RESTORE OREGON
SAVING HISTORIC PLACES

May 12, 2021

Honorable Mayor Wheeler and Commissioners
Testimony Re: Design Overlay Zone Amendments (DOZA)

As stated in previous comments, Restore Oregon supports many of the goals of DOZA including the desire to improve the design aesthetic of the City, and to retain the unique character of our diverse neighborhoods. As Commissioner Nick Fish once stated: "Everyone deserves a well-designed city." And in a City that touts its commitment to equity and inclusion, we would add that "Everyone deserves to have a voice in shaping their community," which is after all, an extension of their home. That degree of community engagement has not yet been achieved.

Restore Oregon is proud to join so many of Portland's Neighborhood Associations in supporting PDX Main Streets Top 5 DOZA Design Recommendations. In particular, we would like to emphasize 3 points aimed at preserving cultural and ethnic neighborhood character (and curbing climate change) by:

1. **Commit funding now to the development and adoption of Character Statements for "d" Overlay Areas** so we don't lose the context-specific themes and elements that make each neighborhood center unique.

The character and cultural richness of Portland's neighborhoods are under threat today. This City cannot stop the erosion of cultural heritage until it identifies it through robust community outreach and prioritizes it for protection.

For example, supplemental guidelines are critical to elevating themes from the Asian-American community within the Jade District, and as a way to empower and engage communities such as St. Johns, Midway or the Heart of Foster. This effort cannot wait 10 years. Rather, concurrent with the adoption of DOZA, the Council must instruct BPS staff to present a work plan, complete with performance deadlines for completing this work.

2. Set the Threshold for Triggering Design Review at 45' or Four Stories.
Most of the outer North and Eastside commercial centers consist primarily of 3-4 story buildings. Anything larger will dramatically change – and potentially overwhelm – its context, and so requires discretionary review to ensure that it responds to the surrounding character, and meets the neighborhood-specific Character Statement when in place.

The reason most often cited for increasing the threshold is lack of predictability in the development process. However, the fact that height and FAR in the design context is entitled completely undercuts this concern. Moreover, there are no cited examples of the Design Commission denying a development request when reviewed against discretionary design guidelines. Rather than resulting in development denials, discretionary review provides a forum for community members to meaningfully engage and creates positive outcomes for diverse communities.

3. Impose demo review for those Main Street areas vulnerable to demolition.

One of the most harmful outcomes of recent zoning height increases is the ensuing demolition of existing buildings. In addition to erasing our heritage, demolitions significantly set back Portland's goals for reducing emissions. Attached to this testimony is a summary of findings by ECONorthwest that the benefit of restoring and reusing a 10,000-sf commercial building, vs its demolition and replacement by a 20,000-sf building, equates to reducing CO2 emissions by 1,383 metric tons – the equivalent of taking 1,028 cars off the road for an entire year.

The soul of Portland is the wonderful diversity and character of her neighborhoods. And this will be erased if we get this wrong. Equity and access requires prioritizing context-appropriate design that embraces the cultural, historic, and natural features that matter to each community. Admittedly, this will require additional effort, but the impact – the legacy – will literally out-live us all.

Thank you,

Peggy Moretti
Executive Director Emeritus

Understanding the Carbon Cost of Demolition

By Peggy Moretti

While championing the role that preservation and reuse can play in meeting Oregon's goals for protecting the environment, Restore Oregon has often quoted Carl Elefante, former president of the American Institute of Architects, who famously said "The greenest building is the one that already exists." Recently, we enlisted independent research firm ECONorthwest to better quantify that greenness.

ECONorthwest was charged with analyzing dozens of studies evaluating the environmental impacts associated with building demolition, including one study from the Carbon Leadership Forum at the University of Washington which measured emissions from over 1,000 construction projects across the United States. They then crunched the numbers to estimate the average CO2 emission reductions realized by renovating existing structures rather than demolishing and replacing them. Finally, ECONorthwest presented their analysis using relatable real-world examples which policymakers and property owners can use to guide decisions about construction, land-use and density.

Because modern development practices almost always involve replacing historic buildings with significantly larger structures, ECONorthwest calculated emissions by assuming replacement buildings would be twice the size of their predecessors. We acknowledge that in some circumstances -- like when a modest single-story structure is replaced with a multi-story building -- this assumption may be conservative.

According to ECONorthwest's calculations, renovating a 1,500 SF older home reduces embedded CO2 emissions by 126 metric tons, versus tearing down the same structure and replacing it with a new 3,000 SF residential building. Such savings may be better understood this way: a savings of 126 metric tons of embedded CO2 is roughly equivalent to the prevention of 44,048 gallons of gasoline emissions being released into the atmosphere. In the case of a 10,000 SF commercial building, which would typically utilize more energy-intensive materials and construction techniques than residential construction, the CO2 emissions savings would be 1,383 metric tons, or the equivalent of 484,127 gallons of gasoline burned.

According to the Monthly Energy Review published by the U.S. Energy Information Service, the average American car uses 474 gallons of gasoline per year. Thus, renovating an older home, rather than demolishing and replacing it, equates to removing 93 cars from the road for an entire year, while a single commercial renovation equates to removing 1,028 cars from the road for the same period of time.

While no official statewide tally of demolitions exists, Portland does track demolition permit applications. According to Shawn Wood, Construction Waste Specialist for the City of Portland, 1,160 demolition permits were issued between 2016 – 2020. Of those, 337 homes were ultimately deconstructed, not demolished. Subtracting deconstructions from the demolition total still yields a shocking figure: the CO2 emissions generated in Portland by 823 residential demolitions over a span of five years are roughly equivalent to the burning of **36,251,504 gallons of gasoline** or the **annual emissions of 76,480 cars**. Over that same five year period, the City of Portland issued 376 demolition permits for commercial buildings, yielding emissions equivalent to **182,031,752 gallons of gas or annual emissions from 384,033 cars**.

Based on figures provided by ECONorthwest and the Bureau of Development Services, for the City of Portland to reach its stated CO2 emissions reduction goal, they would need to reduce annual CO2 emissions by 2,798,500 metric tons over 2018 levels. Conservatively speaking, residential and commercial demolitions in the City of Portland are responsible for 124,741 metric tons of C02 emissions per year, which amounts to approximately 4.5 percent of the City's total annual reduction goal. That is significant.

We know what you're thinking. Surely those thousands of tons of squandered carbon emissions are offset by the overall energy-efficiency of new construction. Not necessarily. Per a 2016 GreenLab report produced by the National Trust for Historic Preservation:

"It is often assumed that the CO2-reduction benefits gained by a new, energy efficient building outweigh any negative climate change impacts associated with the construction of that building. This study finds that it takes 10 to 80 years for a new building that is 30 percent more efficient than an average-performing existing building to overcome, through efficient operations, the negative climate change impacts related to the construction process."

Also worth considering is the fact that most historic buildings were built to meet their energy needs passively. Lighting, heating, cooling and ventilation were addressed via practical design elements such as transom windows, double-hung windows, awnings, recessed entryways, bulkhead grates, ceiling fans and tall, reflective ceilings. Larger structures tended to also utilize skylights and light wells, as well as shared walls which allowed individual buildings to serve as thermal walls for neighboring structures. Over time, alterations to these clever features can reduce or destroy a building's ability to function as intended.

Reversing such alterations, while addressing energy-wasting leaks in building envelopes, embracing renewable energy sources, and employing newer technologies such as energy-efficient lighting, floor and attic insulation, and updated HVAC systems, can make existing buildings as energy efficient as new construction – or more so – as evidenced by the many restoration and adaptive reuse projects which have received LEED certification.

What should be done?

Existing homes and buildings are among Oregon's greatest renewable resources. As such, their restoration and reuse should be promoted as an effective strategy for meeting carbon reduction goals statewide. However, a housing shortfall – combined with escalating land and housing costs – has driven land use planners, elected officials and developers to call for cities to build, baby, build! The more density the better is another common refrain. Some even advocate for removal of demolition protections for historic districts. In many places, affordable older housing stock, which is not designated historic but still retains useful life, is being razed at an alarming rate. And the rezoning of commercial districts to allow for increased heights has incentivized demolition of numerous pedestrian-scale buildings. As demonstrated above, all of this demolition comes at a big environmental cost.

As part of our advocacy agenda, Restore Oregon will be calling upon policy makers to acknowledge the environmental impact of sending usable buildings to landfills; strive for density without demolition; provide meaningful incentives for retention and reuse; and maintain or strengthen demolition review requirements for designated historic properties.

Certainly there are times when the public benefit of replacing an existing building outweighs the value of retaining it, such as when multiple units of new affordable housing can be created. But we urge government officials and private property owners to carefully consider the impact of demolitions on the sustainability and health of our communities, environment and planet.

Visit RestoreOregon.org for more information and to find links to source documentation for further reading.

Sources

ECONorthwest Report: Value of CO2 emissions reduction through building restoration, 2020.

Strain, Larry. "Time Value of Carbon." Seattle, WA: Report prepared for Carbon Leadership Forum at the University of Washington, 2017.

Historic Preservation And Energy Efficiency: A guide for historic commercial buildings. Published by Pacific Power, in collaboration with Energy Trust of Oregon, Clatsop Community College, and Oregon Main Street, 2015.

The Greenest Building: Quantifying the Environmental Value of Building Reuse. Published by The National Trust for Historic Preservation/Preservation GreenLab in partnership with Cascadia Green Building Council, Skanska, Green Buildings Services and Quantis.

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Fight Climate Change with Restoration & Reuse

Oregon's existing buildings are among our greatest renewable resources.

THE HIDDEN COST OF DEMOLITION & RECONSTRUCTION

126 METRIC TONS OF CARBON

Renovating a 1,500 SF older home, instead of tearing one down and replacing it with 3,000 SF of new construction, reduces CO2 emissions by 126 tons.

1,383 METRIC TONS OF CARBON

Renovating a 10,000 SF commercial building versus replacing it with a 20,000 SF structure, which uses more energy-intensive materials, reduces CO2 emissions by 1,383 tons.

RENOVATION & REUSE PREVENT EMISSIONS

44,048 GALLONS OF GAS

A savings of 126 tons of embodied CO2 is roughly equivalent to preventing the emissions from 44,048 gallons of gasoline

464,127 GALLONS OF GAS

The carbon savings for a commercial building is equivalent to preventing the emissions from 464,127 gallons of gasoline.

LOOKED AT ANOTHER WAY...

93 CARS OFF THE ROAD

The average car uses 474 gallons of gasoline per year. Renovating just one older home, vs. demolishing/replacing it, equates to taking 93 cars off the road for an entire year.

1,028 CARS OFF THE ROAD

Renovating an existing commercial structure makes an even bigger impact as its renovation equates to taking 1,028 cars off the road for an entire year.

DO THE MATH: IT REALLY ADDS UP!

From 2016-2020 in Portland, over 823 houses were demolished. That's equivalent to annual emissions from **76,480 cars**!

Over the same five years, 376 of Portland's commercial structures were razed. That's equivalent to annual emissions from **386,528 cars**!

Embodied energy is all the energy used constructing a building, including the creation of materials and building components as well as their transportation of the site.