

2011

Analysis and Strategy: Building Code and Related Solutions for Nighttime Noise Conflicts in Mixed-Use Neighborhoods



Julia Levitt, MSRE

Legislative Researcher

6/8/2011

Contents

Executive Summary	3
Introduction	4
Overarching Considerations	5
Stakeholder Perspectives	8
Summary of Current Practices: Noise Limits and Enforcement	12
Summary of Current Practices: Building Standards	13
Strategy Ideas	16
Exhibits/Appendix	35

Executive Summary

This report examined whether the Seattle Building Code can be part of the solution to the complex problem of nightlife-related noise conflicts in mixed-used neighborhoods. Noise issues have historically generated polarizing debate and finger-pointing among stakeholders in Seattle. The City embraces a mixed-use approach to development and seeks solutions that promote livability in areas where a growing residential population coexists with diverse uses including restaurants, bars and nightclubs.

The primary conclusion of this study is that while opportunities for amending the building code to regulate sound insulation in residential, commercial and/or mixed-use buildings do exist, the code is a relatively blunt tool, and there are cost and fairness challenges associated with using the code in this way. Of 15 North American cities surveyed, none reported using the building code itself to mandate noise attenuation in new or existing development for the purpose of controlling nightlife-related noise conflicts. Conversations with acoustical engineers and developers indicated that costs and effectiveness of specific materials and designs depend on a variety of influencing factors unique to each building and its surroundings; therefore, the economic impacts are difficult to quantify and the effectiveness is uncertain.

Stakeholders on all sides of the issue favor a performance-based approach to the problem that permits them to use their own expertise to respond to the market and the specific considerations of their site or business. Further, this study indicated that because noise is a layered problem, it is necessary to consider a full spectrum of available solutions including supporting effective management of clubs and residential buildings, and ongoing monitoring of noise standards and enforcement.

The report summarizes the current noise code, building code and mechanisms for conflict mitigation. It makes recommendations for strategy ideas based on a survey of practices in other cities and discussions with stakeholders and expert consultants including City of Seattle staff, local developers, nightlife advocates, architects and acoustical engineers.

The strategy ideas offered in this report are intended to complement ongoing discussions about managing nightlife-related amplified noise in mixed-use neighborhoods and to generate further discussion, research and analysis leading to action on the part of the Committee.

Strategy Ideas

- 1. Encourage responsible management practices**
- 2. Monitor performance of Nighttime Amplified Sound Rule and enforcement practices**
- 3. Research and test a performance-based standard for noise control in sensitive mixed-use areas**
- 4. Consider noise evaluation/mitigation linked to permitting in mixed-use neighborhoods**
- 5. If special building, permitting or disclosure standards are imposed, carefully consider options for defining boundaries in order to preserve complete, mixed-use neighborhoods**
- 6. Explore opportunities to spread the costs of noise-control compliance to the various beneficiaries, or grant financial assistance to qualifying businesses**

Introduction

Description of assignment

Problem Statement (issued by the office of Councilmember Sally Clark in December 2010):

Seattle has several neighborhoods with the reputation as a great place to go out for a drink, live music, and dancing. Finding these places in the city makes Seattle an attractive place to live and work. Individual bars and clubs and clusters of them make Belltown, Capitol Hill, Pioneer Square, Ballard, the University District, and Fremont well-known, sought-after neighborhoods.

While many late-night businesses call these neighborhoods home, so do thousands of residents. Neighbors at times raise concerns that amplified music (live and pre-recorded) is played at higher than necessary levels in buildings that weren't engineered for loud music or to accommodate mixed uses (commercial below and residential up above). Even when apartments or condos aren't located directly above a bar or club playing loud music, the sound and bass vibrations sometimes can be heard in nearby residences. Not surprisingly, neighborhood residents would like to sleep through their nights without interruption.

Similarly, businesses express concern about how residents react to nighttime entertainment. Some owners and managers of clubs have complained that the same residents who find their new neighborhood exciting and cool start calling 911 when the same clubs get rolling at 11 p.m. The clubs that made a neighborhood exciting and cool suddenly become the target of restrictions and calls for change.

"Who got here first" has not proved to be an effective land use regulation principle for mixed-use neighborhoods in Seattle. There may be ways to better safeguard against noise pollution and noise complaints through building codes.

For buildings constructed in Neighborhood Commercial (NC) and Commercial (C) zones in areas with strong concentrations of nightlife, do Seattle's development standards adequately protect businesses and residents against problems associated with noise? Should development standards in those areas be regulated differently than buildings constructed elsewhere? If so, in what manner? What other steps might Seattle take?

Methodology

The information and strategy ideas in this report reflect a series of interviews with numerous stakeholders including nightlife representatives, property owners and developers in mixed-use neighborhoods; acoustical engineers; general contractors; architects; property managers and members of the Seattle Department of Planning and Development, Office of Film + Music, and Department of Finance and Administrative Services. The full list of interviewees is contained in the Appendix.

This report also reflects a study of noise policy and enforcement practices in other North American cities. Some of these cities were chosen for the assignment because of their proximity to Seattle (Portland, OR; Vancouver, BC); others were chosen because they have an established mix of nightlife and residential use (New York City, Chicago, San Francisco, Los Angeles, Orlando); and others were selected for the study because they were comparable to Seattle in either size or population density. The

results of a study of the building and noise codes in these cities, and conversations with planning, environmental and noise code enforcement staff members are compiled in the spreadsheet titled "Tables of Noise Policy Responses from North American Cities" located in the Appendix.

Based on input from key stakeholders, precedents taken from other cities and a basic analysis of financial impacts associated with sound upgrades in both residential and commercial structures, the report culminates in a series of strategy ideas for addressing nighttime noise in Seattle's mixed-use neighborhoods.

Overarching Considerations

The built environment reflects a variety of aspirations and decisions on the part of policy makers, property owners, designers, business owners and neighborhood residents. Therefore, it is important to recognize that changes to regulations or expectations in the built environment intended to contain and control noise will also impact numerous factors beyond noise. Strategy ideas for this report reflect consideration of the following overarching priorities and goals:

I. Sustainability

a. Preservation of existing buildings

Nightclubs and bars commonly locate in existing buildings rather than in new spaces for several reasons, including more affordable rental rates and aesthetic character. Older buildings can have more noise containment problems than newer buildings, including older windows that do not dampen sound, leaks that allow sound to escape, or a lack of sound-controlling features that can be designed into a newer building (ie, a vestibule that helps prevent sound from escaping when the front door is open).

Significant reasons exist to support preservation and reuse of existing buildings. Buildings with historic character lend aesthetic value and street-level interest to Seattle's urban neighborhoods, and they offer small businesses affordable spaces that they will not find in newer buildings.

The strategy ideas in this report are designed to be sensitive to the desire to preserve and re-use character buildings for diverse functions, including nightlife entertainment.

b. Energy efficiency

Energy efficient and ecologically sensitive building practices are important to local government, Seattle residents and Seattle's business community. Sometimes strategies for energy efficiency and noise dampening complement one another: for example, double- or triple-glazed windows favored for their energy efficient properties can also be effective at preventing neighborhood noise from entering a residence.

There is, however, an important point at which the two goals can conflict: the issue of air conditioning and operable windows. Seattle's temperate climate allows many buildings to rely on natural ventilation rather than air conditioning for summertime cooling. Often, apartment buildings are built without air conditioning to reduce expense and because natural ventilation is the more energy-efficient alternative. If a building is not air-conditioned, opening windows is often the only means by which a tenant can control temperature; however, an open window allows sound to pass freely into a unit.

Because of the energy efficiency benefits of passive ventilation and the demonstrated preference to not include air conditioning in new multifamily residential buildings, these strategy ideas will avoid recommending a prescriptive mandate for air conditioning residential buildings as a means of achieving noise reduction.

c. Density

In line with the Seattle Comprehensive Plan, the Growth Management Act and such complimentary plans as the Cascade Agenda growth management plan developed by the Cascade Land Conservancy, the City of Seattle supports development that will absorb regional population and job growth in existing densely developed urban centers and urban villages.

II. Great Pedestrian Environments

a. Variety of Uses

A mix of uses at the ground level of buildings is crucial to activating sidewalks and streets and keeping neighborhoods lively and safe. Coffee shops, retail stores, restaurants, arts venues and nightclubs all play a role in activating the streetscape with different users doing different things at different times of day. Too many cafes or retail stores can be problematic if they allow the streets to become quiet and inactive at night. Too many bars or nightclubs in one area can be problematic if they allow the streets to become quiet and inactive during the day. Given Seattle's overall tendency toward zoning for mixed-use development, it makes sense to continue to create policy that enables a balance of uses to coexist in one neighborhood, alongside residential development.

b. Aesthetic Interest and Permeability

Visual variety is necessary for providing a welcoming and engaging experience for pedestrians in walkable neighborhoods. According to the writing of Jan Gehl of Copenhagen-based Gehl Architects, who has consulted for Seattle regarding pedestrian environments, it is ideal for pedestrians to encounter a new visual stimulus every 4 to 5 seconds.

Additionally, interplay between buildings and the right-of-way can add interest for business patrons, pedestrians, residents and others. Open windows, roll-up garage doors, windowed storefronts and retail that "spills" into the public sphere in the form of outdoor dining or sidewalk displays help make the built environment permeable. It is not in the best interest of the built environment to create regulation that encourages blank walls on the street or ground-floor retail that is closed and sealed off to the sidewalk. Rather, it is preferable to encourage owners and business managers to creatively engage with an active streetscape while meeting noise ordinance requirements.

III. Economic and Cultural Diversity

a. Importance of small, local, independent entertainment/nightlife businesses

The City of Seattle derives economic value from its diverse music scene, as reported by a team of University of Washington researchers to the Office of Film + Music in 2008¹. The Council has repeatedly expressed support of small businesses, and recognizes that they not only contribute a great deal to the character of Seattle, but also re-circulate much of the economic value they capture within the local community.

b. Variety of types of music and events

Different styles of music are associated with different levels and types of noise. Some styles are known in particular for the bass "thump" that can disturb nearby residents. Diverse styles of music that reflect the tastes and talents of Seattle's diverse population are important to the music and nightlife economy. Therefore, it is best to seek solutions that allow a fair chance for all types of music to be played, and that don't seek to stigmatize or unfairly restrict the playing of one style of music versus another.

c. Variety of housing options

Cultural, economic and social diversity are important components of great neighborhoods. It is important that as Seattle's urban centers and urban villages continue to grow, they can continue to offer a variety of housing options at different price points to serve the needs of a variety of households with different incomes, household sizes and lifestyle preferences. It is important to consider whether strategy ideas will adversely impact cultural, economic and/or social diversity by, for example, increasing the cost of residential development and driving rents too high; or by limiting the diversity of businesses that can open in a given area.

¹ "The Economic Impact of Music in Seattle and King County," 2008.
http://www.seattle.gov/music/docs/Seattle_Music_EIS_2008.pdf

Stakeholder Perspectives

The perspectives represented below, culled from a series of interviews, highlight the complexity of nightlife-related noise issues in Seattle.

Nightlife business owners

Nightlife business owners often have a professional interest in maintaining good relationships with neighbors and law enforcement. Having repeat visits from the police department in response to noise violations is troublesome to a club owner and bad for business. Because many clubs rely on reputation and word of mouth to bring in patrons, negative perception of the club within the neighborhood business environment can be bad for business as well.

Clubs need to provide an enjoyable and competitive experience for patrons. This requires music to be played loud enough to be heard clearly above the noise of patrons talking and moving around the club, and loud enough to create a desirable nightlife ambience. A good sound system attracts both patrons and music acts for live or DJ music clubs.

Smaller clubs owned by individual local entrepreneurs often operate on slim profit margins and do not maintain large reserves of capital needed for building upgrades.

Clubs are often tenants in older buildings, where rents are more affordable and the aesthetic is different than what is found in new construction. The quality and construction type has a significant influence on noise insulation: for example, structures with a large percentage of the exterior covered by older windows can easily leak sound to the outside even when doors are closed. According to Bill Reddy, Nightlife Premises Coordinator, Seattle Department of Finance and Administrative Services, the various construction types common in Seattle include unreinforced masonry, steel and wood-frame construction, all of which can be inefficient at deadening sound.

Costs of building upgrades can be thousands or tens of thousands of dollars (in the case of the Last Supper Club in Pioneer Square, which has many windows, Reddy reports the cost of upgrades was quoted at \$80,000). Soundproofing improvements to the property are not necessarily recovered in the form of property value, since most nightlife businesses do not own their space; or in the form of higher revenues, since patrons may not notice a difference. Some independent nightclub owners choose to research sound-dampening solutions and do the work themselves as a means of controlling costs.

Office of Film + Music

Rachel Sawyer is the Music and Nightlife Program Coordinator for Seattle's Office of Film + Music. She serves as "translator and mediator" between nightclubs and the City, and authored the Nightlife Handbook that offers code interpretations and best practice suggestions to Seattle nightclub owners.

Sawyer, who used to work on nightlife noise enforcement, supports the establishment of a measurable standard and the requirement that a sound measurement be taken inside the complainant's dwelling unit. Without a measurable standard and an onus on the complainant, she feels there is little to discourage complaints that are driven by personal vendettas against particular clubs or business owners.

Sawyer believes it is unreasonable for building owners or residential tenants to expect the same level of nighttime quiet in a mixed-use neighborhood that they would expect from a purely residential neighborhood. She notes that problems are often the result of mismanaged expectations on the part of residential tenants, particularly those who purchase condominium homes. She expresses concern that residential developers in these neighborhoods often don't adequately soundproof their buildings, nor do they disclose the proximity of venues to their dwelling units when selling or leasing a building.

Sawyer mentioned that her office has looked into proactive contact to developers who have proposed residential buildings in nightlife-concentrated areas in order to suggest that they should do extra soundproofing. However, she suggests this would be ineffective because there is no mandate for developers to consult with the City in this regard, and because there are no codes or regulations to back up any recommendations that might be offered.

Sawyer says the biggest hurdle in getting building owners to make upgrades to contain noise is the cost of making soundproofing improvements to buildings. She compares this hurdle to the fire code requirement that all dance clubs have sprinkler systems. The original hope was to achieve full compliance from Seattle businesses by 2009; however, the full sprinkler upgrades could cost as much as \$80,000, and many business owners were unable to pay for them. The Office of Film + Music and the fire department have worked with nightclub owners to phase compliance so business owners can make the investment in stages; however, this has still not enabled everyone to comply. In Sawyer's experience, building owners are generally unwilling to invest money in upgrades for their nightclub tenants. According to Sawyer, "In the past three years, between five and 10 businesses have gone completely dark because the building owner won't pay for upgrades, soundproofing being one of those major upgrades.

Sawyer notes that while the majority of nightclub owners are interested in working with the Office of Film + Music and working with other stakeholders in the neighborhood to find solutions, there are "a handful" of businesses that refuse to engage in mediation, and refuse to cooperate. In her words, "The bad apples ruin it for everyone."

Residents and residential owners/developers

A review of the leasing/advertising websites of residential buildings in mixed-use neighborhoods including downtown, Capitol Hill, Fremont and Ballard indicates that owners of residential and mixed-use projects in these neighborhoods often present proximity to amenities like restaurants and bars as a positive feature of their property. The frequent use of marketing phrases such as "Live, Work, Play," and the frequent use of Walk Scores² and similar qualifiers that describe an apartment or condo's proximity to dining, shopping, nightlife and other service and entertainment businesses indicate that there is a recognized market demand for proximity to these neighborhood amenities. It is important to note that although nightclubs are a part of this picture, they are rarely if ever the sole marketed neighborhood amenity for a residential property. Additionally, any direct financial benefits derived

² Walk Score is a publicly accessible walkability index (www.walkscore.com/). A study titled "The Walkability Premium in Commercial Real Estate Investments," authored by Gary Pivo and Jeffrey Fisher at the University of Arizona and Indiana University (February 2010), concludes that apartments derive benefit from a higher Walk Score, mostly in the form of lowered cap rates. Lower cap rates indicate that buyers are willing to pay higher prices for the property because of a presumed or demonstrated lower risk of the investment. The report is available online at http://www.u.arizona.edu/~gpivo/Walkability%20Paper%208_4%20draft.pdf.

from a walkable location are partially offset by increased land values, property taxes and similar costs to property owners.

Local developer/owners of residential buildings indicate that noise is a concern when determining if a site is good for residential use, and when managing and leasing residential property. One owner of residential property on Capitol Hill reported that tenants often cite noise as a reason for moving out. Another developer who often builds in mixed-use neighborhoods said that while proximity to nightlife can make a property more marketable to young, social renters, nightlife does not appeal to all potential tenants. He said he would not build residential on a site that was within earshot of a hip-hop club, for example, because of the problems associated with bass noise and rowdy crowds.

One developer said that in his experience, simply meeting Seattle's energy code requires a high enough standard for insulating windows and other leak points that new code-compliant buildings are typically sufficiently insulated against noise.

No matter where the building is built, the developer/owner must be able to reconcile the total costs of building or buying a project with the rents or purchase prices that the market is able and willing to pay in order to satisfy lenders' requirements and meet their own expectations for risk-adjusted return of and on their investment. A project that doesn't promise adequate returns will not be developed. Informal conversations suggest that most renters are not likely to pay a premium rent for upgrades to noise insulation. Condo purchasers are more likely than renters to value an upgraded window or wall that increases the value of the property. Apartments are typically seen as a low-risk investment, therefore investors accept a relatively low rate of return, around 5% to 6% annually. Condominium developers often expect a return of around 15%. Retail buildings typically require annual returns around 10%.

There is significant difference in what a developer will spend on the construction and design of a building related to whether the property will be rented as apartments or sold as condominiums. One experienced residential developer said that typically "an additional two or three dollars per square foot" of construction can be borne by condominium projects because there is more flexibility in the purchase price than in the rental cost per unit that the market will pay for apartments. A local contractor suggested that condominium build-outs can range in price from \$35 per square foot to more than \$200 per square foot. This estimate indicates that purchase prices vary broadly enough that some projects are able to justify much more expensive build-outs than others. It is reasonable to assume that most developers base their choices of materials, designs and expense for condominium projects on experience and research on their target customer and the current market.

Local government

James Kebblas is the Director of the Office of Film + Music. He stated that his goals for enforcing the noise standards are to offer "assistance first; enforcement second." He wants to avoid prescriptive rules that will come down uniformly against less problematic offenders, and limit the strongest enforcement, in the form of metered citations, fines and mandated compliance, to the worst offenders. He acknowledges that the 65 dBC standard is higher than many other cities use, but he is confident that in order to encourage neighborhood nightlife that isn't "sterile," the limits must be higher, and that the 65 dBC limit will enable enforcers to single out the worst offenders. The use of the C-weighted scale will

allow enforcers to target only the more offensive bass noise, rather than higher-frequency noise, which Kebblas says can be more easily mitigated by closing a door or window.

Kebblas says of his intention for the standard, "We don't need to create a regulatory environment around these problems when it's not necessary."

Further, he says, it is important that the creation of new policy acknowledges "the high level of contention regarding nightlife and noise historically in Seattle - resulting from both bad club owners and regulatory abuse." In his words, "With years of distrust and lack of cooperation, progress toward workable, balanced solutions may have to come in small steps, which is OK as long as progress is being made. In other words, don't let perfection be the enemy of the good."

Jocelyn Kane of the San Francisco Entertainment Commission and others point out that noise is essentially a money problem – with enough funds, you can solve it. Therefore the most effective response may be a fair way to determine who pays, why and what share, in order to encourage collaborative problem-solving that helps all stakeholders benefit.

Summary of Current Practices: Noise Limits and Enforcement

Existing Noise Code Pertinent to Nightlife

Seattle's Municipal Code makes a distinction between noise resulting from nightlife business and activity and other forms of occupational and nuisance noise. The Department of Planning and Development (DPD) recently issued and approved a Director's Rule identifying measurable limits for nighttime amplified sound. The DPD administers the noise ordinance. All contents of the rule and related enforcement of nighttime noise are handled by the Department of Finance and Administrative Services (FAS) and the Seattle Police Department.

Seattle's existing noise code is outlined in Chapter 25.08 of the Seattle Municipal Code (SMC), titled "Noise Control." Subchapter V addresses a variety of types of noise commonly defined as "public nuisance noise." Section 28.08.501 specifically addresses "Nightlife Disturbances."

The code states the following (full text replicated in Exhibits).

It is unlawful for any person in possession of real property, other than residential property, to allow to originate from that property between the hours of ten (10:00) p.m. and seven (7:00) a.m. amplified noise that is plainly audible to a person of normal hearing when measured inside a receiving dwelling unit.

The DPD Director's Rule approved on April 11, 2011 established the measurable standard by which to determine if an amplified noise is "plainly audible to a person of normal hearing" as either:

- Measured inside a dwelling unit: 65 dB(C), and more than 1 decibel over ambient noise levels, or
- Measured outside a dwelling unit: 80 dB(C), and more than 1 decibel over ambient noise levels.

The Director's Rule establishes that violations shall only be issued in response to complaints, and sound readings must be taken by formally trained staff from inside the receiving dwelling unit with doors and windows closed in order to be the basis for issuance of a citation. If a sound reading cannot be taken inside the dwelling unit because there is a hazard or because the resident will not permit enforcement staff to enter the unit, the sound measurement can instead be taken at or near any boundary of the property that includes the receiving dwelling unit. A measurement taken outside the dwelling unit can be used to issue a warning, but cannot be the basis for issuing a citation.

The Director's Rule uses the measurable decibel standards recommended in the Seattle Nightlife Initiative, a set of recommendations prepared and distributed by Mayor Mike McGinn on July 13, 2010³.

The term "Amplified noise" is defined in SMC 25.08.068 to mean "noise that is increased by electronic means." The standard uses dBC, the sound level measured in decibels using the C weighting scale. Sound is typically measured using either the A weighting scale or the C weighting scale. While the A weighting scale registers the range of the human voice very accurately, it is not well suited to

³ A PDF copy is publicly available at <http://mayormcginn.seattle.gov/nightlife>.

measuring low-frequency noise, such as the bass line of amplified music. The C weighting scale is generally preferred by acoustical engineers for measuring low-frequency sound.

Prior to April 11, 2011, the Nightlife Disturbance chapter determined amplified noise to be a nuisance by the phrase "plainly audible to a person of normal hearing when measured inside a receiving dwelling unit," with no corresponding standard decibel measurement. The Seattle City Council directed the Administrator (DPD) to "promulgate rules establishing standards for amplified noise that are plainly audible to a person of normal hearing" for this chapter of the SMC.

Noise Code Enforcement

Code Compliance Team

Seattle takes an interdisciplinary approach to investigating nightlife noise complaints and enforcing compliance. According to Bill Reddy, Nightlife Premises Coordinator, the Seattle Police Department keeps a weekly log of noise complaints received through its non-emergency number, and delivers a weekly list of those complaints to Reddy, who chairs a 42-member Code Compliance Team that addresses problems and issues associated with Seattle's nightlife. The team, originally proposed as part of the Mayor's Nightlife Initiative, comprises individuals representing the State, the County, and eight City departments.

The Code Compliance Team uses LiquorStat relational database to compare the noise complaints against specific clubs throughout the city with other incidents reported in relation to the same clubs. The team then develops customized work plans. An initial step may be an intervention meeting with the owner and staff of the problem club, during which the Code Compliance team works with the owner to develop a remediation plan, which the owner will implement. After the noise complaint has been brought to a resolution, Reddy follows up with owner and complainant at two weeks and again at four weeks, to see whether the problem has resurfaced.

Reddy believes the Code Compliance team is operating well. He added that it is beginning to be seen regionally as a "best practice," and that he has been asked by other cities, including Renton and Tukwila, to assist them with developing similar programs.

Summary of Current Practices: Building Standards

Background

A building's ability to insulate its interior against sound is typically expressed by the Sound Transmission Class (STC) of partitions such as walls, windows and ceilings. Roughly defined, the STC of a wall, window or other element of a building indicates the decibel reduction that a partition can provide. If a wall or window of a residential unit has an STC of 50, for example, and the noise level outside the wall is 100 dB, the noise inside the unit will be heard at a level of approximately 50 dB.

As a point of reference, US city government staff dealing with noise issues often cite a particular standard issued by the World Health Organization (WHO) in its "Guidelines for Community Noise"

report, which was first shared at a WHO meeting in London, UK in 1999.⁴ The WHO report advises that noise events above 45 decibels will cause an interruption in human sleep, and recommend keeping noise between 30 dBA (constant) and 45 dBA (single events) in bedrooms of dwelling units.

Seattle Building Code and STC

Seattle building standards for sound transmission, described in Section 1207 of the Seattle Building Code⁵, follows International Building Code standards. The code does not require a minimum STC for exterior walls (those that insulate the unit from the outside). The code does require a minimum of STC 50 (45 if field-tested after construction is complete) for common interior walls, partitions and floor/ceiling assemblies that separate residential units from other residential units or non-residential uses in the building. Penetrations such as those for piping or air ducts are required to be sealed and/or insulated to maintain the STC standard. These standards are meant to reduce transmission of air-borne sound, including music.

When existing buildings are converted to residential use, only the interior elements of the building that are being altered must meet the STC specifications of Section 1207 of the building code, described above. If the renovation does not include changes to the ceiling, for example, the STC 50 requirement would not need to apply to the ceiling.

The building code is reviewed and updated every three years in a process that typically takes 18 months. Planning and Development can, however, amend the code at any time, as deemed necessary.

Permitting Process/SEPA Regarding Noise Issues

The Seattle DPD does not regularly examine nightlife noise or amplified noise concerns as part of the permitting process for new development and construction.

State Environmental Policy Act (SEPA) reviews typically look at noise related to construction of a project, but not at noise issues related to nightlife or amplified sound that may come into play once the project is occupied.

Tenant improvements in commercial spaces require permits to build out the space and establish the use. When mechanical permits are sought for installation or change to exterior mechanical equipment, the Department of Planning and Development requires the applicant to provide either noise information for the equipment, or an acoustical report. There is no requirement for disclosure or acoustical reporting when a commercial unit will generate amplified music or sound, or when a residential building will be built in a noisy neighborhood.

Comments from Architects and Engineers

Several architects and engineers from local firms with experience designing multifamily residential buildings in such dense, mixed-use neighborhoods as Belltown, Ballard, South Lake Union and Capitol Hill commented on their experience. They said that in their experience, sources of noise were

⁴ World Health Organization, "Guidelines for Community Noise," section 4, "Guideline Values."
<http://www.who.int/docstore/peh/noise/Commnoise4.htm>

⁵ Seattle Building Code 2009 (Seattle Residential Code section R330 references noise attenuation standards also; however, Maureen Traxler, DPD, recommends the SRC standard won't often influence projects in areas where residential use will coexist with nightclubs).

considered as part of designing residential structures. Acoustical engineers are typically sub-contracted to test the building to ensure it performs in accordance with the building code sound requirements.

One architect agreed with a developer's statement that meeting the energy code requirements often results in upgraded windows and a well-sealed building envelope, which improves the building's ability to block exterior noise.

Dan Bruck, an acoustical engineer and president of BRC Acoustics & Technology Consulting, says that in his experience, typical new construction in Seattle achieves an STC of 25 for exterior walls, with about 15 dB reduction of low-frequency bass noise. If the noise outside was 80dBC outdoors, this 15dB of reduction would result in an interior level of 65dBC, which is permissible under the Amplified Sound Rule. The engineer pointed out that the rule allows nightclub noise to be louder than 80dBC when ambient noise is louder (interior levels can also be louder when ambient noise is louder than 65dBC).

According to the architects, new apartment buildings often do not have air conditioning, but new condominium buildings often do. This is relevant because Seattle's nighttime amplified sound requires measurements to be taken inside the complainant's dwelling unit with doors and windows closed. Air conditioning is required by energy code to be locally controlled, so tenants are able to choose whether they will regulate temperature by opening windows or using air conditioning. One developer said that he rents portable air conditioning units to his tenants who request them, and finds this more economical than installing central air conditioning in smaller multifamily buildings.

There are options for cooling and ventilating a building that do not require air conditioning. Among these are passive ventilation; vents in inoperable windows; radiant slab and radiant floor cooling. At this time, many alternative options are more costly than air conditioning to add to a project.

Comments from Window Dealer

A representative from Spokane-based VPI Windows, a preferred dealer of windows for new residential construction in Seattle, says that typically new apartment buildings will include modestly priced double-glazed windows of reasonably good quality and an STC of 28 or 29. An upgrade to an STC of 31 to 35, according to the representative's estimate, would add approximately 0.25% to 0.4% to the total project cost (the total cost of construction). The Mosler Lofts condominium project in Belltown, for example, cost approximately \$80 million to develop⁶. Using the dealer's estimate, the incremental cost to upgrade from standard windows to STC 31 windows would be approximately \$200,000; and the cost to upgrade from standard windows to STC 35 windows would be \$280,000.

Comments from Construction Estimator

A management-level representative from an international construction firm with offices in Seattle advised that window upgrades would be likely to cost about \$5 per square foot, but could be \$14 per square foot or higher if an additional pane of glass was needed. He estimated the cost of exterior wall upgrades for sound insulation at \$4.25 per square foot for the purposes of the cost impacts analysis covered later in this report.

⁶ Stiles, Marc. "Real Estate Buzz: The warts-and-all story of Mosler Lofts." *Seattle Daily Journal of Commerce*, October 28, 2010.

Strategy Ideas

1. Encourage responsible management practices

Most respondents surveyed for this report advised that good management is the most effective and lowest-cost strategy for mitigating and preventing noise conflicts between residents and nightclubs.

Precedents

Epicenter Apartments

The Epicenter apartments in Fremont comprise 128 apartment units, 2 live-work lofts and 32,000 square feet of retail space, with retail tenants including PCC Natural Market grocery store and Peet's Coffee. The building was completed in 2004. The building is located at the busy intersection of 34th and Fremont, with numerous restaurants, bars and nightclubs nearby.

According to Epicenter property manager Rachel Ebeling, management requires the leasing staff to warn prospective tenants about the noise on different sides of the building when showing units. The Epicenter also requires new tenants to sign a special lease addendum acknowledging that they are moving into a noisy neighborhood that hosts several significant festival-type events throughout the year. Noise-related language in the addendum reads:

"The tenant also acknowledges that the project site is in an Urban environment and in such an environment noise from nearby businesses can cause disturbances in the late evening to early morning hours. Tenant agrees that the landlord and owner are not liable for the disturbances and such noise is not grounds for early termination of the lease or a diminished rental value."

Ebeling says that the policy of disclosing noise issues up-front and using the lease addendum has not adversely impacted building lease-up, and that since implementing these practices, noise complaints from residents have decreased in frequency to "just a few," occurring mostly in the summer months. The building still enjoys a high occupancy rate of over 95%, according to the website of owner Security Properties⁷.

The Villa Affordable Apartments

The Villa is a mixed-use apartment building with ground-floor retail located in Capitol Hill. The building includes 19 units for people making less than 30% of area median income, and 43 units for people making less than 50% of area median income. The Villa is located at 1106 Pike Street, near a concentration of businesses that play music and are open at night, including the restaurant Tango, which is a ground-floor retail tenant in The Villa; and Club Z, a private men's club across the street.

Bob Fletcher, Villa property manager, says he opens windows when showing the units to prospective renters, and points out the tenants on the ground floor and across the street. He asks tenants to speak with him instead of calling the police to complain, and he personally speaks to the creators of the noise and often gets results without further action. He maintains relationships with Tango and other

⁷ Epicenter occupancy rate since opening is disclosed in Security Properties' online development portfolio: <http://www.securityproperties.com/developmentproperties.html>

businesses, and says he works with them to align goals to improve the neighborhood as a whole in order to improve their business environment and quality of life for his tenants.

Agnes Lofts /Piston and Ring Building

Liz Dunn, who owns and manages several properties in the Pike/Pine neighborhood, says that the noise is problematic in this area. Negligent management is often at fault, she says, describing occasions where she has spoken with business owners who simply didn't realize that their music could be heard in adjacent or nearby residences. She says that often the businesses that have been in Capitol Hill for a long time do a reasonable job of managing conflict and keeping noise to a reasonable level, but new nightclubs that move into the area are not always good neighbors.

When a neighborhood petition began circulating in opposition of the Capitol Hill Block Party, Dunn communicated with her retail and residential tenants via email. Her email stated that her company, Dunn & Hobbes, supported the Block Party and music scene on Capitol Hill, but that tenants could feel free to sign the petition if they wished to do so. The email encouraged tenants to write back to Dunn & Hobbes management with any suggestions for improvements to the Block Party's logistics, offering to advocate for improvements to help the event run more smoothly for them. Although not specifically related to nightclub noise issues, this anecdote shows that some landlords think it is important to communicate with tenants when entertainment-related noise issues become controversial, and that doing so can be a simple and constructive process of offering to listen or assist.

City of Vancouver Noise Control Manual

The City of Vancouver, BC offers a downloadable Noise Control Manual on its website⁸. The report, prepared by a third-party acoustical consultant, offers thorough explanations of the causes and impacts of urban noise, and warns residential renters and buyers to beware of potentially noisy situations:

"The most obvious way to avoid being exposed to excessive noise from traffic or other permanent sources is not to choose a home on or near a busy street, a railway line an airport, a factory or a nightclub. Of course many other factors come into play when finding a residence such as location relative to work, transit services, schools, recreation and shopping as well as affordability. However, while the noise situation may be readily apparent if your future residence is on a busy arterial street, other locations that may appear quiet on first viewing may not be found to be nearly so peaceful at other times of day or week, or after longer exposures. Take the time to fully experience the noise environment (day and night, weekday and weekend), particularly before buying a residence. Don't be shy about asking future neighbours."

(Excerpted from City of Vancouver Noise Control Manual, p30)

Anecdotal

Several interviewees who deal regularly with nightlife noise conflict, including Bill Reddy of the Seattle Code Compliance Team, Rachel Sawyer of the Office of Film + Music, and Jocelyn Kane of the San Francisco Entertainment Commission, indicated that effective management and relationships between stakeholders are often the most important component of mitigation of this type of conflict. In addition, the interdisciplinary Nightlife Advisory Board emphasized management and training practices, including suggestions for "good neighbor" efforts on the part of nightlife business owners, among its recommendations presented to the City Council's Culture, Civil Rights, Health and Personnel Committee.

⁸ City of Vancouver Noise Control Manual: <http://vancouver.ca/engsvcs/projects/soundsmart/pdfs/NCM1.pdf>

Potential actions

1. **The Office of Financial and Administrative Services**, as the department tasked with enforcing the Nightlife Amplified Sound Rule, could assist renters and buyers of residential property by producing a report similar to the Vancouver Noise Control Manual. The publication could provide information on the noise levels measured in specific neighborhoods, and help residents understand what to expect and how to mitigate noise problems.
2. **Encourage Residential and Retail Property Owners and Managers to:**
 1. Ask apartment leasing agents and condominium brokers to disclose nightlife noise issues to potential tenants or buyers when showing units.
 2. Consider a lease addendum, such as the one employed by the Epicenter apartments, that requires tenants to acknowledge that they are willingly moving into a noisy neighborhood.
 3. Actively manage relationships with local nightlife businesses and regularly communicate with tenants. Often letting people on both sides of the conflict know that they are being heard goes a long way toward easing tension.
 4. Ask prospective nightlife business tenants to demonstrate a plan for managing and containing noise before signing a lease. Discuss any plans for financing structural upgrades and managing conflict if complaints come in.

Encourage Nightlife Business Owners and Managers to:

1. Engage with the neighborhood, and get to know owners and managers of both neighboring businesses and residential property.
2. Train security personnel to help manage noise issues by keeping doors and windows closed when amplified music is playing, and discouraging noisy activity from patrons entering and leaving the premises.
3. Consult an acoustical engineer to evaluate how loud music can be played without resulting in a noise violation.
4. Use a sound-limiting device to automatically calibrate speakers to an appropriate level.

Benefits

1. Good management practices have a high potential for effectiveness with low cost, relative to building or equipment upgrades.
2. Strategies such as disclosing noise issues to renters and buyers, and including a noise clause in the lease, can help manage expectations of renters so that they are not surprised by unanticipated nighttime noise.

3. Encouraging business owners and residential building owners to form professional relationships can help each appreciate the role the other plays in a complete neighborhood, and may set the stage for both sides to work together toward a common goal of improving the neighborhood.

Concerns

1. Disclosure and special lease agreements with residents are strategies that primarily address the "symptoms" of complaints and liability rather than the underlying issues of noise and livability.
2. One risk of disclosure and special leases may be that they discourage residents of a particular age or lifestyle from living in a building or neighborhood. If employed, these measures should be required only where actual noise concerns demand them, so as not to give neighborhoods a reputation for being un-livable because of noise. Because leasing clauses and disclosure statements may adversely impact property values, any lease addendum or disclosure statement recommended by the City should reflect input from experienced professionals including owners, property/leasing managers, acoustical engineers and real estate attorneys.
3. Management can complement and support, but not replace, effective policy and enforcement. These management recommendations must be balanced with ongoing monitoring of the effectiveness of the noise limits and enforcement practices.

2. Monitor performance of amplified sound rule and enforcement practices

Precedents

This report reflects a series of interviews with planning, noise policy and enforcement staff and a review of noise codes in North American cities with unique nightlife/residential situations and/or a reasonable basis for comparison to Seattle. Although cities regulate and enforce noise standards in different ways, all staff reported that noise control was a complex issue that required ongoing monitoring and sensitivity on the parts of policy makers and enforcers. Please see Appendix: Tables of Noise Policy Responses from North American Cities for specific information gleaned from code documents and interviews.

James Kebblas, who participated in the stakeholder group that determined the 65 dBC amplified sound rule for Seattle, explains that the standard is based on actual past performance of the city's music venues. Kebblas says that the current standard would have been adequate to isolate Seattle's problem venues in the past. The results of this study indicate that Seattle's approach is innovative compared to how most other cities nationwide set their noise limits.

In a public update about the Nightlife Initiative issued April 21, 2011, Mayor Mike McGinn said he “will conduct an annual review going forward, to ensure that rules are fairly enforced.”⁹

Potential Actions

1. Employ a balanced committee to sensitively and objectively evaluate performance of the standard, allowing enough time for citizens and business owners to get used to the new rule and settle into a pattern. Avoid measures of success and failure that are easy for biased stakeholders to influence unfairly; for example, if failure is based on a pure total number of complaints, organized complainants could call repeatedly and skew the measure of performance.
2. Continue to support intervention-based enforcement that emphasizes cooperation and compliance over punishment. The Code Compliance Team has a good track record of working with both the complainant and the offender, of identifying which businesses require intervention at what level, and of working carefully to establish the source of the noise problem and prescribe an appropriate solution.
3. Penalties must be high enough to drive compliance, and to encourage violators to pursue the zero-penalty option of investing in upgrades rather than paying fines. Current fines are set at a required warning for the first violation; \$1,000 fine for the second violation and \$2,000 per day for the third violation and beyond. If these fines are being regularly imposed without resulting in compliance, they should be re-evaluated.

⁹ City of Seattle, Office of the Mayor. “McGinn Updates Public on Nightlife Initiative.” Emailed to Seattle Legislative Staff by Aaron Pickus on Thursday, April 21 at 12:42 pm.

3. Research and test a performance-based building code standard to regulate noise control in sensitive areas

The City of Seattle's building code does not require residential buildings in mixed-use neighborhoods to meet a specified goal or standard for noise insulation. This is consistent with International Building Code and with the building codes of 15 other North American cities surveyed for this report. Interviews with developers, architects, engineers and a window dealer indicated that introducing a sound reduction performance standard as part of the building code may not cause a significant financial impact, and may in fact reflect the level of noise insulation that many developers are already practicing in mixed-use neighborhoods, while improving construction standards and potentially improving the residential experience. Sound insulation involves numerous variables, and insulating against low-frequency noise and vibration in particular can be difficult and expensive, so there is reason to proceed with caution.

Precedents

United States Office of Housing and Urban Development / Seattle Housing Authority

The US Office of Housing and Urban Development (HUD) requires housing projects that it finances to adhere to a performance-based standard for sound attenuation. HUD's goal is for projects to reduce noise to a day/night average of 45 dBA within the residential unit's interior. Tom Eanes, Senior Development Program Manager at Seattle Housing Authority, has worked on numerous projects that needed to meet this standard, and says that often the required performance can be accomplished with a high-quality window (two panes of glass of different thickness, separated by air space) and an upgraded ventilation technology designed to provide noise attenuation while allowing fresh air from outside to flow into a unit. Eanes reported that these two upgrades can generally be achieved at a moderate incremental cost (approximately \$1-2 more per square foot of window glass, and \$200 more per room for ventilation), and that they may be similar to strategies used by private developers who develop "relatively inexpensive" housing. He noted that some projects, however, can pose a much greater challenge. At the Yesler Terrace development that is currently undergoing design, for example, reducing impacts of traffic noise from I-5 may require such expensive upgrades that only market-rate buildings and offices will be able to face the highway, since below-market rents cannot justify the increased construction costs. Further, Eanes cautions that the upgrades he often uses may not be sufficiently effective against low-frequency noise.

City of Vancouver, BC

The City of Vancouver established a special district called the North East False Creek (NEFC) Event Zone. According to Matthew Bourke of the City of Vancouver, the special zoning district was created with input from NEFC property owners to support a site-specific rezoning. The area is an established stadium district containing such venues as the Rogers Arena and BC Place Stadium. The district is zoned solely for stadium use and related uses such as parking.

Property in the stadium district is concentrated in the hands of only a few property owners, and they were eager to build residential buildings on their site; however, zoning did not permit them to do so. The City of Vancouver didn't want noise complaints from new residential users to inhibit the use of this area for its intended function as a stadium and event district serving the entire metropolitan area.

The City Council adopted two policies in November 2010 to address this issue. One policy "provides guidance for the operators of event venues for monitoring and managing noise to reduce impacts on

adjacent housing in the Northeast False Creek Event District and surrounding residential areas.” The other policy requires applicants who request rezoning for residential use in the NEFC Event District to “prepare Acoustic and Thermal Comfort Studies to establish performance targets and provide assurances that dwellings will be livable and that there is compatibility between the nearby event venue(s) and the proposed housing.” The Acoustic and Thermal Comfort Study asks applicants to demonstrate how they plan to keep noise levels in housing interiors at or below 40 to 50 dBC during the loudest portions of events at nearby venues, and to show that comfortable interior temperatures can be maintained without opening windows.¹⁰

According to Bourke, the policies reflected a desire from property owners for performance-based, rather than prescriptive standards. Because residential developers are able to meet the indoor noise specifications in any way they choose, costs of compliance will vary. As of April 21, 2011, no application has been approved under the new residential policy.

A notable difference between the stadium district events and typical nightclubs/bars is that the large events the stadium district is known for tend to end around 10:30 or 11 p.m. Stadium events are different from nightclubs in that stadiums tend to draw larger, broader regional crowds with fewer competing events than smaller independent clubs with nightly DJs or local live music.

In other parts of the Vancouver downtown district, including where the highest concentration of bars is, Bourke says that subarea zoning discourages purpose-built high density residential use, which discourages new residential but allows existing affordable housing to remain.

Acoustical Engineers

Dan Bruck, President, BRC Acoustics, strongly favors a performance-based standard over a prescriptive approach that mandated the use of specific windows, wall constructions, etc. He explains that the noise-reduction capacity of different windows, particularly the low-frequency noise reduction, can vary according to the specific situation, and says it is most effective to have windows specified by a professional. He agrees that window and ventilation upgrades could be achieved at a relatively moderate incremental cost, but cautions that costs associated with reducing low-frequency noise could easily be much higher.

Because the Amplified Noise Rule allows measured noise levels to vary according to ambient noise, Bruck suggests that research and measurement will be necessary to understand actual ambient noise levels in different neighborhoods before determining the appropriate interior noise goals.

Julie Wiebusch, Principal of The Greenbusch Group, cautions that the HUD requirements may be more applicable to highway and traffic noise and not specifically to the low-frequency noise and vibration associated with amplified music; therefore a standard based on the HUD requirements may not be an adequate solution to the problem of nightlife noise. As a member of Seattle's Nightlife Advisory Board, Wiebusch supported the recommendation of increasing the building code requirement to mandate that ceilings between nightlife businesses and residential use have a minimum STC of 65 (more than double the noise reduction capability of the current code requirement, which is STC 50). Wiebusch acknowledges that this is a potentially very costly upgrade, depending on building construction: concrete buildings, for example, will have more power to insulate than wood-frame structures.

¹⁰ Full text of both policies included in Appendix.

City of Vancouver Noise Control Manual

The City of Vancouver, Noise Control Manual referenced in Recommendation #1 outlines specific practical suggestions for homeowners, tenants and residential property owners who want to keep noise from entering the premises. These recommendations include a comprehensive comparison of different window, roof and exterior wall options and their sound-insulation performance.

Cost Impact Analysis

Costs of construction and development are often unpredictable, and the interviews conducted for this report indicated that even costs associated with basic upgrades can fall within a large range. A series of sensitivity tests indicate, however, that the upgrades and cost estimates described by interviewees in this study could potentially be recovered with modest increases in monthly apartment rents or condominium purchase prices, if upgrades were limited to higher-quality windows, vents, and modest exterior wall improvements. There is also potential for financial gain from a better-performing building, if it improves building occupancy. A basic model suggested that increasing occupancy by less than one percent could offset the financial consequences of a modest acoustical upgrade. The results of this analysis are reproduced in the Appendix.

Real Estate Community

George Rolfe, Director of the Runstad Center for Real Estate Studies at the University of Washington, says that most developers are more comfortable with a clearly communicated standard than with the uncertainty of challenges to the building program posed during design review.

Rolfe also cautioned, however, that the impacts of increased construction costs will depend on variables specific to each project. Specifically, lending institutions may cap financing for a residential project at a specific number of dollars per square foot; if the cost of sound upgrades exceeds this cap, the remainder will fall to the developer. Such a difference could negatively impact project feasibility.

A Note About Commercial Spaces and Existing Buildings

This recommendation addresses new residential buildings specifically because of the existence of similar precedents, because setting a performance standard for new residential buildings seems to align with what many owners are already doing or attempting to do with new construction in busy neighborhoods, and because research indicated it was possible to improve noise reduction in residential buildings at a relatively modest additional cost in some cases. This study found no precedents for a code standard for insulating commercial spaces to more effectively contain noise. Further, because nightlife noise is produced by specific commercial tenants, a standard for insulating commercial spaces in sensitive areas would need to apply to all retail spaces where a nightclub *could* become a tenant in the future. This would drive up the cost of constructing commercial space and/or limit design flexibility and permeability unnecessarily in many structures, and would likely inhibit the reuse and leasing of existing structures by nightlife businesses. While this would probably help control noise in neighborhoods, the negative consequences outweigh the good and limit the freedom of experienced designers, developers and business owners to find solutions for themselves. Ultimately the Nighttime Amplified Sound Rule already provides a performance-based target for amplified sound producers to match, either with structural upgrades, a lower music volume, better management or a mix of strategies.

Potential Actions

1. Work with acoustical engineers, construction material suppliers, architects, developers and tenants to identify a fair and reasonable target for interior noise in residential units.

2. Commission an acoustical consultant to create a set of recommendations for sound control in residential buildings, similar to that found in the Vancouver Noise Control Manual. The study should demonstrate an awareness of typical sound insulation in recent residential construction in mixed-use neighborhoods in Seattle, and should outline options for exterior wall massing and window selection reflecting current technologies, performance and pricing. This manual should be distributed to applicants for residential building permits.
3. Recommend or require that new projects in nightlife noise-affected areas demonstrate that they will meet that standard when exterior noise is loudest.
4. Consider standards that differentiate between apartments and condominiums, since apartment tenants are more mobile and typically make less of a financial investment in their space than condominium owners.

Benefits

1. A building code standard would help ensure that residential developers had done their part to insulate homes and commercial spaces to a reasonable level so that when noise levels outside approach the Nighttime Amplified Sound limit, noise levels inside can be kept to a predictable level.
2. If better noise reduction improved occupancy in residential buildings, better financial performance could help justify additional costs of design and construction.

Concerns

1. A change to the building code carries the risk of mandating high levels of soundproofing on streets that may not require it, driving up development costs unnecessarily.
2. David George, DPD, measures commercial noise impacts of new construction projects (separate from Nighttime Amplified Sound) to enforce the Noise Ordinance. George points out that there may be a double standard in requiring residential building owners to take action or make investments to protect their tenants from nightlife noise, versus placing all responsibility on nightlife businesses. He points out that in other instances where different land uses are mixed or near one another and noise issues arise – for example, when noise from industrial use, or mechanical use such as cooling equipment placed on a commercial rooftop, disturbs residential tenants – the onus is entirely on the noise violator to reduce noise and comply with the standard.

4. Consider noise evaluation/mitigation linked to permitting in mixed-use neighborhoods

Current permitting and environmental review in Seattle does not have a mechanism for addressing potential nighttime noise conflicts. As a result, nightlife businesses that rent space in buildings that are poorly equipped to contain noise and vibration from amplified sound are sometimes faced with a noise problem after they have moved into a space and begun operations. It is possible that encouraging noise impact studies or mitigation plans when a nightlife business moves into a space in a mixed-use building or neighborhood would help address problems in an early phase rather than after conflict has escalated. It is also likely, however, that mandating additional investment and permitting uncertainty up-front would inhibit the opening of new music establishments. As noted in the Benefits/Concerns section below, this policy carries a strong risk that potential negative impacts could outweigh potential benefits.

Precedents

Orlando, FL

The city of Orlando, Florida has significant entertainment uses concentrated in its downtown area. According to Chief Planner Jason Burton, the City has developed a variety of designations to determine allowable sound in this area. The Universal Studios amusement park, for example, is governed by a Major Attraction Overlay. The park went through rigorous review which included noise management planning during the permitting phase, and is now exempt from area noise regulation. The downtown Entertainment District includes Church Street Station and the surrounding area where Burton reports there are approximately 75 nightclubs and bars within four or five city blocks. The Entertainment District allows businesses to generate sound louder and later than in other areas of downtown, with a maximum limit of 75 dB(A) until 2 a.m.

Burton estimates that the residential population of downtown Orlando is about 4,000 people, and is growing as households increasingly demonstrate demand for downtown residences. Downtown residents typically live in high-rise multifamily buildings.

The City does not have a building code standard for noise insulation in residential or commercial buildings to address the issue of nightlife noise. The City does, however, require new downtown developments meeting certain size specifications¹¹ (virtually all downtown project applications) to undergo a Master Plan Review. During the Master Plan Review, the City can require the applicant to respond to concerns about sound insulation to ensure that the new development will adequately insulate residences and/or contain sound generated by businesses to a tolerable level.

Burton says that downtown residents do not complain much about noise. He adds that downtown residents are typically younger people.

Minneapolis, MN

According to Patrick Hanlon of the Minneapolis Department of Environmental Services, the City of Minneapolis includes an engineer from the department in the process of reviewing applications for new development permits. The staff person is able to raise concerns about how the proposed development

¹¹ According to Burton, the Orlando Master Plan Review is triggered by downtown projects that are larger than 65,000 square feet; that include on-site parking for more than 180 vehicles, or that are phased in any way.

will handle potential noise conflicts during this process, and the applicant may be required to provide an acceptable response as a condition of permitting.

San Francisco, CA

The San Francisco Entertainment Commission issues venue-specific standards for amplified noise. Venue-specific volume limits are established at the time a nightclub applies for its business license, and appear in writing as a condition of the license itself.

The Entertainment Commission employs one individual, Vajra Granelli, to visit applicants and take a variety of qualified sound measurements. He evaluates a number of factors including adjacent property uses, age of the building and configuration of sound equipment, prior to testing. He takes measurements of the ambient noise at various locations inside and outside the venue, then asks venue management to play music at their typical volume, and re-measures at all tested locations to determine how much the venue noise exceeds ambient levels.

In the extreme case that the noise exceeds tolerable levels outside the venue at any reasonable volume, the venue will not pass its sound test and must demonstrate improvement before a business license will be issued. In most cases, Granelli uses the measurements to issue a venue-specific volume standard that will be written into the business license. Businesses are in violation of their license if they are found playing music above this level. After the limit is set, the business owner must report later changes to the building or sound equipment so that sound performance can be re-measured and a new limit established.

This method has been practiced in San Francisco for about six years. Granelli says that San Francisco is home to about 5,000 liquor licenses and more than 400 entertainment permits within its city limits, and that affected entertainment businesses range from outdoor festivals and concerts with a capacity of 10,000 to dance clubs with a capacity of 3,000, to cafes that host spoken word events and acoustic music. He says the majority of the nightlife/entertainment businesses are owned by single individuals or very small corporations.

Granelli says that nightlife industry associations including the San Francisco Late Night Coalition and others were consulted when the San Francisco Entertainment Commission came into being and the policy was developed. He says for the most part, businesses seem to think the rules are fair "because we try to work with these different businesses." He praised the program for its ability to "create relationships" between the Entertainment Commission and business owners, which sets the stage for cooperation in a way that strict legal enforcement does not.

Granelli says that although he and the Commission "make it work" with one sound measurement staff person, he has sufficient work to occupy another two to three staff. He acknowledges that there is typically a long line of businesses waiting for him to do sound tests, and that it can sometimes take him as long as multiple weeks to get to a location in response to a noise complaint.

Granelli is a salaried employee of the City of San Francisco. The cost of the sound tests is offset in part by business license application fees (\$1500 per applicant). Granelli agrees that it would cost substantially more to hire a private acoustical consultant at an hourly rate to conduct a sound analysis and make recommendations for upgrading the facility. As a City employee however, Granelli does not act as a consultant to the businesses and only measures actual sound levels. He does not give formal recommendations for actions to upgrade facilities or otherwise control sound.

Cost Impacts

Acoustical engineers recommended a variety of strategies for improving the ability of nightclub spaces to contain sound, including the following:

- High-performance acoustical windows
- Construction of a vestibule inside the entrance to stop sound from traveling outside when a door opens
- Improvements to insulate the ceiling, particularly between a ground-floor nightclub with a residence directly above
- Thickening of walls with additional layers of material and/or airspace
- Construction of secondary interior walls to contain sound
- Sealing of ducts, vents, pipes and other vehicles that convey sound throughout a building
- Placement of awnings to block noise from street level from residential windows
- Strategic placement of speakers and insulation/heavy padding between speakers and structure to deaden vibrations

The cost of improvements varies widely according to the construction, size and specific needs of each space. In addition to cost, strategies can pose challenges to other building and safety code compliance: for example, the construction of a vestibule inside the entrance can raise issues related to ADA compliance and fire safety. Strategies that result in the loss of revenue-producing floor space can create an additional financial concern for a tenant.

Another cost issue is the question of who will pay for upgrades: the building owner or the nightclub tenant? An analysis of potential impacts to commercial rents if a building owner is required to finance upgrades is presented in the Appendix. Costs for retrofitting a space can escalate to large sums for materials and labor. If neither owner nor tenant is able to secure reasonable financing for such capital improvements, they will be required to produce a significant amount of capital up-front, which could impact project feasibility.

Communication Within DPD Regarding New Nightlife Business Permits

Bill Reddy, Nightlife Premises Coordinator, suggests that part of the problem is a lack of communication between permitting and land use divisions, which results in a failure to communicate potential noise concerns associated with new businesses to the land use department. Reddy suggests that it would be beneficial if "project information received at the front desk of Permits could flow across to Land Use. If a filter existed within the software (Hansen) that identified all permits with [such] key words [as]: Bar, Inn, Tavern, Restaurant, Nightclub, Lounge, Billiard Hall, Dance Hall, Speakeasy, venue, art space." Land Use would be alerted with the request toward approval to develop such an establishment, with the potential result of initiating a more thorough review of the proposal by all relevant DPD departments.

Potential solutions

1. Appoint or hire an acoustical engineer or noise enforcement specialist to review change-of-use proposals as part of a permitting process.
2. Include acoustical engineers or others with noise enforcement experience on design review boards. Encourage questions about how proposed buildings will address noise escaping proposed commercial spaces, or impacting proposed residential spaces.

3. Encourage a professional acoustic consultation at occupancy or change of use when a new nightlife business will occupy a space.
4. Consider recommendations that distinguish between mixed-use buildings where nightlife businesses occupy the ground floor with residences directly above, versus stand-alone buildings that house businesses only.

Benefits

1. Exposing and addressing noise issues early in the permitting and design phase of a project is less costly than regulating a project and suggesting or requiring retrofits after it has been built.
2. Examination and tracking of compliance by mixed-use and commercial buildings could raise the bar overall for new development in dense areas of Seattle by promoting an understanding of best practices.

Concerns

1. Additional permitting requirements complicate the existing performance-based policy, which simply requires businesses to comply with nighttime amplified sound rules using whatever method they choose.
2. The addition of new reviews will slow down and introduce new uncertainty into an already cumbersome permitting/review process.
3. Potential high costs of compliance and acoustical studies are likely to discourage new development and the opening of new businesses.
4. Existing buildings will face significant challenges because retrofitting and soundproofing is often difficult and expensive. This may discourage reuse of existing buildings.
5. Overzealous direction and prescription of specific remedies by permitting staff could inhibit architectural creativity and problem-solving and discourage street-level permeability.

5. If special building or permitting standards are imposed, carefully consider boundaries for new regulations to preserve complete, mixed-use neighborhoods

Precedents:

City of Austin, TX (Warehouse and 6th Street Districts)

According to Jim Butler, Creative Industries Development Manager for the City of Austin, Texas, the Austin City Council designated two geographical areas of downtown Austin as special entertainment districts about 7 years ago, after soliciting feedback from stakeholders in the entertainment community, where venues are permitted to play music outdoors louder and later at night than elsewhere across the city. The two districts are the East 6th Street district and the Warehouse District. The special district designation allows venues to play music outdoors until 2 a.m., which is two hours later than what is allowed in other parts of the city.

Butler says that the two districts have grown in population and activity in the past 10 years, attracting more households and services such as grocery stores to become, in his words, "24-hour neighborhoods."

In Butler's words:

"We have a very vibrant nightlife district in downtown Austin. It's part of the reason that people want to live downtown. There's been a significant boom in residential living in the last decade downtown, either in spite of or because of the nightlife. So far, there is still a very vibrant music scene downtown and lots more people living downtown."

Don Pitts, City of Austin Music Programs Manager and David Murray, Sound Technician Consultant, Music Division, say the 6th Street and Warehouse Districts are problematic and generate complaints from noise and violent behavior. They describe the districts as concentrations of "shot bars, DJs and college kids," and say that the street scene typically becomes loud, noisy and difficult to control every weekend night between midnight and 2 a.m. They say many patrons of the clubs come from college campuses outside of Austin and leave a mess behind in the district when they go home. They also say that the nightlife in the entertainment districts does not have much in common with the indie music scene that Austin is known for and that the City promotes.

When the Council originally designated 6th Street and the Warehouse District, no process was put in place to help determine the boundaries of future entertainment districts. Outdoor music and nightlife has increased in another downtown district known as Red River, and constituents in Red River are now requesting that their area become specially designated as well, to allow music until 2 a.m. According to Pitts and Murray, the City is pursuing a different type of designation in this district to possibly allow music until 1 a.m. and encourage a mix of uses, but that will also, they hope, prevent new residential development from displacing the existing three blocks of smaller music venues that are a hub for Austin's popular indie music. Ultimately this decision will be put to a vote of the Austin City Council.

City of New Orleans, LA

The City of New Orleans municipal code designates specially zoned historic districts, which have a different noise code standard than other areas of the city. The historic districts are described by the names Vieux Carre and Historic Marigny, and designated Residential or Commercial according to

dominant use. There is an additional special district called the Vieux Carre Entertainment District. In the special historic districts, nighttime noise limits are higher than in a typical residential receiving property by 10 to 20 decibels.

New Orleans planning staff says that the historic districts have higher limits because, among other reasons: the buildings are older and less able to contain sound effectively; the areas have a higher ambient noise level due to concentration of nightlife; and the historic areas often have buildings that are built to the property line, which is the point where the City measures for noise code compliance.

City of Las Vegas, NV

When the City of Las Vegas created its Downtown Centennial Plan in 2000, it established a Downtown Overlay district and included a new zoning and economic development plan for an area adjacent to the Casino Core, termed "Fremont East." Bars in this district needed a special designation to allow them to concentrate, because elsewhere in Las Vegas there is a rule that bars must be separated by at least 1500 feet from other bars or protected uses. In order to specially designate this district in a way that would complement and not compete with the casinos, licensed nightlife establishments that choose to locate in this area are required to provide live music or entertainment at least four nights per week, and were not permitted gaming, which other bar designations allow.

According to Tom Burkart of the Economic and Urban Development Office, the City determined that because it mandated the live music and entertainment, and because the climate in Las Vegas is conducive to both outdoor and indoor entertainment, the City needed to address the noise ordinance regulations differently in this district. The standard noise ordinance applied elsewhere in the city is waived in Fremont East.

Prior to the new entertainment district's creation, Burkart says, the area that is now Fremont East was not a popular place for tourists to visit, and the majority of residential use in the area was extended-stay type dwellings rented by the week or month. The district has been in place for nine years, and Burkart reports there has been a growth in demand for residential development. He says that one high-rise apartment building in the district is popular with young Las Vegas professionals, and the new Zappos corporate campus being developed nearby will drive more development and household growth.

Several other residential projects are now in various stages of the planning and permitting process. Burkart notes that the noise from nightlife businesses in Fremont East does elicit complaints from residents "who established prior to the district's success;" however, residential population has continued to grow. He says that new residents in this area are generally limited to adults in their 20s and 30s "who understand that living near the Entertainment District means dealing with some noise issues."

The City does not require residential buildings to demonstrate a higher sound insulation because of the location, but Burkart says he thinks this may need to change in the future, and that the City may need to encourage landlords to share a disclosure of neighborhood noise issues with prospective tenants.

City of Portland, OR

Paul Van Orden, noise-control officer for the City of Portland, says that he has done some initial work toward proposing delineation of entertainment and nightlife "café districts" that would require more rigorous soundproofing from builders up-front, but give businesses more freedom to produce nighttime

noise once they were approved within the district. The proposal contained a recommendation for separate designation of café districts and "vibrant residential districts," so that the areas where residential development was more dominant would accept quieter street-level retail and nightclubs would be discouraged, while café districts would have wider sidewalks and more noise-generating activity like street-level café use and nightclubs or music venues. Van Orden suggested that boundaries of these areas should be determined by organic development patterns and city development goals. His proposal has been tabled because of other prioritized concerns.

Ideas for delineating zones or overlays

1. Consider flexible approaches such as the Nighttime Zones established in SMC 15.48.050

The Nighttime Disturbance Code outlined in section 15.48.050 of the SMC, passed in August 2010 by City Council Ordinance 123369 (known informally as the "Meathead Ordinance,") defines "Nighttime Zones" as follows:

"Nighttime zone" means the Downtown and Commercial Zones as defined by Seattle Municipal Code [23.84A.048](#) and areas classified as Industrial Buffer on the Official Land Use Map.

According to sponsoring Councilmember Nick Licata's office, the Nighttime Zones were defined by existing zoning that permits both nightclubs and residential uses. The definition was made intentionally flexible so that enforcement could be applied at the discretion of the Seattle Police Department, and so that the Zone was not tied to areas where nightclubs are currently located, since business locations often change. The precedent studies demonstrated that one significant challenge faced when establishing nightlife districts or zones is that the geographical boundaries of districts tend to reflect a specific moment in time, despite the changing and evolving nature of small business and neighborhood character.

Further, applying new regulations linked to existing zoning avoids the need to label any specific street or neighborhood as an "entertainment zone."

2. Engage the community

Designation of an area as an entertainment district should reflect input from neighborhood stakeholders, and alignment with neighborhood goals. Engage stakeholders within the neighborhood including residents, business owners and property owners, so that they have the opportunity to voice their goals and concerns and to influence the designation process.

Benefits

1. Zone or overlay designation would create an opportunity to clearly communicate expectations for levels of noise and nighttime activity to both residential and commercial tenants who move into these areas of the city.
2. Designation that links to underlying zoning is fair and allows enforcement in areas of Seattle that may see noise conflicts in the future even though they do not have them now.

Concerns

1. James Keblas of the Office of Film + Music opposes the creation of nightlife districts, citing a concern that segregation of residential and nightlife uses, and restriction of nightlife to certain areas of the city would result in a “ghetto-ization of nightlife” that would contradict goals to mix uses and balance neighborhoods. He adds that the creation of entertainment zones has the potential to decrease residential property values.
2. Maintaining a mix of uses within districts and surrounding neighborhoods is key to long-term success of districts as complete neighborhoods. Excessive concentration of nightclubs and entertainment venues at the exclusion of other uses is not ideal, because it will prevent neighborhoods from generating 24-hour activity and supporting a diverse community of residents and businesses.

6. Explore opportunities to spread the costs of noise-control compliance to the various beneficiaries, or grant financial assistance to qualifying nightlife businesses

Concept

It's often more efficient to upgrade one nightclub building to keep sound in than to upgrade all nearby residential units to keep sound out (for example, by installing air conditioning in the nightclub so that it can keep its doors comfortably closed while residential windows stay open). When standards place all responsibility with the club owner, however, the nightclub owner must finance for the upgrades that benefit the nightclub, the residential building owner and the residential tenants (if, as Rachel Sawyer reported, commercial building owners are not willing to pay for upgrades for this reason, then nightclub owners who rent their space cannot recover their investment in appreciated building value). Can costs be shared by both parties to make this more equitable?

It is unrealistic to expect this approach to work in all or even most instances because it requires an alignment of interests and resources. However, it is included in this report because it has worked elsewhere and may be applicable in some circumstances. It is also a way to allow correction beyond the scope of existing regulation; for example, if no violation is occurring but a residential owner still prefers a quieter environment, a common solution may be reached that enables parties to benefit mutually.

Anecdotal Support

According to Don Pitts, City of Austin Music Programs Manager and David Murray, Sound Technician Consultant, Music Division, private developers in Austin are often willing to pay to upgrade "the club next door" to control sound. They cited a specific, though possibly extreme, example of a developer of high-end condominiums who gave \$1 million to the Austin Music Hall to re-do the interior to keep sound from escaping the building. As Pitts and Murray described it, the developer "knew he could sell more \$1 million condos if [the condos] are quiet."

The New York Main Street Grant Program

This grant program, administered by the nonprofit Landmark Society, "provides funds to business improvement districts and other not-for-profit organizations that are committed to revitalizing historic downtowns, mixed-use neighborhood commercial districts, and village centers; it funds building renovations, façade and streetscape improvements and, in limited cases, capital funding for projects intended to anchor downtown districts." Although this program is location-specific, it is an example of the type of resource that might support the renovation and soundproofing upgrade of historic structures in neighborhood commercial districts for cultural and entertainment commercial uses.

Potential solutions

1. Hire a researcher to examine and quantify the value captured by residential buildings located near nightlife businesses to serve as a point of reference. Similar studies in the US and abroad have attempted to quantify the impacts of amenities such as parks and green space on nearby property values.
2. Further research applicable loan opportunities (linked to sustainable communities, TOD or historic preservation) that could help qualifying businesses upgrade their buildings to control noise in mixed-use neighborhoods. Distribute grant application information through the Office of Film + Music.

3. Identify a City office or staff member to serve in a broker's or mediator's role to help make neighbor-to-neighbor resolution easier and more economically efficient. Encourage two stakeholders in conflict to agree to share costs to solve the problem.

Benefits

1. Engaging the community to find collaborative and mutually beneficial solutions could encourage members to think about cooperation among various stakeholders as a neighborhood goal, rather than thinking about the competing goals of individual businesses.
2. Sharing or subsidizing costs could help defray expenses to small businesses with slim margins, which might encourage and allow small businesses to stay rather than be displaced due to neighbors' changed needs or expectations.
3. Collaborative solutions have the potential to encourage the most efficient application of funds (improve or air condition the club, rather than all of the surrounding residential units) while spreading the costs around to all beneficiaries.

Concerns

1. The goal is to facilitate equitable and efficient solutions that make sense for both parties, not to create the false expectation that developers must pay for an upgrade unrelated to their proposed project when it does not make sense to do so.
2. Loans to nightlife businesses are likely to generate public dissent when other critical services are being cut.

Exhibits/Appendix

Sound Levels and Human Response

Relevant documents/sections of Seattle Municipal Code

City of Seattle Legislative Information Service

Seattle Municipal Code

Information retrieved April 12, 2011 11:48 AM

Title 25 - ENVIRONMENTAL PROTECTION AND HISTORIC PRESERVATION¹

Chapter 25.08 - Noise Control

SMC 25.08.501 Nightlife disturbance.

A. It is unlawful for any person in possession of real property, other than residential property, to allow to originate from that property between the hours of ten (10:00) p.m. and seven (7:00) a.m. amplified noise that is plainly audible to a person of normal hearing when measured inside a receiving dwelling unit.

B. It is an affirmative defense to any proceeding arising under this section that the receiving dwelling unit was unoccupied at the time of the violation.

C. The Administrator shall promulgate by rule a standard for amplified noise plainly audible to a person of normal hearing which can be measured using a sound level meter.

- Definitions of industry terms
 - Decibel
 - A-scale
 - C-scale
 - Sound Transmission Class
 - Noise Attenuation
- Comparison table of cities' noise/building policies
- List of suggested upgrades for noise control and costs (or cost tiers)
- Financial analysis using relevant construction costs and rents (if time allows)
- Contact information

Cost Impact Analysis

Assumptions

Cells highlighted in light blue below are variable inputs; number cells in white are results of calculations.

ASSUMPTIONS

Item	Quantity	Unit	Source
Sample Building Specs			
Total Units	100	Apartments	
Average Unit Size	675	SF	Developers
Rooms per Unit	2	Rooms	Architect
Average Window SF/Unit	45	SF	Architect -- 5'5' living room and 4'5' bedroom
Exterior SF/Unit	135	SF	Architect: Glazing is approx. 25% of exterior
Nightclub Retail Large Space	6,000	SF	Neumo's Main Floor is approx. 6,000 SF
Nightclub Retail Small Space	2,500	SF	Comet Tavern is approx. 2400 SF
Market Operating and Income Expectations			
Vacancy Loss	5%	Gross Revenue	Standard
Operating Expenses	\$5,000	Per Unit/Yr	RE Consultant
Construction Cost Assumptions			
Construction Cost	\$175,000	Per Apartment	Based on \$260 total cost per Apartment SF
Services and Fees	25%	Total Project Cost	Estimate
Land Cost	20%	Total Project Cost	Estimate
Acoustical Consultation: New Residential	\$3,000	Flat	Acoustical Consultant (consultation for new construction is \$15,000 to \$20,000; about \$3,000 of that would cover hours required to test the reduction of exterior noise from a bar or nightclub.
Acoustical Consultation: Existing Retail	\$6,500	Flat	Acoustical Consultant (consultation for existing building/retrofit is \$5,000 to \$8,000)
Upgrade Windows	\$5.00	Per Window SF	Construction Professional
Upgrade Vents	\$200	Per Room	SHA Developer
Upgrade Walls	\$4.25	Per Exterior SF	Construction Professional
Total Sound Upgrade Cost	\$1,228.75	Per Apartment	
Financial Feasibility Assumptions			
Desired Annual Return, Apts	6.00%	To Equity	Seattle Developer
Desired Annual Return, Condos	15.00%	To Equity	Seattle Developer
Desired Annual Return, Retail Space	10.00%	To Equity	Seattle Developer

Apartment Building

BASE COMPARISON

(\$5/SF window upgrade, \$4.25/SF wall upgrade, \$200/unit vent upgrade, \$3000 consultation)

	Amount	Rent/Cost	Subtotals	TOTALS	Difference
COST PROFORMA					
Construction Cost Estimate	\$175,000 @	100	\$17,500,000		
Services and Fees	25% @	\$17,500,000	\$4,375,000		
Land Cost	20% @	\$21,875,000	\$4,375,000		
TOTAL PROJECT COST WITHOUT UPGRADE				\$26,250,000	
Additional Soundproofing	\$1,228.75 @	100	\$122,875		
Upgrade Construction Total			\$17,622,875		\$122,875
Services and Fees	25% @	\$17,622,875	\$4,405,719		\$30,719
Land Cost	20% @	\$22,028,594	\$4,405,719		\$30,719
TOTAL PROJECT COST WITH UPGRADE				\$26,434,313	\$184,313
Cost Increase per Rentable Square Foot					\$2.73

RENT IMPACT COMPARISON PER ANNUAL RETURN TERMS (unleveraged)

WITHOUT SOUND UPGRADE			
Total Project Cost			\$26,250,000
Required Annual NOI	6.00% @	\$26,250,000	\$1,575,000
Add Operating Expenses	\$5,000 @	100	\$500,000
Gross Income Required			\$2,075,000
Annual Income Per Occupied Unit	\$2,075,000 @	95	\$21,842
Monthly Rent			\$1,820

Scenario: \$5/sf Window and \$200/unit Acoustical Vent Upgrades plus Consultation

APT: 2 rooms, 45 SF glazing, 135 SF exterior wall			
UPGRADE: \$655/unit			
Total Project Cost			\$26,348,250
Required Annual NOI	6.00% @	\$26,348,250	\$1,580,895
Add Operating Expenses	\$5,000 @	100	\$500,000
Gross Income Required			\$2,080,895
Annual Income Per Occupied Unit	\$2,080,895 @	95	\$21,904
Monthly Rent			\$1,825
Rent Different/Year			\$62.05
Rent Difference/Month			\$5.17

Scenario: Window, Acoustical Vent Upgrades, \$4.25/SF Exterior Wall, plus Consultation

APT: 2 rooms, 45 SF glazing, 135 SF exterior wall			
UPGRADE: \$1,229/unit			
Total Project Cost			\$26,434,313
Required Annual NOI	6.00% @	\$26,434,313	\$1,586,059
Add Operating Expenses	\$5,000 @	100	\$500,000
Gross Income Required			\$2,086,059
Annual Income Per Occupied Unit	\$2,086,059 @	95	\$21,959
Monthly Rent			\$1,830
Rent Different/Year			\$116.41
Rent Difference/Month			\$9.70

Scenario: Increased Window \$14/sf, Acoustical Vent, Exterior Wall, Consultation

APT: 2 rooms, 45 SF glazing, 135 SF exterior wall			
UPGRADES: \$1,634/unit			
Total Project Cost			\$26,495,063
Required Annual NOI	6.00% @	\$26,495,063	\$1,589,704
Add Operating Expenses	\$5,000 @	100	\$500,000
Gross Income Required			\$2,089,704
Annual Income Per Occupied Unit	\$2,089,704 @	95	\$21,997
Monthly Rent			\$1,833
Rent Different/Year			\$154.78
Rent Difference/Month			\$12.90

Scenario: \$5/sf Window, Acoustical Vent, Exterior Wall, Consultation in Larger Unit

APT: 3 rooms, 70 SF glazing, 210 SF exterior wall			
UPGRADE: \$1673/unit			
Total Project Cost			\$26,500,875
Required Annual NOI	6.00% @	\$26,500,875	\$1,590,053
Add Operating Expenses	\$5,000 @	100	\$500,000
Gross Income Required			\$2,090,053
Annual Income Per Occupied Unit	\$2,090,053 @	95	\$22,001
Monthly Rent			\$1,833
Rent Different/Year			\$158.45
Rent Difference/Month			\$13.20

Scenario: Increased Window (\$14), Acoustical Vent, Exterior Wall, Consultation in Larger Unit

APT: 3 rooms, 70 SF glazing, 210 SF exterior wall			
UPGRADE: \$2,302/unit			
Total Project Cost			\$26,595,375
Required Annual NOI	6.00% @	\$26,595,375	\$1,595,723
Add Operating Expenses	\$5,000 @	100	\$500,000
Gross Income Required			\$2,095,723
Annual Income Per Occupied Unit	\$2,095,723 @	95	\$22,060
Monthly Rent			\$1,838
Rent Different/Year			\$218.13
Rent Difference/Month			\$18.18

Scenario: Modest Upgrade Scenario in Small Unit; Modest Occupancy Improvement

VACANCY TEST: UPGRADE OF \$1,229 PER UNIT, VACANCY REDUCTION < 0.51%			
Total Project Cost			\$26,434,313
Required Annual NOI	6.00% @	\$26,434,313	\$1,586,059
Add Operating Expenses	\$5,000 @	100	\$500,000
Gross Income Required			\$2,086,059
Annual Income Per Occupied Unit	\$2,086,059 @	95.506	\$21,842
Monthly Rent			\$1,820
Rent Different/Year			\$0.07
Rent Difference/Month			\$0.01

Condominium

CONDOMINIUM: \$1.50/SF UPGRADE	
Median Condo Price	\$329,408
Expected Return to Equity	15%
Condo SF	700
Increase in Construction Cost per SF	\$1.50
Total Cost Increase Per Unit	\$1,050
Needed for Return	\$1,208
Plus Costs of Sale	\$72
Increase in Purchase Price	\$1,280
% Increase in Purchase Price	0.39%

CONDOMINIUM: \$3/SF UPGRADE	
Median Condo Price	\$329,408
Expected Return to Equity	15%
Condo SF	700
Increase in Construction Cost per SF	\$3.00
Total Cost Increase Per Unit	\$2,100
Needed for Return	\$2,415
Plus Costs of Sale	\$145
Increase in Purchase Price	\$2,560
% Increase in Purchase Price	0.78%

CONDOMINIUM: \$5/SF UPGRADE	
Median Condo Price	\$329,408
Expected Return to Equity	15%
Condo SF	700
Increase in Construction Cost per SF	\$5.00
Total Cost Increase Per Unit	\$3,500
Needed for Return	\$4,025
Plus Costs of Sale	\$242
Increase in Purchase Price	\$4,267
% Increase in Purchase Price	1.30%

CONDOMINIUM: \$10/SF UPGRADE	
Median Condo Price	\$329,408
Expected Return to Equity	15%
Condo SF	700
Increase in Construction Cost per SF	\$10.00
Total Cost Increase Per Unit	\$7,000
Needed for Return	\$8,050
Plus Costs of Sale	\$483
Increase in Purchase Price	\$8,533
% Increase in Purchase Price	2.59%

CONDOMINIUM: \$20/SF UPGRADE	
Median Condo Price	\$329,408
Expected Return to Equity	15%
Condo SF	700
Increase in Construction Cost per SF	\$20.00
Total Cost Increase Per Unit	\$14,000
Needed for Return	\$16,100
Plus Costs of Sale	\$966
Increase in Purchase Price	\$17,066
% Increase in Purchase Price	5.18%

CONDOMINIUM: \$50/SF UPGRADE	
Median Condo Price	\$329,408
Expected Return to Equity	15%
Condo SF	700
Increase in Construction Cost per SF	\$50.00
Total Cost Increase Per Unit	\$35,000
Needed for Return	\$40,250
Plus Costs of Sale	\$2,415
Increase in Purchase Price	\$42,665
% Increase in Purchase Price	12.95%

Retail Space

COST OF CONSULT ONLY: LARGE SPACE	
Sample Retail Rent/SF/Yr	\$22
Sample Space Size	6,000
Base Annual Rent	\$132,000
Expected Annual Return	10%
Cost of Acoustic Consult	\$6,500
Cost of Upgrades	\$0
Total Improvements Cost	\$6,500
Additional Annual Revenue Needed	\$650
Increase in Rent/SF	\$0.11
% Increase	0.49%

COST OF CONSULT ONLY: SMALL SPACE	
Sample Retail Rent/SF/Yr	\$25
Sample Space Size	2,500
Base Annual Rent	\$62,500
Expected Annual Return	10%
Cost of Acoustic Consult	\$6,500
Cost of Upgrades	\$0
Total Improvements Cost	\$6,500
Additional Annual Revenue Needed	\$650
Increase in Rent/SF	\$0.26
% Increase	1.04%

\$10,000 UPGRADE: LARGE SPACE	
Sample Retail Rent/SF/Yr	\$22
Sample Space Size	6,000
Base Annual Rent	\$132,000
Expected Annual Return	10%
Cost of Acoustic Consult	\$6,500
Cost of Upgrades	\$10,000
Total Improvements Cost	\$16,500
Additional Annual Revenue Needed	\$1,650
Increase in Rent/SF	\$0.28
% Increase	1.25%

\$10,000 UPGRADE: SMALL SPACE	
Sample Retail Rent/SF/Yr	\$25
Sample Space Size	2,500
Base Annual Rent	\$62,500
Expected Annual Return	10%
Cost of Acoustic Consult	\$6,500
Cost of Upgrades	\$10,000
Total Improvements Cost	\$16,500
Additional Annual Revenue Needed	\$1,650
Increase in Rent/SF	\$0.66
% Increase	2.64%

\$20,000 UPGRADE: LARGE SPACE	
Sample Retail Rent/SF/Yr	\$22
Sample Space Size	6,000
Base Annual Rent	\$132,000
Expected Annual Return	10%
Cost of Acoustic Consult	\$6,500
Cost of Upgrades	\$20,000
Total Improvements Cost	\$26,500
Additional Annual Revenue Needed	\$2,650
Increase in Rent/SF	\$0.44
% Increase	2.01%

\$20,000 UPGRADE: SMALL SPACE	
Sample Retail Rent/SF/Yr	\$25
Sample Space Size	2,500
Base Annual Rent	\$62,500
Expected Annual Return	10%
Cost of Acoustic Consult	\$6,500
Cost of Upgrades	\$20,000
Total Improvements Cost	\$26,500
Additional Annual Revenue Needed	\$2,650
Increase in Rent/SF	\$1.06
% Increase	4.24%

\$40,000 UPGRADE: LARGE SPACE	
Sample Retail Rent/SF/Yr	\$22
Sample Space Size	6,000
Base Annual Rent	\$132,000
Expected Annual Return	10%
Cost of Acoustic Consult	\$6,500
Cost of Upgrades	\$40,000
Total Improvements Cost	\$46,500
Additional Annual Revenue Needed	\$4,650
Increase in Rent/SF	\$0.78
% Increase	3.52%

\$40,000 UPGRADE: SMALL SPACE	
Sample Retail Rent/SF/Yr	\$25
Sample Space Size	2,500
Base Annual Rent	\$62,500
Expected Annual Return	10%
Cost of Acoustic Consult	\$6,500
Cost of Upgrades	\$40,000
Total Improvements Cost	\$46,500
Additional Annual Revenue Needed	\$4,650
Increase in Rent/SF	\$1.86
% Increase	7.44%

\$80,000 UPGRADE: LARGE SPACE	
Sample Retail Rent/SF/Yr	\$22
Sample Space Size	6,000
Base Annual Rent	\$132,000
Expected Annual Return	10%
Cost of Acoustic Consult	\$6,500
Cost of Upgrades	\$80,000
Total Improvements Cost	\$86,500
Additional Annual Revenue Needed	\$8,650
Increase in Rent/SF	\$1.44
% Increase	6.55%

\$80,000 UPGRADE: SMALL SPACE	
Sample Retail Rent/SF/Yr	\$25
Sample Space Size	2,500
Base Annual Rent	\$62,500
Expected Annual Return	10%
Cost of Acoustic Consult	\$6,500
Cost of Upgrades	\$80,000
Total Improvements Cost	\$86,500
Additional Annual Revenue Needed	\$8,650
Increase in Rent/SF	\$3.46
% Increase	13.84%

November 2010

City of Vancouver *Land Use and Development Policies and Guidelines*

Community Services, 453 W. 12th Ave Vancouver, BC V5Y 1V4 F 604.873.7000 fax 604.873.7060
planning@vancouver.ca

PROTOCOLS FOR THE MONITORING AND MANAGEMENT OF EVENT NOISE

Adopted by City Council on November 18, 2010

1 Application and Intent

These policies provide guidance for the operators of event venues for monitoring and managing noise to reduce impacts on adjacent housing in the Northeast False Creek Event District and surrounding residential areas.

2 Protocols for the Monitoring and Management of Event Noise

Noise Monitoring and Management Protocol pursued and implemented for each of the three event venues to moderate noise impacts. These Protocols will provide for:

- (a) Venues testing noise levels at the mixing board within the event venue and noise levels at points of reception at adjacent residential buildings;
- (b) In the case of BC Place Stadium, undertaking these noise level tests with the roof open and the roof closed;
- (c) Venues identifying appropriate noise levels at the mixing board within the event venue that result in noise levels at points of reception at adjacent residential buildings that are within those permitted by the applicable Noise Control By-law standard; (d) The City shall provide clear parameters for permitted noise (time and levels) to the venues;
- (e) Venues identifying strategies to ensure compliance to prescribed noise limits by event organizers;
- (f) Should noise makers (e.g. horns or vuvuzelas) emerge as a significant sound source, then venue operators shall act to ban their use in the venue
- (g) Venues identifying strategies for minimizing the impact of the unloading and loading of materials related to mounting events;
- (h) Venues identifying strategies for minimizing the impact of crowd dispersal and celebrations after the conclusion of events including the education of patrons;
- (i) Venue events should conclude by 10:30 pm so that crowds and traffic can largely be dispersed by 11 pm, noting that periodically events will extend to 11 pm for such reasons as sport games going into overtime;

(j) Continuing current notification practices for special events, including the organization of ‘notification trees,’ that include notices to Strata Councils, Individuals and Property Managers; and

(k) Venues should work with City Staff and the operators of other NEFC event venue on developing and maintaining an on-line events calendar for events and road closures related to events in Northeast False Creek.

The Protocols on Noise Management and Monitoring Protocol will be the subject of Management Plans between the City and the Venue operator, or in the case of Civic Plaza, Council shall approve a Protocol to be drafted by staff. The following unique circumstances will be considered for the different venues.

(a) BC Place Stadium

The noise management and monitoring will focus on public announcements, rather than cheering or music from the concerts unless the operators of BC Place Stadium chooses to host more than 10 concerts per year thus exceeding the maximum identified in the Bylaw.

(b) Rogers Arena

It is recommended that the Protocol be secured when there is a proposal for a rezoning proposing residential development on the Rogers Arena site.

(c) Civic Plaza

This Protocol for the Civic Plaza should be pursued at the time of the first rezoning on the Plaza of Nations site proposing residential development. Residential buildings on the site should be designed to mitigate noise from the Civic Plaza. Amplification technology and set ups should be pursued to minimize the sound ‘footprint’ from the Civic Plaza.

Given this is an outdoor venue, it is anticipated that those mounting festivals and events in the Civic Plaza will need Special Event permits.

November 2010

City of Vancouver *Land Use and Development Policies and Guidelines*

Community Services, 453 W. 12th Ave Vancouver, BC V5Y 1V4 F 604.873.7000 fax 604.873.7060
planning@vancouver.ca

MITIGATION OF EVENT-RELATED NOISE FOR RESIDENTIAL BUILDINGS POLICY - NORTHEAST FALSE CREEK AND ADJACENT IMPACTED AREAS

Adopted by City Council on November 18, 2010

1 Application and Intent

These policies are to be used in conjunction with the official development plans and CD-1's in cases where a rezoning or development application is proposing residential development in locations where the dwellings could be impacted by event noise from BC Place, Rogers Arena and the Civic Plaza.

2 Establishing Performance Targets – Acoustic and Thermal Comfort Studies

When applicants are preparing rezoning applications which incorporate housing in locations that could be impacted by event noise, they will be required to prepare Acoustic and Thermal Comfort Studies to establish performance targets and provide assurances that dwellings will be liveable and that there is compatibility between the nearby event venue(s) and the proposed housing.

The following methodology for the Acoustic and Thermal Comfort Studies shall be undertaken by professionals with expertise in acoustics and mechanical engineering:

- (a) Identify the sources of event noise that the building design needs to respond to;
- (b) Document one or more recent or past nearby outdoor event noise measurements, with microphone located above the roof of the event venue in question, that will be used to determine the event noise exposure of the new development;
- (c) Describe methodology used to adjust noise measurement level to façade exposure levels and to perform analysis;
- (d) Describe the assumptions made;
- (e) Evaluate whether it is possible to achieve an interior equivalent event noise level (Leq) of 40 dBC to 50 dBC during the loudest 15 minutes of a typical event involving music;
- (f) Provide recommendations for building orientation, construction materials and other noise isolation design strategies necessary to meet the performance targets; and
- (g) Show that comfortable interior temperature levels can be maintained without opening windows. Describe calculation methodology and assumptions.

This information is incorporated into the rezoning application. The study may lead to an adjustment of the maximum noise level permitted in the interior of dwelling units as identified above. In these cases, Council shall consider whether the level of noise projected for the interior of apartments will be liveable.

As part of the preparation of development permit applications, an Acoustic and Thermal Comfort Study will be prepared if one was not prepared as part of a rezoning.

3 Development Permit Applications

Further design development shall rely on the conclusions and performance targets of the Acoustic and Thermal Comfort Study. In some cases it may be necessary to undertake further studies to ensure the proposed building design can achieve the performance targets.