement from Examiner Exhibit 037 "2016 0000 Seattle Tree Canopy Assessment Report" page 14.]

g. Impacts to tree canopy in the ADU FEIS were calculated by multiplying (an estimated number of additional ADU's = 1185) x 1000 square feet (the max estimated footprint)/ the total acreage of Single-Family zoned lots. The 1000 square feet footprint was considered a "generous" maximum, and "over estimation of actual impacts" as not all parcels would actually allow a full 1000 square feet footprint due to lot size limitations, and so smaller ADU structures would be required. 'The FEIS states that only 25 acres of tree canopy would be lost with the implementation of the FEIS. That equates to roughly the size of three (3) city blocks. Even intuitively, it is evident that the assessment of impact is administratively flawed.

h. However, despite trying to persuade otherwise (at the ADU FEIS appeal intervention) that the actual building footprint, plus trenching to build the structure and build utilities might impact into a tree's Critical Root Zone, thereby expanding the disturbed area far outside the building footprint, and possibly the entire backyard area, this fell on confused or deaf ears. Somehow, Mr. Welch, by saying the 1000 square feet footprint was far beyond what would actually be allowed usually, seemed to negate that the entire rear yard might actually be impacted if any sized footprint encroached into the Critical Root area.

i. Questions about stormwater impacts in the ADU FEIS were considered outside of the intervention. However, stormwater is an important issue to Seattle, as combined stormwater and sewage overflow problems have resulted in new requirements for stormwater retention on some new sites with ADU's. In fact, 2016 regulations require bioretention systems to be included at grade or underground. These cistern's footprints intruding into buildable space may impact trees or critical roots zones. These bioretention systems are not calculated as part of the impact footprint of ADU's in the FEIS.

2. Statements of Fact:

a. The City did not consult with an arborist in the assessment of potential tree canopy loss being only 0.3%. Actual statistics of tree canopy loss is much greater than the assumptions used by the City. Mr. Welch testified "We found lots without a DADU have a coverage, on average, of 30.8 percent. Study area lots that do have a DADU have a slightly lower percentage, 28.6 percent. And then we also looked at lots in the study area where there had been a new single-family house built in the last eight years, since 2010. The difference there was larger. Those lots had canopy coverage of only 22.7 percent." (March 27 Transcripts, Page 193-194, lines 24-5). "It suggests that when existing single-family homes are demolished and a new single-family home is built, there is a meaningful reduction in the tree canopy on those lots." (Lines 9-11).

b. The evidence provided by the LiDAR Study models a scientifically modeled depiction that shows the impacts of development within the FEIS scope areas of Single-family zoned properties. The loss of tree canopy cover is visibly approximately 8 to 9 percent. The impact of the proposed ADU FEIS must be measured using compatible methodologies. [Reference Appendix to this Closing Statement from Examiner Exhibit 037 "2016 0000 Seattle Tree Canopy Assessment Report" page 14 with emphasis added.]

c. Mr. Welch could not explain – nor was a qualified to explain – nor did the OPCD seek the qualifications of an expert on trees- the differences in evidence of tree canopy reduction verses the assumptions used in the FEIS.

3. Necessary Relief: Remand the FEIS to the City to have an expert in tree canopy impacts in ADU construction provide an accurate assessment of potential tree canopy loss using statistical loss data rather than the arbitrary 1,000 square foot of tree canopy loss per square foot. (Note: tree canopies are exclusive and not equitable to 'green canopies' that may consist of small trees and shrubs.) This methodology should be coupled with the realistic number of additional ADU units including detached and attached configurations given each have potential to reduce exterior open space behind the primary residence, for a No Action, 10 year, and Full Buildout scenarios.

F. Underestimated number of parcels to be developed with two ADU.

1. Argument:

a. Mr. Welch testified that only one percent (1%) of eligible single-family zoned lots will implement a DADU by stating "we estimate that there would be 1,085 additional detached ADUs over that time period." Despite the significant demand for housing and the increasing levels of production in recent years, this low value was not explained or justified. He continues, "And so we took several conservative assumptions about those detached ADUs in order to quantify a reasonable conservative upper bound estimate of how much tree canopy loss could result. So we multiplied that number of detached ADUs [1,085] times the largest footprint that we would expect of

1,000 square feet and we assumed that that entire footprint today would be entirely tree canopy." [March 27 Transcripts, Page 195, lines 11-19].

b. The testimony by Mr. Reid diffuses the extremely low number of possible ADU resulting from the proposal and has testified to several reasons why.

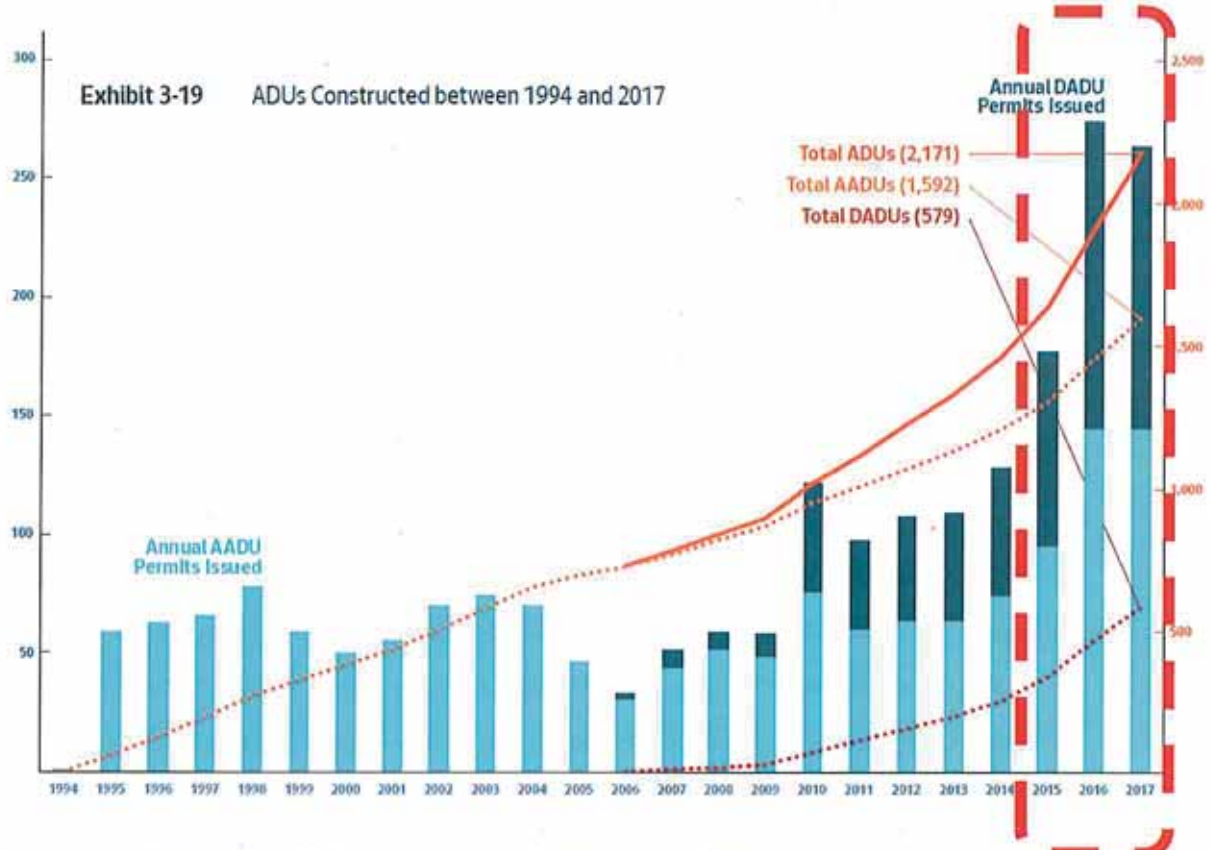


Figure 1 – ADU FEIS Exhibit 3-21 that totals the yearly number of ADUs Permitted between 1994 and 2017. Emphasis has been added over the exponential increase within the last three years.

2. Statements of Fact:

a. As shown in the Figure above, the Final EIS Exhibit 3-21 totals the yearly number of ADUs permitted between 1994 and 2017. Since accepted by the City of Seattle in 2006, there have been 579 DADU (detached accessory dwelling units) permitted in about 10 years, During that same time, approximately 900 AADU (attached accessory dwelling units have been constructed. Combined, there has been approximately 1,480 ADU permitted within the 10-year period and growing exponentially within the last three years.

b. The FEIS number of lots that will be impacted by the proposed legislation will be significantly greater than identified. Mr. Reed testified that the FEIS's assumed increase in just 1,085 additional ADU was too low. He states "It's my opinion that (particularly in the case of where ADUs can be 'condominiumized' and sold); but overall it's my opinion the EIS underestimates the number of ADUs that will be created" [from the proposed FEIS].

c. FEIS Exhibit 4.2-7 indicates there are 135,000 lots in single-family zoned lots within Seattle, and by the 93% lots of at least 3,200 square feet per FEIS Exhibit 4.2-5 there is a potential for at least another 120,000 ADU *and* DADU to be added removing space currently available for medium and large trees to grow.

d. Mr. Welch testifies the backyard setback is 20 percent of the lot depth or a maximum of 25 feet (see also FEIS exhibit 2-7). As such, the calculated area of the backyard impacting open space for trees is 1,000 square feet. Thus, the value of possible affected tree canopy is not conservative at all. Mr. Kaplan diffuses this FEIS theory by testifying that construction clearances, utility and foundation trenches, and stormwater retention requires more than just 1,000 square foot – especially when this proposal allows for a new 1000 net square foot AADU and / or a new 1000 net square foot DADU. The methodology is erroneous and has no precedent.

e. These low assumptions do not provide the required measure of impact to the critical root zones, tree canopy and corresponding impact to the environment.

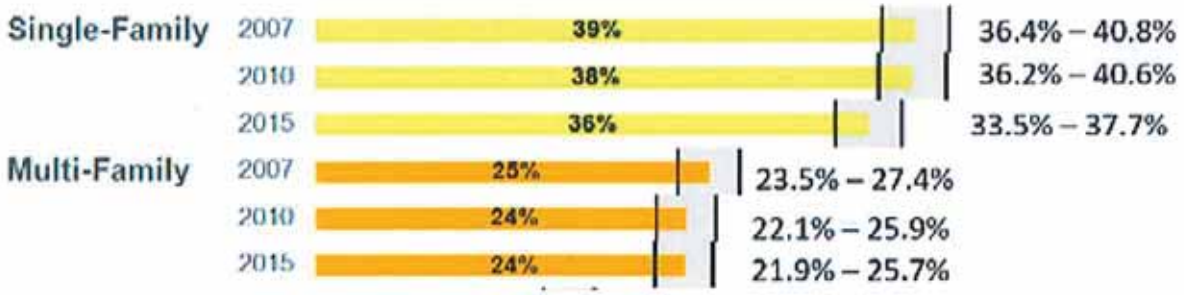
f. There is a direct correlation per the Record of development within single-family zoned lots and reduction of the tree canopy. Figure 18 from the LiDAR shows the steady reduction of tree canopy within Single-Family zoned lots from approximately 39% in 2007 to 35% less than a decade later. Not surprising, this reduction in canopy mirrors the increase of ADU shown in the above EIS Exhibit 3-21. The City witnesses were unable to reconcile the discrepancies of their low 0.3% estimated canopy loss within the next

decade when LiDAR study and FEIS facts and trends strongly suggest significantly greater losses of canopy.

g. For judicial notice, the same LiDAR study shows about 10% less tree canopy within multi-family areas compared to single-family areas. This is no surprise as FEIS Exhibit 4.2-9 (shown above) echoes the range of 22% to 25% tree canopy in new single family construction.

From Exhibit 37 "2016 0000 Seattle Tree Canopy Assessment Report" page 13.

Figure 18. Percent tree canopy cover for each UFSP Management Unit in 2007, 2010 and 2015. The gray area represents the standard error.



3. Necessary Relief: Remand the FEIS to the City to reconcile the differences in actual tree canopy loss data compared to a theoretical approach that has no precedent or basis of accuracy. Remand the FEIS to show the losses of tree canopy based on a realistic number of production (given the FEIS erroneously assumed just 1,085 parcels – or about 1% of the eligible study area lots). Request that the FEIS be expanded to also demonstrate the ultimate tree canopy loss in the full build-out scenario (as the Hearing Examiner required for parking impacts with the ADU DNS).

G. The City erroneously neglected the impacts of increasing the size of the DADU by 200 square feet. Moreover, the City erroneously neglected the impacts of adding additional area for non-occupied structures such as garages, sheds, or other structures that are currently within the 1000 square feet area for AADU and 800 square feet for DADU.

1. Argument:

   a. Mr. Welch's March 28th transcription on pages 67-70 shows contradictions between protections of Exceptional tree protections and the 1000 square foot per developed lot assumption.

2. Statements of Fact:

a. Mr. Eustis cross examination on Transcripts pages 55-59 further indicate the vague nature of the tree canopy loss assumptions.

3. Necessary Relief: As identified in other points.

H. The FEIS and the appeal proceedings ignored the environmental impacts to tree canopy loss.

1. Argument:

a. Urban Heat Island Effect: The City's reply references a drawing titled "Figure 1 Seattle 2016 LiDAR Canopy Cover Assessment by Seattle's Urban Forestry Team" on the Motion to Intervene Page 4, showing that it a part of the QACC exhibit on Aesthetics. Circumstantially, so it is. Moreover, Figure 1 is part of the City's Exhibit List: Item number 18 – '2016 Seattle Tree Canopy Assessment Report' (which the motion for intervention Figure refers to as the 'Seattle 2016 LiDAR Canopy Cover Assessment by Seattle's Urban Forestry Team'.

b. Urban Heat Island Effect. The LIDAR study included photos (Ex 37, figure 21), comparing the infrared image of Seattle's Urban Heat Island Effect (UHIE) with the Seattle Tree Canopy, demonstrating the direct value of Seattle's canopy. [Reference Appendix to this Closing Statement from Examiner Exhibit 037 "2016 0000 Seattle Tree Canopy Assessment Report" page 15.] Areas with lots of trees showed a lower temperature. Mr. Welch confirmed in testimony his understanding of this, however, there is no discussion of the UHIE within the FEIS. It seems, until it can be demonstrated that Seattle's canopy will actually be negatively impacted by new ADU construction, any mitigation of this problem will be lost. By the FEIS grossly underestimating potential impacts to tree canopy, it argues there can be no environmental impacts. However, the fallacy that there will be no impact to tree canopy means opportunities to mitigate impacts will be lost.

c. If climate change is influencing our summers with record peak temperatures, with droughts and smoke from fires, what role do mature trees and canopy play in providing both visual comfort and shade to relieve heat stress to

people and homes? Are large canopied trees to be replaced by air conditioners, with high costs and energy use? How might a maximum buildout scenario affect the 63% of Seattle's canopy's ability to respond to climate change?

d. The FEIS avoids any controversy that the canopy might be impacted by its "1000 square feet" "generous" maximum impact dispersed across the city like seeds on some vast plain.

e. For example, comparing before and after aerial photos as demonstrated in the Trees for Seattle: 2016 Seattle Lidar Canopy Cover Assessment (Exhibit 37, Fig 19.) Surely, this option was available, but was not chosen, despite the level of detailed analysis seen in other chapters, such as impacts to parking. It seems more likely the 0.3% impact method was chosen as a means to minimize any impression that the tree canopy might be impacted.

2. Statements of Fact:

a. Examining Exhibit 37, figure 19, where a red circle shows a parcel both before, and after, ADU development. What is seen is a vastly reduced tree canopy. One can clearly see this is not a 2.1% decline in canopy, but a much larger reduction in canopy cover. If this is shown as the principal example of impacts to canopy from development, it suggests the measured 2.1% decline may be understating the impacts, and the 0.3% decline given in the FEIS also is grossly understating the impact from building new ADU's in Single-Family zone. And this is the City's own best visual example that impacts from ADU construction result in a much larger canopy loss.

b. While the large canopy cover that exists in Single-Family zones has the potential to be grossly impacted by new ADU development, and so warrants a more detailed and definitive study based on actual aerial photos over a variety of Single-Family zoned neighborhood types (like Delridge to Ballard to Crown Hill to Queen Anne to South Park to Columbia City), the City chose a method designed to minimize any evaluation of impacts. No maps of Exceptional Trees and Tree Groves were presented, though available. For example, comparing before and after aerial photos as demonstrated in the

Trees for Seattle: 2016 Seattle Lidar Canopy Cover Assessment (Exhibit 37, Fig 9).

c. LiDAR Exhibit 37 Fig16 show locations of large trees at least 30 inch DBH. Seattle is estimated to have 6,338 large trees. Which Single-Family zoned neighborhoods contain properties which are at greatest risk of losing large trees? There is no evaluation in the FEIS, though the information is available. LiDAR Fig 17 shows the locations of tree groves. "Tree groves have to contain a minimum of eight trees, each with a 12-inch minimum DBH and forming a contiguous canopy (excluding street trees)." The loss of even a single tree may impact whether a tree grove qualifies for status as a tree grove. Why are tree groves not discussed, mapped, or evaluated for potential impacts, within the FEIS? The City has the data and it would have been reasonable to include figures showing existing conditions, and possible 10 year and Full Buildout scenarios showing this.

3. Necessary Relief: Remand the FEIS to consider the full environmental impacts of tree canopy loss, including impacts to Large Trees and Tree Groves.

I. The impacts to critical root zones within a property but only partially within the assumed 1000 square foot per lot area was not considered.

1. Argument:

a. Tree Replacement. If we are encouraging people to build new ADU's on their properties, is enough space available for large canopied replacement trees to grow? How much soil is necessary to support a large or medium or small canopied tree?

b. After new DADUs are built, the available soil space may not be enough to allow a tree to grow to a maturity to adequately replace lost canopy, as is a requirement detailed in the Seattle Tree Ordinance.

c. Scattered pieces of available square footage on the property may add up to a size large enough to appear to allow for a large canopied tree, does the tree root require this space to be contiguous?

d. Land use page 4-78, 4.2.4 Significant Unavoidable Adverse Impacts – "No significant unavoidable adverse impacts on Land Use." What about Urban

Island Heat Effect? What about impacts to tree groves and the resulting habitat for native birds? What environmental impacts were identified due to canopy loss What about increased requirements for cisterns and other water runoff retention methods due to increased imperious surfaces and reduced tree canopy?

2. Statements of Fact:
    a. SMC 25.11.090 in regards to tree replacement has requirements for replacing Exceptional Trees removed in development. And SMC 23.44.008 that requires 2" DBH for every 1000 square feet of lot for replacement of removed trees on lots over 3000 square feet, and 3" /1000 square feet on lots < 3000 square feet.
    b. Reference the exhibit of SMC 25.11.050 attached within the appendix for the size of critical root zones.
3. Necessary Relief: Remand the FEIS to show the true impact of ADU construction from property lines and limited building setbacks of five-feet, to include impacts to critical root zones.

J. The FEIS inadequately assumed a stronger tree protection code would be created to reduce impacts to the tree canopy's Tree Groves and Exceptional trees.

1. Argument:
    a. CITY TESTIFIED THAT THE NEW ORDINANCE WAS NOT ASSUMED IN CALCULATING IMPACTS.
    b. The FEIS says, "Vegetation and tree canopy could decrease if property owners choose to eliminate landscape features to construct DADUs", meaning that it is voluntary retention of significant and exceptional trees. The ADU-FEIS relies on a new tree ordinance being created, although such efforts have failed since the consecutive order in 2017.
    c. Page 4-55 of the FIES, however, makes it clear that this proposal would embody new tree protection regulations. It states: "the City Council in 2018 proposed a new tree protection bill to increase tree canopy, promote stewardship of existing trees, and improve customer service for the public

and applicants. The proposal would replace existing regulations established in Chapter 25.11." (Emphasis added).

d. The expressed hopes for a new tree ordinance supports the City arguments that any impacts, however minor, are of great concern to the City, and the FEIS has taken these concerns to heart. However, it's a smokescreen to seeing that the FEIS concerns about tree canopy are actually false, including their gross underestimation of intrusion into critical root zones and subsequent canopy impacts and the lack of detail as to existing canopy, large trees, and tree groves.

2. Statements of Fact:

a. In addition, the City's significant witness at the recent FEIS citywide appeal included Seattle City Arborist Nolan Rundquist.

b. Recordings and city-generated transcripts for the Mandatory Housing Affordability (MHA) appeal hearing (day 9, July 26, 2018) called witness Seattle City Arborist Nolan Rundquist.

c. Mr. Rundquist indicated his involvement in Seattle's 2007 Urban Forestry Plan that identified having trees in the city provides multiple environmental benefits (habitat and the like), economic benefits where it reduces storm water and the need for expensive infrastructure, social benefits good for emotional health, and air pollution reduction.

d. Mr. Rundquist acknowledged that report cautioned in the attempt to curb urban sprawl by encouraging more growth in the cities that Seattle will have to be careful because if we lose our trees, people aren't going to want to live in the city.

e. Mr. Rundquist also concurred that the report said that the city's regulations to hold on to the trees were inadequate and called for stronger regulations, but by the time of a subsequent 2013 report that there were no stronger regulations adopted and stronger regulations was still needed for privately maintained trees or private property trees.

f. As indicated in our motion and in the testimony of Mr. Rundquist, the City has still not adopted any stronger regulations by 2017 causing the Mayor issued an Executive Order that called for stronger regulations.

g. The above comments on the inadequacy of the current tree ordinance and the delay of a new one; as well as the heritage tree program; as well as the minimum soil area needed to plant trees; as well as street tree surveys and permits were comments that Richard Ellison of TreePAC submitted to the DEIS and the same comments he included within a ADU petition that received over 100 signers. And some excerpts from the Office of City Auditor, Management of City Trees, May 15, 2009, Summary of Findings and Recommendations.

h. As indicated in the motion, TreePAC would be willing to minimally intervene for the sole purpose of preserving the right to appeal (as such intervention may be permitted at any time up to the start of the hearing.)

i. Although not frequent, there are certainly other recent examples of an entity who has not filed an appeal but have requested and been granted the ability to participate in the appeal via intervention. In the Seattle case of W-16-006 to W-16-008, both WSDOT and King County were granted intervention rights despite their stated purpose as additional respondents to those issues unlikely to be adequately covered by the Seattle Department of Transportation.

j. The City falsely assumes the Seattle Tree Ordinance will protect Exceptional Trees, therefore no evaluation of any loss of exceptional trees by construction of new ADU's is warranted.

k. "Yes. The City -- as context, the City has tree regulations (14) currently that include protections for exceptional trees, (15) and by -- in this analysis, by assuming that all of that (16) footprint is not only tree canopy but would be removed by (17) the construction of a DADU, it's effectively assuming that (18) none of those trees is an exceptional tree, because if it (19) were, it would have protections that would influence where (20) and whether that DADU could be built. (21)."

"Q. Okay. Do any of the alternatives include any elements that (8) limit tree removal or provide additional tree protection (9) measures?
(10) A. Yes. In the preferred alternative, the rear yard coverage (11) limit, as I mentioned earlier, it would increase from 40 (12) percent to 60 percent; but in the preferred alternative, we (13) stipulated that that increase, that additional coverage, (14) would be predicated on limits to tree removal. In other (15) words, a detached ADU could exceed 40 percent only if it did (16) not result in the removal of trees. Might the critical root zone be part of where the footprint (9) would be of an exceptional tree? Actually, where the tree (10) itself is not within the footprint of a building, but the (11) root zone (inaudible) the critical root zone on that tree, (12) may be, in part, a footprint of that structure? (13) A. Well, my understanding of that section of the municipal code (14) includes protections both for the exceptional tree and the (15) root zone of that tree, so I don't know if it's possible by (16) code for the critical root zone to possibly extend into the (17) footprint of the DADU. But my understanding of the tree (18) protections is that there is protection for that root zone (19) so that it's -- it's not only that the tree itself would not (20) be -- you know, couldn't be in the footprint of the unit, (21) but that there's consideration of what that root zone is in (22) siting and locating any accessory structure in a rear yard."

l. However, the problem is the Seattle Tree Ordinance has not protected trees well in new development, as partly evidenced in Exhibit 4.2-9 by the 26% reduction in tree canopy with new development (30.3% to 22.2% is a 26% decline). Furthermore, testimony by Nolan Rundquist, Seattle City Arborist, in the MHA FEIS Appeal, speaks to the inadequacy of Seattle Tree code to protect trees on private property, the repeated delay on updating the codes for private property to reduce loss of exceptional trees, how code allows an Exceptional Tree to be replaced by 2 saplings, and the environmental benefits of trees, benefits which are lost with tree removal or replacement with saplings. [Reference the Appendix for MHA FEIS Cross-Examination of Nolan Rundquist, Seattle City Arborist].

3. Were there any opportunities to measure actual canopy losses to Seattle Single-Family zoned properties that recently constructed a DADU? Yes. A diagram made from aerial photos showing actual tree canopies would have been a more accurate means of representing Canopy Cover. Is the FEIS not aware of Seattle's GPS System that shows Canopy Cover as one of the layers? Why did the FEIS not show existing canopy cover in the Single-Family zones? Why did the FEIS not explain the diversity of canopy cover in different neighborhoods?
4. Do we expect the rate of new development to be spread evenly across the city, or more concentrated in some Single-Family zoned neighborhoods than others? Is the likelihood of denser ADU development in some Single-Family zoned neighborhoods evaluated within the FEIS? While the FEIS assumes development would be even across the city, is Broadmore likely to see the same level of new development as South Park? Where is any discussion of historical data of development in Seattle that suggests new developments in Seattle have expanded evenly across Seattle's neighborhoods?
5. Necessary Relief: Remand the FEIS to consider the capacity of streets to mitigate the tree canopy loss from private property. That historic trends in development by neighborhoods be evaluated to assess whether development is even across the city, or otherwise.

K. Mayor Burgess's Executive Order deemed inconsequential to the requirements of the FEIS, including Chapter 197-11 WAC - SEPA Rules.

1. Argument:
    a. Mayor Burgess's Executive Order 2017-11: Tree Protection was ruled to be outside of the relevancy of the appeal, as it's not a City code? This Order was made precisely because "recent research showed that existing urban tree protections and enforcement practices related to trees must be strengthened in order to protect Seattle's canopy coverage."
2. Statements of Fact:
    a. The FEIS must be conducted within the codes of the City
3. Necessary Relief: Require the FEIS to delineate which tree protection codes and policies would be enhanced as eluded to within the FEIS.

V. CONCLUSIONS

As indicated in the Motion for Intervention but not addressed in City Council's reply in opposition, TreePAC effectively argues that their interests in the appeal will "not be adequately represented as evident by the list of witnesses and exhibits presented within the Appellant Final Witness & Exhibit List dated February 12, 2019 and the Department's Final Witness and Exhibit List dated February 19, 2019. The issued ADU FEIS had very limited content and a subjective environmental assessment of the expected reduction of the city's tree canopy. It is also apparent that the lack of witnesses and lack of exhibits relative to the original Subject Appeal tree canopy issues ultimately will not adequately address the impacts without TreePAC's intervention or right to appeal the final order."

This defined intent of the motion has not been denied by any party of the appeal. That intent being had had any party of the appeal made an effort to include witnesses with exhibits to address the environmental impacts of tree loss, TreePAC would not have had to move to intervene. It is the essential purpose of the proposed intervention to have any party of the appeal adequately address the tree loss or remediation issues. We know that Queen Anne Community Council mentions tree losses in the appeal as an issue but they have presented no witnesses or substantive arguments within its appeal document list; nor has the City acknowledged tree losses as an issue as they have not presented within any of their fourteen witnesses to address evidence in this matter. Therefore, TreePAC must be granted the right to intervene because neither the Department nor the appealing parties have shown intent to properly representing the tree issue relative to the ADU FEIS.

As TreePAC finds fault in all parties not representing the environmental consequences of tree canopy loss within their submitted Exhibits and Witnesses, there is no prejudice to the rights of any party in this appeal. Parties to the appeal have failed to address the inadequacies of the SEPA to protect or remediate plants including Heritage and Exceptional trees and Tree Groves, but they have also failed to address the wildlife dependent on tree buffers such as the Great Blue Heron habitats. The SEPA checklist indicates that animal review as "Not applicable. The proposal is a non-project action affecting multiple parcels in the City of Seattle. A variety of birds and animals can be found throughout Seattle." Residential properties exist within the buffer zones of the Great Blue Heron.

The appellant and the City of Seattle have failed to present witnesses with exhibits relative to trees within this appeal despite the fact that tree canopy issues have been delineated as a concern by the Queen Anne Community Council several times with their appeal. Remand the FEIS to the City Departments to adequately consider the environmental impacts to tree canopy loss with this proposal.

On behalf of the TreePAC this 16th day of April, 2019.

By: _____

Richard Ellison, Vice-President of TREEPAC.
c/o TreePAC at 2131 N 132nd St, Seattle, WA 98133

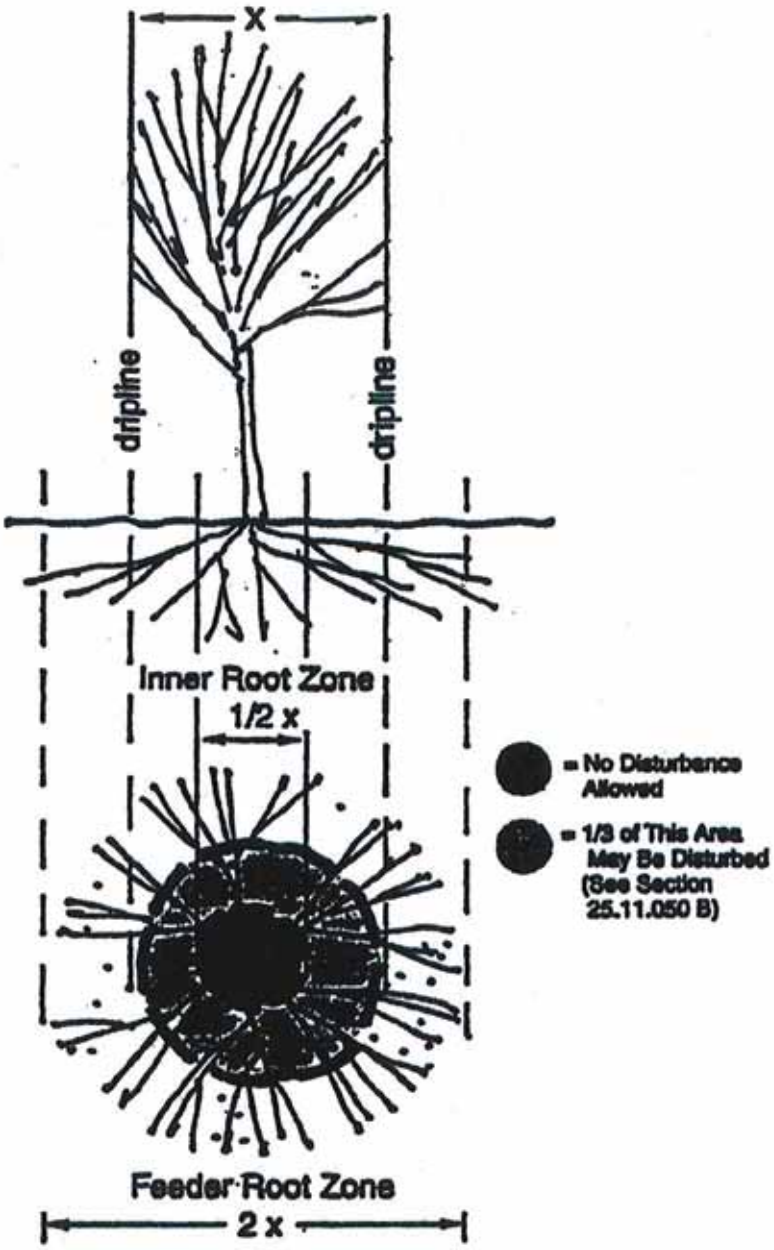
Appendix

From Exhibit 28 - Aesthetic Evaluation Page 19

- **25.11.050 - General Provisions for exceptional tree determination and tree protection area delineation in Single-family, Residential Small Lot, Lowrise, Midrise, and Commercial zones.**

A. Exceptional trees and potential exceptional trees shall be identified on site plans and exceptional tree status shall be determined by the Director according to standards promulgated by the Seattle Department of Construction and Inspections.

B. Tree protection areas for exceptional trees shall be identified on sites plans. Applicants seeking development standard waivers to protect other trees greater than two (2) feet in diameter measured four and one-half (4.5) feet above the ground shall also indicate tree protection areas on site plans. The basic tree protection area shall be the area within the drip line of the tree. The tree protection area may be reduced if approved by the Director according to a plan prepared by a tree care professional. Such reduction shall be limited to one-third of the area within the outer half of the area within the drip line. In no case shall the reduction occur within the inner root zone. In addition, the Director may establish conditions for protecting the tree during construction within the feeder root zone. (See Exhibit 25.11.050 B.)



Canopy cover is a major indicator of the breadth of the urban forest and its overall health and vitality. To determine the canopy cover of each MU, their individual land area was determined and the tree canopy percent in each MU was calculated. Tree canopy was computed both in terms of total area and as a percentage of the land area within each MU.

Results

Table 1 identifies the percentage of the city's landmass, current canopy cover, targets by MU, as well as each MU's contribution to the city's overall canopy cover. Figure 8 shows MUs contribution to

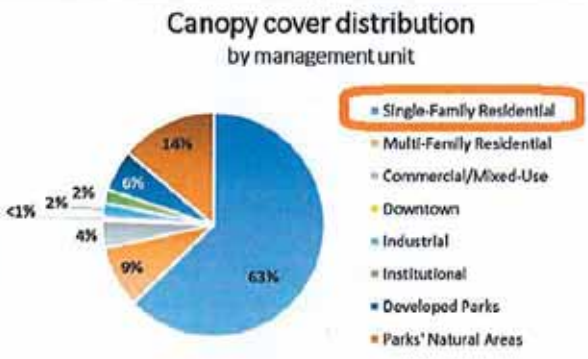


Figure 8. Contribution to the city's overall canopy cover by Management Unit.

Management Unit	Land area (% of city)	2016 canopy cover	2037 canopy goal (set in 2007)	% contribution to city's canopy cover
Single-Family Residential	56%	32%	33%	63%
Multi-family Residential	11%	23%	20%	9%
Commercial/Mixed-use	8%	14%	15%	4%
Downtown	1%	10%	12%	<1%
Industrial	11%	6%	10%	2%
Institutional	2%	25%	20%	2%
Developed Parks	4%	34%	25%	6%
Parks' Natural Areas	7%	89%	80%	14%
City total	100%	28%	30%	100%
Right-of-way (runs through all other MUs)	27%	23%	24%	22%

Table 1. Percentage of city's landmass,, current canopy cover, targets by MU and MU contribution to city's canopy cover

- Declaration of Claudia Newman ISO MSJ 5/9/2018 1:36:12 PM
- Declaration of Eugenia Woo 5/9/2018 1:36:28 PM

What is the Canopy Cover in Different Areas of Seattle?

Figure 9. Map of existing tree canopy for each of Seattle's neighborhoods.

Methods

The amount of Existing Tree Canopy was computed for thirteen neighborhoods, whose boundaries do not precisely align with the actual land area. This results in the "water" neighborhood having a small amount of tree canopy due to the presence of trees along the water's edge.

Results

The amount of tree canopy in each area is reflective of land use and urbanization, with industrial areas and the urban core having the least amount of tree canopy (Figure 9). Downtown has 10% canopy cover, mostly in the ROW. Greater Duwamish, the most heavily industrial area, has 15% canopy cover. Delridge, with its large patches of connected tree canopy is above the city average with 38% canopy cover. The North neighborhood has a robust amount of tree canopy within its residential areas (35%). The Central, East, Northeast, Northwest, Southeast, and Southwest neighborhoods all have at least 30% canopy cover. This can largely be traced to robust tree canopy of residential lands coupled with larger expanses of tree canopy in parks, the ROW, and other protected areas (Figure 10).

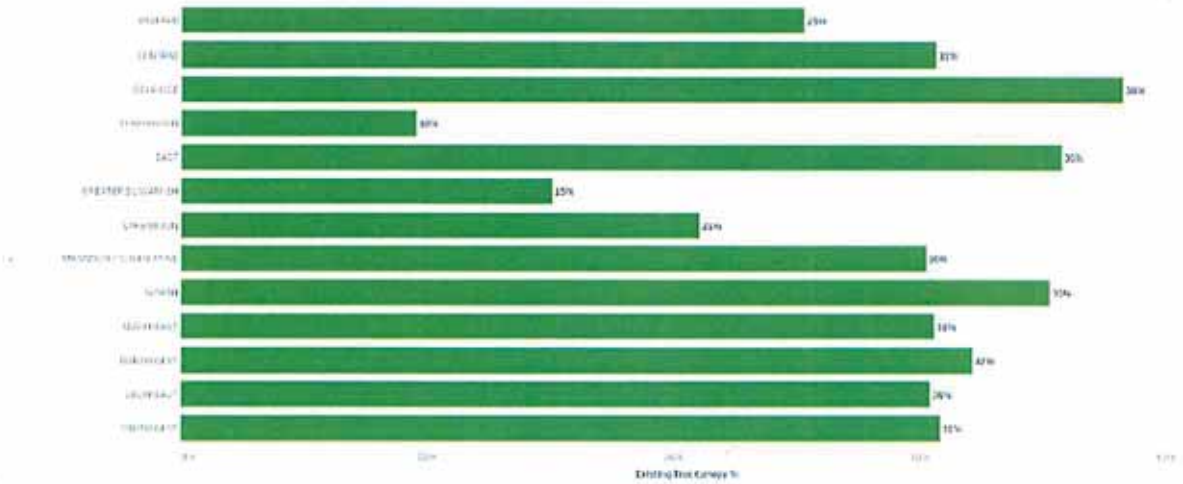


Figure 10 Percent of neighborhoods' land that is covered by tree canopy.

What Impact can Development Have on Tree Canopy?

Figure 19. Example of the impacts of development in a single family management unit parcel. The left image is from 2011 and the right is 2016.

Methods

Development impact on tree canopy was explored by randomly selecting 10 development points from each UFSP Management Unit totaling 80 points. Using 2007-2017 historical imagery from Google Earth, tree canopy was mapped by parcel for before and after development (Figure 19). Percent tree canopy was calculated by dividing the total area of tree canopy by the total area of the parcels.

Results

Although this piece is not statistically valid, it is a detailed analysis of how development impacted tree canopy at each identified point and provides general insights into how development can impact canopy cover over time.. Downtown and Single Family had the most tree canopy loss. (Figure 20).

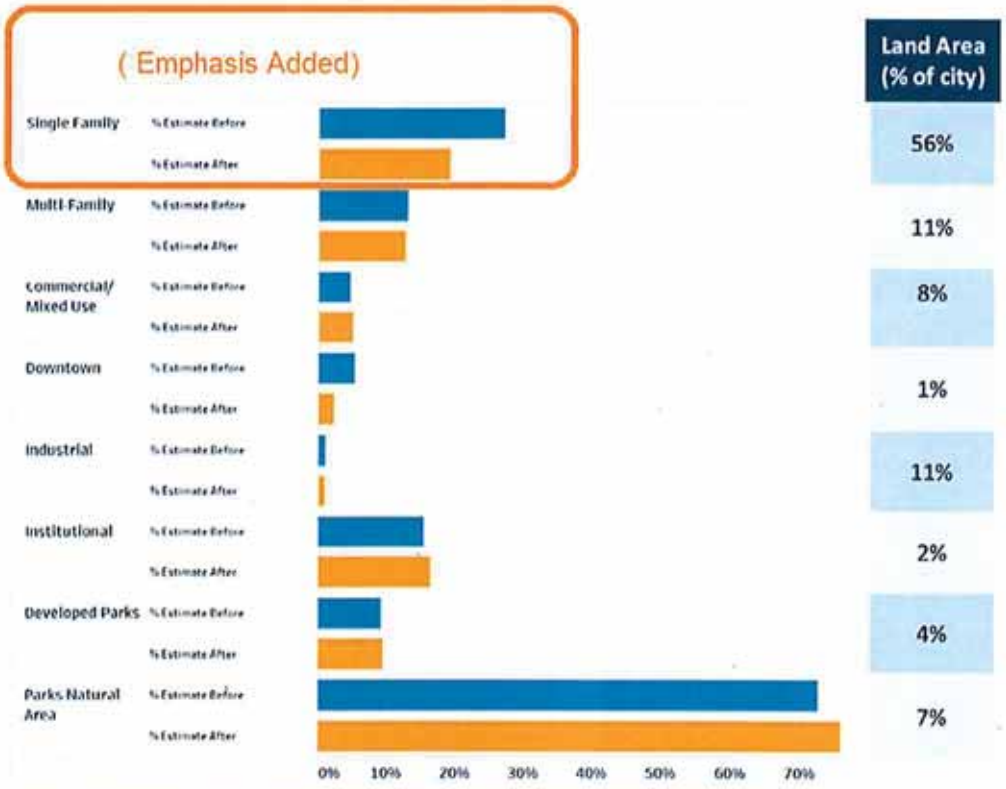


Figure 20. Percent tree canopy cover for each management unit before and after development occurred.

How does Tree Canopy Reduce the Urban Heat Island Effect?

Methods

The urban heat island effect is produced by dense concentrations of buildings, pavement, and other surfaces that absorb and retain heat. This increases air pollution, costs related to air conditioning, and heat-related health conditions disproportionally impacting vulnerable populations. Tree canopy helps reduce heat island effect mitigating impacts.

Surface temperature obtained from Landsat 8 satellite thermal imagery collected on September 20, 2016 was used to estimate the urban heat island effect. Landsat 8 senses thermal energy at a resolution of 60-meters. Surface temperature was integrated with the 2016 LiDAR tree canopy data to analyze how the presence of tree canopy affects the urban heat island.

Results

Determining the urban heat island in Seattle is challenging given that much of the city is surrounded by water, which dampens the urban heat island effect. Nevertheless, in the inland areas trees clearly help reduce surface temperature, thereby reducing the urban heat island.

This study produced GIS shapefiles for existing tree canopy, thermal imagery, and possible tree canopy (Figure 21) that can be used to identify tree planting locations to minimize the impacts of urban heat island hot spots by reducing surface temperatures, as well as to prioritize tree planting efforts to mitigate equity issues.

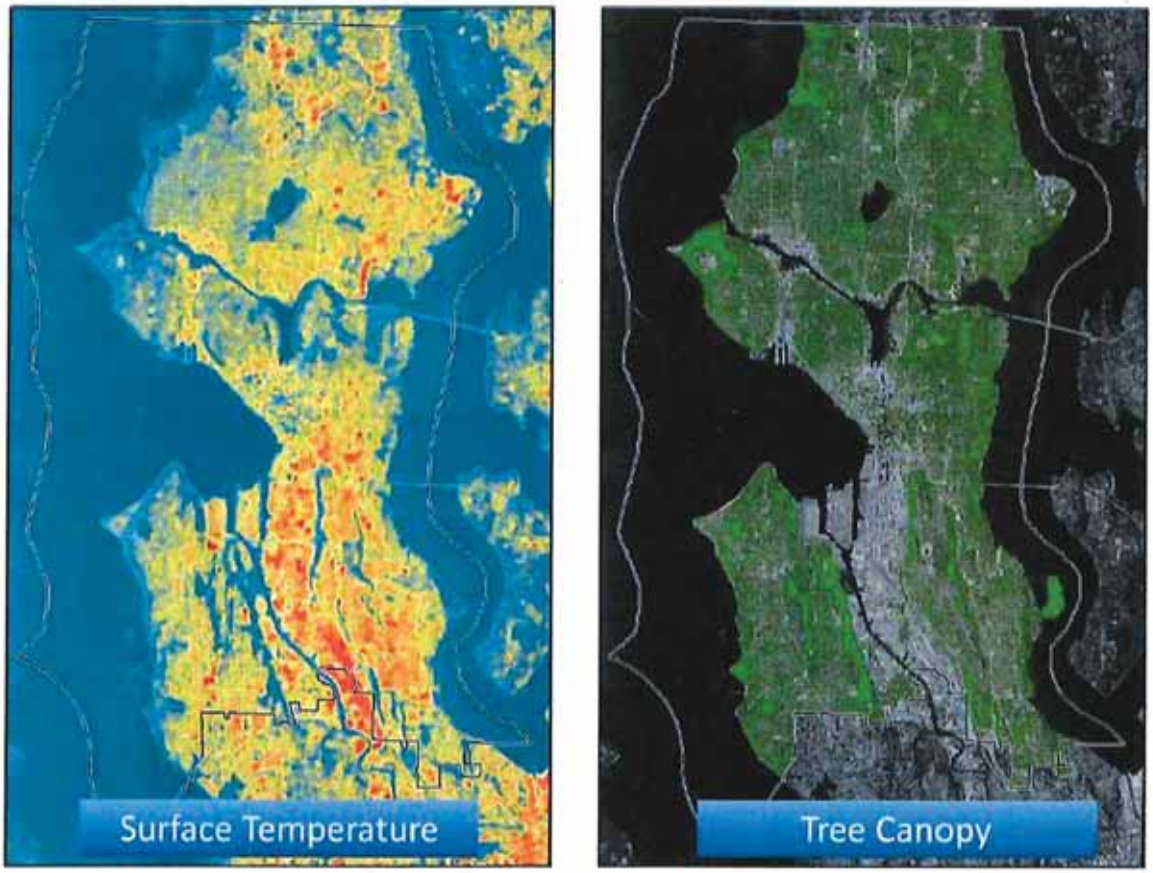


Figure 21. Seattle's urban heat island hot spots correspond to low tree canopy areas.

[15] From Exhibit 037 "2016 0000 Seattle Tree Canopy Assessment Report" Page 15

MHA FEIS Cross-Examination of Nolan Rundquist, Seattle City Arborist, 2018

Recordings and city-generated transcripts for the Mandatory Housing Affordability (MHA) appeal hearing (day 9, July 26, 2018) called witness Seattle City Arborist Nolan Rundquist.

Bricklin: Let's start with that executive order you mentioned in 2005 that has the two for one deal in it? … So, if you've got a big old fir, red cedar in the, um for any tree the city takes out, you gotta put in 2 trees and replace them.… So you replaced one big old tree with two tiny little saplings. Is that the executive order?

Mr. Rundquist: [01:38:30] that's what it says.

Bricklin: Then you worked on the 2007 forestry plan as well didn't you?... and that plan identified that having trees in the city provides multiple benefits ….environmental benefits obviously habitat and the like… economic benefits where it reduces storm water and the need for expensive infrastructure, social benefits good for emotional health, and air pollution reduction, right?

Mr. Rundquist: absolutely

Bricklin: [01:39:10] and that report also recognized that as we seek to curb urban sprawl by encouraging more growth in the cities we have to be careful because if we lose our trees, people aren't going to want to live in the city exactly, going to boomerang and people going to be going, more urban small pressure, not less right? yes that was in that report right?

Mr. Rundquist: Yes I believe it was

Bricklin: and that report also said that the city's regulations to hold on to the trees were inadequate and called for stronger regulations didn't it

Mr. Rundquist: yes

Bricklin: and in the 2013 reports that was entered as an exhibit here, but no stronger regulations have been adopted by then and the report again asked for stronger regulations right?

Mr. Rundquist: I believe you asked for stronger regulations for privately maintained trees, private property trees.

Bricklin: right. and by 2017, the City still hadn't adopted any stronger regulations and the Mayor issued an Executive Order that called for stronger regulations. Right?

Mr. Rundquist: I believe so

Bricklin: and as we sit here today those stronger regulations still have not been adopted is that's true?

Mr. Rundquist: it's not my job to adopt those

Bricklin: I didn't say it was

Mr. Rundquist: I did my job. I got the street trees going,

Bricklin: right, but, you agree with me. Those stronger reg[ulation]s for protecting trees if private development occurs, those still haven't been adopted, right?

Mr. Rundquist: [01:40:40] that that's, true private property rules are hard

Bricklin Okay, despite that being in the City's plans and Executive Orders for fifteen years.

Certificate of Service
I certify under penalty of perjury under the laws of the State of Washington that on this date, 16th of April 2019, I sent true and correct copies, via e-mail, of the attached Closing Statements from TreePAC to the Appeal Proceedings in the appeal of the Queen Anne Community Council for the Hearing Examiner File No. W-18-009. (Case Name: Appeal by Queen Anne Community Council on the Accessory Dwelling Units FEIS) Filed: 10/18/2018

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