Vibrancy

Q1. Share your comments on the proposed planning and design concepts for creating a vibrant academic and social hub. Do you support these concepts? What else do you think should be considered? What can be improved and how?
UBC has long needed a vibrant commercial street through the campus to complement the formal Main Mall. This plan does that, at least a little bit.
Allow for student run or small independent stores like sprouts. Look at the alleyways in Melbourne for inspiration for "the yard" More trees and "permeable" surfaces always a good thing
Overall yes. Please add more green space and reduce the amount of commercial activity. Campus space should be dedicated to academics and student housing. Then once there is enough room for classes and students to live, commercial space should be considered.
A social and community hub seems more likely than an academic hub unless there is space that can be used for capstone projects, undergrad or grad research displays. It would have to be versatile space that could be used for many purposes. Way finding from this hub will be important to places like Brock Hall where 10,000+ prospective students come each year for campus tours.
I want to see a "vibrant" segment of campus along University Blvd. but I do not like the idea of housing being included. This important strip should include academic functions with lots of gathering spaces at ground level. Student housing on Wesbrook Mall is a worry, too, for the possibility of conflicts developing with neighbours to the east.
Yes, if it does not disturb the neighbourhoods east of Wesbrook mall.
A small grocer would be very suitable for this area. It doesn't always feel as if there is a true sit down restaurant on campus so it i another thing I would like to see. It is something I have missed since the Whitespot transitioned several years ago. I like the idea of an athletics promenade. It can tie into advertising for more school spirit in varsity athletics.
I do support these concepts. While as a resident, I do concern the impact of the residents' lifestyle given the increased population and constructions as well as the density of the community.
Night classes offered to the community outside UBC with social gathering spots available post classes.
Love the idea of outdoor fitness, but to make this functional you will need to consider some sort of covered space. More large open gathering space like that proposed down student union blvd allow for greater community based events. Stairs by a field, while a nice idea may need more practical consideration (particularly if the field is to be used for any type of competitive activities). More places for casual gatherings/covered benches.
I absolutely support these concepts. In regards to commercial space, I think it's important to seek out independent businesses as opposed to franchises. It better reflects the entrepreneurial spirit that UBC greatly values.
Nice! Good to have variety.
Yes, support these concepts. Like the idea of a more open (not so narrow) path between War and new GSAB.
The emphasis (obsession) with Building housing in the U-Blvd area is the centerpiece of C+CP's approach. To me it is fundamentally ill-conceived. Street-level uses and amenities (grocery store, club/incubator spaces) are fine. Also there is very little emphasis placed (and space devoted to) green, open spaces.
No. Breakup green spaces between bldgs. clustered blgds feel cavernous some areas of the 'new' university feel cold and 'canyon-like' when one walks through
I very much support the concepts presented for the boulevard, the exchange and the yard. For the yard specifically, I would love to see the yard designed with a unique architectural style, separate from UBC's ultra-modern-glass style that works into many of its new buildings, with perhaps almost quirky layouts that while not being traditional, fit the space and audience. Neighbourhoods like Granville Island, where a community of creative thinkers (students, designers, artists, performers) breathed new life into a once industrial space, make me feel like I'm in an oasis in the city. The unique styling of the Island's building architecture and streetscapes makes me feel rejuvenated and somewhere different. My vision for the Yard at UBC would be a unique pocket of life, with character windows, cobblestoned walkway, plethora of seating, large 2nd floor windows, hanging flower baskets, window sill herbs for restaurants, and high ceilings for possible 2nd floor studios/retail space. Pop-out neon street signs could light up the walkway at night and create a special, creative feel to the area.

Highlight integration of nature and bio diversity with the buildings and open spaces.
It's nice, easy to use, to interaction maybe the location of different activities should think about the sort of traffic.
There are a lot of commercial spaces now, and they're expensive and with poor quality products. The "academic" park seem to focus on student study spaces. There are such spaces everywhere, but I don't know what they're studying when the actual information repositories and the services they provide -libraries and librarians- have been cut so drastically. I want to see LIBRARIES, not study spaces.
Need to consider pedestrian safety in The Exchange area if there's going to be a bus loop and passenger pick-up areas. Also, will need to implement good ventilation and noise barriers for the underground bus storage area to avoid fumes and noise penetrating into the housing or courtyard areas.
Yard concept good. Is it safe to get to as a pedestrian? Copp Bldg learning/ lab concept not presented in enough detail that one can comment. Re GSAB, the concept of "academically-oriented" rental housing is a descriptor that does not make sense. It is just on the same site as an academic dept.
Support concepts although they feel trendy -would like to see more integrated uses and be presented with reason for artsy laneway, pocket parks, etc over traditional academic functions. Need more Rain resistant outdoor space (outdoor fitness, patios and laneways will be empty most of the year if uncovered). Use interesting awnings (like the one near the trolley bus loop).
I do like these concepts. I would have liked to see some indication of the cost in the presentation. As these are a lot of changes, I imagine it'll be pretty expensive and I'd want to know where the money is coming from. Otherwise, I like the expansions -currently it feels as though the number of community members is a bit high for capacity, and it looks as though these changes will help sustain the growing population.
Social hubs is ok, but consider the noise impact on the adjacent UEL neighborhoods. If you intend to allow late night bar and restaurants along University Boulevard it will create a lot of disturbance. No alcohol served please
I support the current concept. Perhaps more indoor space for socializing and dining. Can be created.
These concepts seem really exciting. I personally like seeing more landscaping and plants/trees as opposed to man-made structures.
Great ideas on the whole. "The yard" is not a practical space for animation for the foreseeable future, as it will remain the loading area for War Memorial Gymnasium until a new gym is constructed. Not a great idea to invite large crowds into a cramped laneway that will be receiving daily deliveries...
With regards to social hubs, just having empty space, or park space will not cause students to gather. What is needed is multi-functional spaces that different groups can find a use for a variety of times, especially considering how much rain we get. Easy to access, or permanent cover will be essential for any outdoor space to be desirable when students are here most, Sept - Apr. I am also worried about diminished vehicle access. It's great for the university to look pretty, but without easy vehicle access, you will inhibit students from planning any real events as they are not going to want to haul equipment by hand across campus. This is even more of a concern for large-scale events such as the annual Storm the Wall and Triathlon events.
Yes, I support these concepts. It is great that it is more pedestrian friendly with wider sidewalks, public plazas, bike lanes, cafes and a better transit hub. This reminds me more of European plazas where people congregate.
I fully support improvements so please, please, please - improve bus commuters'/pedestrians' walkways when constructions are going on. Since the Macinnes field was closed to give way to the construction of the new Aquatic Centre, bus commuters had to adapt to constant changes of pathways. Worse, we had to go around either the Student Boulevard side, or the War Memorial side just to get to our destinations like David Lam, Sauder, Klinck, etc. buildings. Brutal it was during Winter when we had to climb up the stairs of the current UBC Aquatic Centre then go down again to get through the SUB walkway. Am glad I don't have to do that everyday when Spring comes. Who knows what summer may bring? Ergo, what used to be 8 minutes walk from the bus loop through Macinnes field is now like 12 minutes to my destination in Klinck. Pardon me for the words, but I hope this gives an idea what bus commuters face everyday. Thanks.
Needs an inspiring building when you approach UBC Needs a grocery store Needs another restaurant and patio Too institutional right now Need to look like a vibrant city not a bus loop with a five story office building that is boring

I do not support these concepts, as I am strongly against mixing academic and residential uses in the same buildings. I am against this both in principle (as it would be constraining for both researchers and residents, and possibly unhealthy for the latter) and as a dangerous precedent for future development at UBC. Such concerns have already been raised by the GSS and the Student Residence Hall Association. I am also concerned that this plan could result in the removal of yet more valuable trees from campus. Noise from student events held in the area (e.g. the new MacInnes Field) could also adversely affect the livability of the new rental housing in GSA and Copp, which is another reason not to place housing near the centre of campus. I am also slightly concerned (as are UEL residents) about the height of the planned buildings, which in my opinion should be capped at 4 storeys. Finally, I am against placing the Gage South student housing over the bus storage area, since it could result in noise and emissions affecting the livability of the residences.

Complete Community

Q2. Share your comments on the proposed planning and design concepts for contributing to UBC's complete community as a mixed use core. Do you support these concepts? What else do you think should be considered? What can be improved and how?
UBC is not a complete community. The plan will not make it a complete community. UBC is a commuter campus and nothing in this plan will change that. Adding new types of services and allowing for the sale of a wider variety of goods will make living on campus a little bit less inconvenient. If the new retail units are of the same type as existing retail units, then there will be no increase in the mixture of uses. More diverse types of retail are unlikely in this location because the rents will likely be too high to sustain any marginal businesses.
I do not believe staff/faculty should be given space on academic lands. They have room in Wesbrooke Village or the other market housing on the endowment lands that students can't afford. -Figure out a way to separate bikes and the trolley buses on U Blvd. Currently it is not clear where you are supposed to ride and often buses honk.
No. More student housing.
Yes, it will make it more vibrant and hopefully a place to hang out and linger.
Mixed use? Limit to academic and social as noted above.
Ease of use for the new bus loop needs a place where you can buy fairsavers at the loop. It is sometimes not convenient at night when stores are closed and people have no cash so cannot buy a ticket. I like the new bike racks going in all over campus, the loop ones that fit two bikes on either side are much easier to use than the old 7ish on either side ones.
I do support these concepts. While as a resident, I do concern the impact of the residents' lifestyle given the increased population and constructions as well as the density of the community.
Good concept, but I don't think enough is being done to encourage on-campus living and decreasing car traffic.
Love the covered/weather protection consideration outside of buildings. Would like to see more technological solutions for wayfinding/signage/displays. Could see issues arising between those living in the vicinity and some of the noisier activities that would inevitably land in the area (welcome back bbq).
I especially like the distinctions between bus storage, passenger drop off, and passenger pick up. The current bus loop was horribly inefficient and unsafe. One thing I am concerned about is the pick up area because of the large number of buses leaving at the same time in such a small area during peak hours. Singapore has an effective system at large bus exchanges where multiple buses use the same stop to pick up passengers, but there are separate queues for each bus. The wayfinding features are also really great because the location of the bus loop is so out of way of the common sites visitors to the university would visit, like MOA or IKB. It's not clear where to go from the moment a visitor steps off the bus where they should go.
Like the idea of live / work / shop mix. Don't think buffered bike lanes are sufficient protection for people of all ages to choose cycling as a way to get around.
Insofar as this concept emphasizes housing, no. It makes very little sense to have so much housing in the

entrance of the university -above a bus loop no less. More housing in four other buildings (B, D, GSAB, Copp) is simply too much. Question: does every square in have to be torn out and rebuilt? This is a serious question.
This is the worst example of this! *No consideration for possible U/G transit sys? ie. Broadway
Yes mixed use sounds good.
Highlight and support and spaces for incubator businesses as a result of UBC research
The Gage South student housing, maybe too noisy to live in, that place looks like a market location or shopping mall, and high parts to build to housing.
Yes, I support some of the concepts, but some plans seem extravagant. I'd rather see money directed to academic enterprises (put money back into books, reduce student tuition). Mixed use is a distraction form academic focus. It seems you're focusing on undergraduate entertainment and counselling and on tourists' needs, rather than on the academic community (actually does research and studies seriously). Needs more accessible parking (without paying an arm and a leg).
The new Aquatic Centre looks like it will be wonderful -- however, I asked at the Open House yesterday and couldn't get a full answer to my question. If there won't be a gym or any athletic equipment in the new Aquatic Centre, how far will I need to go to use a gym and go swimming in the same trip?
Pocket park and other mini features are good. Call it "The Loop" rather than "The Exchange". War Mem. Hall needs to be replaced if possible.
Covered bike parking is great. I like the increased tree canopy. Great separated bike lanes.
I think the transit is great as it is, but I am American so the bar is pretty low. I support these changes.
I support student/staff/faculty residences on campus.
I think you should consider how to mitigate the ugliness of the existing & future bus areas, especially the areas North of the gym. Secondly, I think there should be a major commitment to keeping the blvd clean of garbage, posters and damaged bricks. It looks like no-one cares!
Please incorporate bike share program and more safety alarm posts, covered walkways can also help.
The main bus loop already seems too crowded as is. The new design doesn't seem to be much larger
I am concerned with the apparent increase in building/user group density and relative reduction in parking. I fear this will make guests and users of War Memorial gym less inclined to use the facility.
Looks good. Mixed use (particularly with year-round student residences) will help campus animation greatly.
Very against non-student housing in this part of campus. Campus should be a place for students to be loud, vocal, boisterous, and demonstrative at all times. It should also be fun. The UNA and UEL have had hugely negative impact on the fun students are able to have on campus now, with complaints about light pollution, noise complaints, and the decreased availability of Special Occasion Licenses , students are far more restricted in the fun they are allowed to have compared to when I was a student 10 years ago. This trend will only continue with a more mature population living even closer to the "fun" parts of campus. Also want to re-state what I noted previously. Car's are not going way. Stop restricting access within campus to effectively move people and equipment around. Not everyone is just arriving for the day to study and then leave. People are doing work here, they are running events and programs to try and make campus life actually worth sticking around for after class. The more you restrict people's ability to work and program on campus (by reducing access of cars), the more you inhibit the vibrancy you are looking for.
I support separate bike lanes, wider pedestrian sidewalks, outdoor seating, public art, etc.
More city like Keep the RESIDENTS in mind .. Both students and non UBC affiliated condo owners Less academia ! Less o stirrup all 9-5 thinking Monday to Friday Think Saturday night action
I do not support introducing housing into the University Boulevard area. It is not necessary, and it is a poor justification for the new businesses planned there. UBC students, faculty and staff need more cafes etc in the area anyway. Besides, this plan is merely a poor remedy for the problem created by the dominance of market rather than rental housing in Wesbrook Place. Do not fix one bad decision with another one.

Q3. Share your comments on the proposed planning and design concepts for expressing the academic identity and values of the university at the university gateway. Do you support these concepts? What else do you think should be considered? What can be improved and how?

The intersection of University and Wesbrook, as the arrival point to the university, has long set low expectations for people visiting UBC for the first time. The long light cycles, and the right-turn lane and steel fence on the southern corner are relics from a time when pedestrians were considered an anachronism. For people who have spent years on campus, this intersection has wasted enormous amounts of their time while they wait inordinate lengths of time for the light to change.
Try to limit the amount of gaudy big "UBC" letters.
Honestly it is fine right now.
Like that there are multiple gateways. The Student Union Boulevard Gateway, as it will be a major entrance for prospective students and their families (North Parkade) could provide a means to welcome them to campus.
If you put housing of any sort along University Blvd. then the "values of the university" as "make money" will be clear.
Yes, but get rid of the flashing billboard over University Boulevard. Most cities have banned these for good reason.
I would like to have the three gateway sites similar to create cohesiveness across the area.
I do support these concepts. While as a resident, I do concern the impact of the residents' lifestyle given the increased population and constructions as well as the density of the community.
looks good, I think
Buildings should be transparent, inviting, welcoming, and public - absolutely!! Think considerable attention should also be given to how to ensure the existing buildings in the precinct can contribute to the feeling as well.
I really like the concept of having a distinctive corner on the GSAB site. The current "university gateway" is very underwhelming and it will be great to make it more obvious that this is where the academic part of campus begins.
Good to have variety of art, especially have it be less formal and corporate than now.
Meh fine, being suitably impressed by arriving is okay. Maybe more trees and green spaces as opposed to hard landscapes
If Broadway train is approved- how is this terminal incorp. in the plan?
Just looking at view 1 of the gateway arrival area and the "distinctive corner building" at the GSAB site seems blandly similar with the design style on campus. It would be nice to make the building somewhat more iconic, perhaps designed with a more striking/unique building design (higher structure, apex feature, rounded exterior, different building materials, ultra-modern architecture a la concept art) to convey to people that this is a place of significance, of forward-thinking, a place of mind.
Demonstrate engagement and inclusiveness, multicultural, interdisciplinary in built form.
It's pretty nice. Can it be added some shelters, above the gateway.
I like commemorating academic achievements and cultural expression, but every new building on campus (other than Green College) is stunningly and appallingly ugly and depressing. I don't want the communities money spent this way.
Yes, as long as pedestrian safety is considered.
Commemorating what or whom? Little to explain commemorative memory elsewhere on campus (eg. mysterious echo chamber). Need more indigenous commemoration. Whimsical art for seating? if not waste of time? University gateways bigger roads at Wesbrook and Student Union, and University and Wesbrook great, but need bigger consideration for 40,000+ people coming on and off of diesel buses re: traffic flow
Transit isn't pleasant, but at least it should at be efficient. The current situation with the 99 loading is intolerable. It is survival of the fittest. Add some colored/etxtured paving to indicate where people should queue up for the doors on multi load buses. Add awnings where people actually stand to board the bus. Change the grade around the sub so we don't have to walk thru puddles to get to the bus loop. Add some signage on how to navigate the construction zone. Improve the landscaping in the area.
I would have liked to see some indication of the cost in the presentation. As these are a lot of changes, I imagine it'll be pretty expensive and I'd want to know where the money is coming from. While I agree that these would help beautify campus I'd be willing to sacrifice them for lower tuition.
I don't support the idea that a street of intense retail storefronts somehow expresses the academic identity or creates a university gateway. UBC was granted land to create a learning institution how does selling long-term land leases to condo developers and building strip malls jibe with this?
These are ideas that exist only in someone's imagination without regard for real life. First, the notion of residences in this area is silly and doomed to suffer endless complaints. No. 2, the outdoor fitness area is something a 5-year old might have dreamed up; No. 3, the food truck location is a good idea as long as [a]

it isn't restricted to UBC Food Services and [b] some serious work to keep control of garbage is in place [a new idea for UBC]; No. 4, the "creative lighting" area is ridiculous from the point of view that it is a big effort for minimal exposure and no impact; and finally, No. 6, the "pocket park" denies the current impact of all the students who pass that way daily and who do not appear to respect grass, trees, plants or anything in their thought less way. Get real planners!
There should be more open space at the gateway, people don't want to see tall buildings when they enter UBC.
More landscaping and less sculptures would be a more welcoming gateway to the University.
Sure, looks pretty. Ensure functionality by not putting in too many barriers
Larger public spaces that include outdoor seating areas, art, gardens, cafes will make everything more pedestrian friendly. Also improved pedestrian crosswalks for safety. I'm not sure about the concept of cultural expressions because it may appear we are favouring one culture over another.
Think city Less university How about a wow building unique to UBC not some office building like the one shoppers drug Mary or ScotiaBank is in Boring boring boring !!
I do support a more aesthetically pleasing gateway into UBC at the University and Wesbrook intersection. However, the concepts presented so far are very vague and therefore I cannot evaluate them.

Wesbrook Mall

Q4. Share your comments on the proposed design concept for Wesbrook Mall redesign. Do you support these concepts? What else do you think should be considered? What can be improved and how?
Put the bike lanes on the edges, between the bus lane and the sidewalk, with a curb between bikes and pedestrians. Put the bike lanes around the bus stops. The plan should not consider conventional bike lanes. Separated bike lanes are safer.
-BIG supporter of bike lanes. It currently is unsafe to bike on. -For intersections I would look at the "Dutch intersection" this gives UBC a chance to be a living lab for new pedestrian/cyclist safety measures https://www.youtube.com/watch?v=FlApbxLz6pA#t=39 -Love the scramble crossing. Really makes a "welcoming" place at the beginning of campus. Often places like Times Square or Dundas Square in Toronto have these and signifies the importance of these spaces.
How about an under/overpass for pedestrians to cross Wesbrook Mall.
Like it!
I am concerned about the idea of locating housing atop a bus depot.
No thoughts
I do support these concepts. While as a resident, I do concern the impact of the residents' lifestyle given the increased population and constructions as well as the density of the community.
As a resident of the UEL, I am concerned re mechanical noise from the proposed Gage South student housing buildings, which is proposed to be above WHO recommended levels for good health (60 DB vs max 50DB). A noisy environment has been shown to increase stress in humans, contribute to inadequate sleep, and bad for birds. I am also concerned for the health of students in Gage South having buses below open windows etc. with diesel fumes proven to adversely affect DNA in humans
Disagree with the separated continuous bike lane. Figure out a better way for pedestrian traffic crossing at Wesbrook and university.
I especially support the buffered/separated bike lines because it's important for safety of both drivers and cyclists. I this this is a mandatory element of the design that shouldn't be compromised.
The words on the page say "separated bike lanes" which usually means physically separated. If that is so - wonderful. If no physical separation (which looks to be the case in the drawings), not good enough for all ages. The campus has so many public schools and kids are being driven to them from campus housing - an

awful commentary on our transportation routes. We need routes physically separated along all arterials and collectors to make parents feel comfortable for their children to ride.
Great
I support these concepts, this area feels neglected and long overdue for updating. Trees are definitely a feature that I miss along the middle median. The intersection at University Blvd has always felt confusing to me. It would be great to streamline it somehow and make it more appealing. As the university's entrance, it feels like a concrete eye-sore that is unfinished.
Emphasize small scale pedestrian furniture and integration of biodiversity measures
Maybe some more land marks in mall, to help people know which street he is standing at.
Separate bike lane an excellent idea!
Amazing cycling infrastructure -planners did a great job here. Hope it works out funding/ jurisdiction wise.
I was recently on crutches and later a knee walker. The sidewalks are so cracked up from the bus loop to the sub, that the knee walker had a hard time traveling on it and nearly pitched me off every time it went over a crack. (They just have wheels, no tires or shocks, so every imperfection in the surface travels thru to your injured leg.) The sidewalks are also very narrow. If you are on crutches, that stretch is exhausting and even scary. People bump into you and there isn't any place so sit and rest.
I like it, I like the integration with nature.
This area is a nightmare of bad planning and bad maintenance. Completely re-doing the roads is a good idea that is desperately needed. The whole design needs to be re-thought with respect to actual use, especially for residents in the entire Hawthorne area. The corner of Univ. Blvd & Wesbrook is poorly designed as anything could be, especially the crossing from the South-East to the South-West corners. Finally, there is too little regard for the fact that there is a major regional hospital that needs access and parking in this section. As for bus lanes, one can only hope that whatever the plan is, it takes into account the proposed changes to regional transportation. For example, the stop immediately North of Thunderbird creates a very dangerous situation as traffic from Thunderbird and Wesbrook attempt to move North through the light. Only an idiot would have put this bus stop there when there is only one lane and a short distance between the Thunderbird and Agronomy traffic lights. Fix it!!!
More crossed roads so students don't Jaywalk
I don't spend much time along this area but I like the proposed designs.
I'm getting redundant. The car isn't going away. People need to move around, and unless you just moving yourself and your backpack, the car is the best way to do this, don't inhibit this, especially on a major artery for commuter students.
I love the transit priority lanes as well as dedicated bike lanes (however you will still need to encourage bike riders to use them!) Wide pedestrian friendly sidewalks. More retail space. Lots of trees and planters are great to giving a nice visual appeal.
Needs to have a funnel for UBC subway from bus loop to south campus More green space Charge a toll for non electric cars
I support the improved pedestrian crossings at University and Wesbrook, as the wait times are quite long there. I also support an improved, greener aesthetics for the area, as it is currently an asphalt-and-concrete wasteland and a poor gateway to UBC.

General

Q5. Other Comments
The bus loop and especially the drop off is planned to be a very long walk from most of the campus. This is unfortunate. It should be as close as possible to the greatest number of destinations. Walking connections do not appear to have been given much consideration, as usual. Direct paths should be provided to make walking distances as short as possible to as many destinations as possible.
More students housing please. Less commercial housing.
The online documents for this project include a UBC Gage South & Environs Noise Impact Analysis done for University of British Columbia Campus & Community Planning dated February 27, 2012. Written by BKL acoustics consultants they underscore noise concerns for the surrounding neighborhoods resulting from the University Boulevard Precinct as: 1. Music noise generated in the future MacInnes Field; 2. Pit patron speech noise generated between the SUB and Gage Towers;

3. Bus noise generated in the future diesel bus loop; 4. Road traffic noise on Wesbrook Mall; and 5. Mechanical equipment noise from nearby buildings such as the future Aquatic Centre. The consultants showed the proposed University Boulevard Precinct generating possible noise levels >85 dBA east of Wesbrook Mall. This is up to eight times the perceived loudness of maximum sound level limits (daytime 50 dBA maximum and nighttime 45 dBA maximum) set out in the bylaws for the University Neighbourhoods Association, City of Vancouver, City of Richmond, District of West Vancouver, and the World Health Organization (amongst others). I asked UBC's representative at the April 8, 2015 Precinct open house if the excessive noise levels determined in the acoustics report had been addressed in their planning for the University Boulevard Precinct. I will paraphrase, but her response was to the effect of; 'No . . because this is a university, and universities make noise'. The World Health Organization documents numerous adverse health effects resulting from ongoing noise exposure. UBC needs to recognize that they are part of a community, and that they do not have the right to disturb nor undermine the health of the community because "they are a university". I ask that this development be designed so that the 45 and 50 dBA bylaw maximums are complied with for the areas east of Wesbrook Mall.
Accessibility to campus is a big issue. I appreciate that more efficient transit options and improved bike and roadwork is being looked at. However, what I don't see in the plan is any kind of pickup/drop off for the aquatic centre. Parents who come in to drop off kids for swimming lessons or daycamps or birthday parties need somewhere to park temporarily, even 15 minutes, to walk kids in or pick kids up. Scuba groups with equipment need a similar drop off/load zone as well as various other rentals. The parking around war memorial used to serve this purpose well but will be the new bus loop. I really like the new community interest cards that were placed at local businesses in university village as they did make myself and several others more aware of upcoming planning processes.
Build a new Student Recreation Centre or expand it over the old sub space- that building is vibrant! Glad to hear that War Memorial gym is on the radar as major renovations are needed.
Construction period hard for people to walk around the muddy road -have a better route, esp. high flow areas.
GSAB & Copp are not in the U-Blvd neighborhood plan and should not be used for more housing. The emphasis on housing is excessive. Green Space, walking/cycling, & public amenity development can happen without 8-10 floors of housing on top of each building. Less is more -stop reconstructing every square inch of this place.
I would like to thank Gerry McGeough from Planning and Design for kindly sharing his knowledge about the proposed designs and ideas behind the changes at the Public Consultation on April 8th at the SUB. Gerry was very attentive and generously asked if I had any other questions about the proposed designs, which made for a very welcoming experience. This contrasted with a woman I spoke to earlier at the public consultation who seemed much more serious and reserved, almost like she was anticipating a difficult conversation with me. Gerry was very welcoming and accommodating so I'm glad he was at the Consultation and that I had a chance to speak with him. Thank you!
Generally excellent concepts and design forms.
Maybe the design could concern more about the 'face', elevation indeed of the campus, to show a cohesive face, form to social. Another, a centre of the place, maybe a plaza, can room lots of students and faculties at the same time.
My main issue concerns the new Aquatic Centre and how it won't have gym facilities. Lots of people use athletic equipment and then go swimming or use a hot tub or sauna. How far will I have to go for fitness AND water activities in the same visit?
Buses how will this work? Many questions re practicality. Early below grade bus loop. Concept in square inadequately thought through re traffic this needs to be a very strong fact case. Don't fill U Blvd. with trees. Need the Sun -trees deepen the shade, ie. the muddy bosque.
Please consider the CPTED/ safety concerns when designing "bosque" area in front of SUB with insufficient lighting in darkened woods (esp. at night and in light of recent attacks).
I'm concerned about the price of housing. As a graduate student I am shocked that I can't even afford to live on campus with my salary. I would hope that the new housing would lower housing prices.

Additionally, the current contracting company seems to be very inefficient (maybe intentionally for their own financial gain). I'd hope that you might hire a company with a flat, upfront rate rather than by-the-hour
Residences (Gage N & S, Site B & D) Should not have east or south facing balconies -Creates noisy parties and eyesore with junk left on balconies. Build Site D soon after MacInnes Field is commissioned to be sure that noise is shielded from the acoustic corridor that University Boulevard is about to become. Be aware of mechanical noise from all new construction and abate noise from this. Please get rid of the illuminated billboards like presently seen at University Boulevard and Wesbrook Mall -it is frenetic and cheapens the University, looks like a used car lot.
Site B and D should be moved to other parts of the precinct because it is a public open are; not the best place for residential buildings. Architecture and design needs to be cohesive. Gage South take into consideration the pollution and noise impact on residents (because of bus storage). Traffic management and flow needs to be considered to and from Wesbrook Village. Food carts and shops along Uni Boulevard. Make sure the Site B and D are quiet for residents.
UBC Planning seems devoted to dreaming up silly ideas in a closed room without every asking or involving actual users of the areas, intersections, crosswalks, etc. involved. Get out of the office and be with the users. Create something that actually meets people's needs rather than silly drawings.
Better signage/ ways to connect to the library, arts, cultural district and facilities on campus -feeling the soul -performances
Please reconsider the affordability of housing at school. Not all students are rich. Current price is well above affordable market price. Just because the richest students are fighting for rooms doesn't mean poor ones should lose the chance to live on campus. Perhaps go by income?
Any additional housing proposed needs to have the ultimate goal of making housing affordable for students. The current pricing is ridiculous and is not affordable for graduate students with the very low funding we receive. As someone already living well below the poverty line, I don't want to spend 75% of my income on housing.
Machines field should be a lit artificial turf space to be functional as a recreational amenity on campus.
Please work with BC transit on making a better transit hub. With it being currently situated on the edge of campus is just a further inconvenience. Some buildings are a twenty minute hurried walk from the current bus loop. We need better pedestrian safety by limiting crosswalks so we do not have to walk in front of buses or other vehicles. Separate bike lanes would be nice too so we don't have to dodge cyclists. And shelters to protect pedestrians from the elements as they wait for their bus. The long queues for buses while waiting in the pouring rain or blowing wind is unacceptable.
Less boring More WOW
Please remember that this area of campus is primarily an academic one, and academic uses should always be put first. I propose that exclusively academic spaces such as new labs, classrooms etc., rather than rental housing units, be placed in the GSA and Copp buildings. UBC's first mission is academic and educational excellence, and nothing should be allowed to compromise these goals. Furthermore. UBC researchers, students and residents should not be subject to untested solutions as part of the "campus as living laboratory" doctrine. Mixing housing and labs is such an untested solution.

GRADUATE STUDENT SOCIETY
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ams Student Society of UBC Vancouver | Enhancing Student Life

Aviva Savelson
Acting Senior Manager, Consultation
UBC Campus and Community Planning
2210 West Mall
Vancouver, BC V6T 1Z4

April 20, 2015

Re: Phase 2 Public Consultation on University Boulevard Precinct Planning

Aviva,

Please accept this joint submission on behalf of the Graduate Student Society (GSS) and the Alma Mater Society (AMS). Together, our societies represent over 50,000 students at the Vancouver campus. Together, we are pleased to provide our ideas about the future of the precinct and to comment on particular project proposals.

It is noted that the plan for the University Boulevard Precinct presented during Phase 2 consultations is essentially the same plan presented during Phase 1 consultations. As such, the submissions made by the AMS and GSS to Phase 1 consultations should be considered to apply equally to Phase 2. We'd also like to highlight and echo the concerns submitted during Phase 1 by the UBC Residence Hall Association in regards to the impact on campus culture should a significant increase in non-student population occur in this area.

Precinct Vision

The GSS and AMS respect UBC's vision of the University Boulevard precinct as a vibrant gateway to campus and an important social hub. The societies would like to commend the university's commitment to high-quality urban design and planned revision of the precinct's Design Guidelines. It is also encouraging that the university has indicated street-level academic uses will be given greater prominence in the precinct.

During Phase 1 consultations on the University Boulevard Precinct, the GSS raised issues around the livability of potential student housing located above the UBC Bus Loop. While these reservations about the suitability of co-locating those projects still exist, our membership intends to continue engaging constructively towards resolving the unique design challenges such projects present.

Faculty/Staff Housing Projects

The AMS and GSS believe that the faculty/staff housing projects proposed for the GSAB and Copp sites are completely unacceptable.

All of the concerns about these projects expressed by the GSS, AMS, and other student groups during Phase 1 of the University Boulevard consultation process are, for the most part, still outstanding. The projects' apparent lack of compliance with the Land Use Plan and associated

lack of development controls has not yet been adequately justified or resolved. The method of providing representation to residents remains to be decided upon. The fact that both projects appear to have already received *de facto* approval from the Board of Governors was only exacerbated by the fact that the Board of Governors discussed these projects at their most recent meeting (April 14, 2015) in a session that was closed to students.

The GSS re-iterates its position, and the AMS concurs, that the university should uphold the principle that without exception, all new non-institutional housing will be built fully within the borders of land designated in the UBC Land Use Plan as "Neighbourhood" or "Village Centre Academic". Restricting all new non-institutional housing to these areas is consistent with both the Land Use Plan and Vancouver Campus Plan and should not be a source of contention or dispute.

We remind Campus and Community Planning and the university that UBC's Land Use Plan (LUP) contains the following definitions:

> ***Non-market housing*** *may include staff, faculty, cooperative, social and other special needs housing. For the purposes of this definition, non-market housing does not include housing specifically for students as contemplated in Section 4.1.5 a).*
>
> ***Non-Institutional development*** *means development other than that for the main academic mission of UBC (teaching, research, cultural expression, support facilities). Non-institutional development includes market housing, non-market housing other than student housing, and commercial developments generally intended for non-university users.*

The UBC Land Use Plan is therefore unequivocal in identifying faculty/staff housing as non-institutional development. Furthermore, under the LUP,

> *The "Academic" land use designation identifies those parts of campus to be used for teaching, research, and other uses needed to support the academic mission of the university and academic life.*

Non-institutional development, which does not form part of the main academic mission of UBC, is not an appropriate use for parts of campus carrying the "Academic" land use designation.

The GSS once again emphasizes, and the AMS concurs, that if the principle of confining non-institutional housing within the borders of "Neighbourhood" or "Village Centre Academic" land is not upheld by UBC, such a precedent would indicate that the future of Acadia Park student family housing is also under threat. If UBC views non-institutional housing as an acceptable use for "Academic" land, then families in Acadia Park face the real possibility that student family housing will be displaced in favour of non-institutional housing projects.

Land Use Designation Boundaries Within Buildings

The current plans and area maps show that the proposed GSAB and Copp buildings will straddle two land use designations: "Academic" and "Village Centre Academic". We have inquired about the implications of this, since there are currently no buildings on campus that straddle two land use designations. The answer given to us is that each portion of the building will follow the land

use requirements for the land use it is on. In practical terms, this means that within the same building, two different sets of rules will have to be followed. We believe this creates significant challenges, the implications of which have not been fully thought out. What happens when a particular housing or commercial unit crosses the boundary? Which land use rules will they follow: one or the other, or some mix of the two? Who will decide this and how will that decision be made? As well, will there be different governance structures or regulations for residents living or commercial units within the same building? We believe that the only solution is to ensure the buildings are built fully within the existing boundaries of a single land use designation, or to amend the LUP in order to redraw the boundaries.

Academic Merit of D.H. Copp Project

Lastly, we believe that the proposal to label D.H. Copp faculty/staff housing as a "Campus as a Living Lab" (CALL) project is of dubious academic value. The prospective research projects are extremely vague and not particularly innovative. Perhaps more importantly, they are entirely unfunded. The D.H. Copp site does not offer unique opportunities for academic research that could not be carried out at any other future residential building at UBC. It is also unclear how the consent of the building's residents to participate in experiments would be obtained and managed.

In short, we are skeptical of the quality of the academic program that would qualify Copp as a "Living Lab", and its ability to sustain world-class academic research on the site for decades to come. Additionally, the application of the CALL designation does not alter the fact that the LUP is unambiguous in its classification of faculty/staff housing as "non-institutional development". The university is encouraged to reconsider their support for this project.

Sincerely,

Colúm Connolly

President

Graduate Student Society of UBC Vancouver

Anne Kessler

Vice-President, Academic & University Affairs

Alma Mater Society of UBC Vancouver

From: Dave Forsyth
To: [redacted]
Subject: University Boulevard Development Plans Noise Concerns
Date: Sunday, April 19, 2015 9:03:18 PM
Attachments: UBC Precinct Development Noise Comments by UEL CAC April 2015 R0.pdf

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Mr. Michael White
Associate Vice-President Campus and Community Planning, UBC

Dear Mr. White,

The University Endowment Lands Community Advisory Council (CAC) has reviewed the pending University Boulevard Development Plan by the University of British Columbia. Using documents available as part of the consultation process as well as a presentation by the UBC Planning Department and by attending a University Boulevard Precinct Planning Workshop we have identified a serious noise issue that will effect UEL residents to the East of the site in question. A detailed analysis of our concerns are given in the attached report.

The Noise Impact Study done for this site (UBC Gage South & Environs Noise Impact Analysis, Feb 27, 2012) shows that noise levels in the UEL residential area are above Noise Bylaw limits, and in fact are well in excess of the levels for which the World Health Organization states are a human health risk.

Above 55 dB - The situation is considered increasingly dangerous for public health. Adverse health effects occur frequently, a sizeable proportion of the population is highly annoyed and sleep-disturbed. There is evidence that the risk of cardio-vascular disease increases (Night Noise Guidelines for Europe, World Health Organization, 2009ISBN 978 92 890 4173)

Regarding concert noise, the Noise Impact Study states, *The highest music noise levels at this location are similar to the highest existing music noise levels at UEL housing*. The CAC has received numerous complaints from residents about concert noise and so a development that has similar levels of noise is very disturbing.

We are deeply concerned that this level of noise will impact both the quality of life and the health of those UEL residents near this development. We ask that this topic be addressed by the UBC Planning Department before this development proceeds and that the Community Advisory Council receive details on noise abatement procedures and a full noise analysis of the final development plan prior to construction.

I thank you for your attention to this serious issue.

Regards

Dave Forsyth
President, University Endowment Lands Community Advisory Council
Copies to:

Dr. Arvind Gupta, President of UBC
UBC Board of Governors (c/o Ms Reny Kahlon)
Mr. Jonn Braman, Manager, UEL
Mr. David Eby MLA, Vancouver-Point Grey
Ms Coralee Oakes, Minister of Community, Sport and Cultural Development
Dr. Terry Lake, Minister of Health
Mr. Peter Fassbender, Minister of Education
Ms Linda Larson, Chair, BC Select Standing Committee on Health

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10/04/2015

University Endowment Lands Community Advisory Council

Comments on the UBC Precinct Development

Date: April 10, 2015

Version: R 0

ABSTRACT

This document details the concerns of the University Endowment Lands Community Advisory Council (UEL CAC) about the very high levels of noise that is predicted to impact the adjoining UEL residences. The concerns are that the environmental noise predicted will;

- disturb, or tend to disturb, the quiet, peace, rest, enjoyment, comfort or convenience of the neighbourhood, or of persons in the vicinity;
- exposes the UEL residents to noise levels that could severely impact their health.

Since the development plan has changed so much since the initial Noise Impact Analysis in 2012, UBC Planning is requested to perform a new Noise Impact Analysis and provide noise mitigation strategies to remedy the concerns of the UEL CAC, and consider the UEL in the CadnA (Computer Aided Noise Abatement) modelling tool noise level predictions.

Table of Contents

Concerns of the UEL CAC

The University Endowment Lands Community Advisory Council (UEL CAC) was given a presentation on the new University Boulevard Precinct Planning on February 16, 2015 by the University of British Columbia Campus & Community Planning Department. The presenters were Gevvy McGeough, Joanne Proft, and Aviva Savelson. During this presentation, the issue of noise impact on the residents of the UEL by the new UBC Precinct development was raised. Following this meeting, the UEL CAC was invited to attend a Design Presentation at UBC by UBC Planning.

One of the UEL CAC members (Peter McConnell, Secretary Treasurer) attended the Design Presentation on March 11 at UBC by UBC Planning. Prior to that meeting, he reviewed the materials available on the UBC Campus & Community Planning Department website. During that review he read a Noise Impact Analysis study done for the UBC Campus & Community Planning Department by BKL Consultants[1] in 2012.which created great concerns from the negative impact of the noise generated at this planned site on the UEL residents in the vicinity of Westbrook Mall and East into the UEL, as well as residents of the new planned development.

The UEL attendee raised his noise concerns several times at Design Presentation on March 11 at UBC by UBC Planning. His impression was that noise impacts on the UEL residents was not really a concern during the design process, even now. During the wrap up at the March 11 Design Presentation, the team (one of four) that the UEL attendee was on identified the need to revisit the 3 year old noise analysis and come up with a noise mitigation strategy as part of the design process.

[1] UBC Gage South & Environs Noise Impact Analysis
File: 0205-12A
February 27, 2012
BKL Consultants
Available on the UBC Planning Department web page.

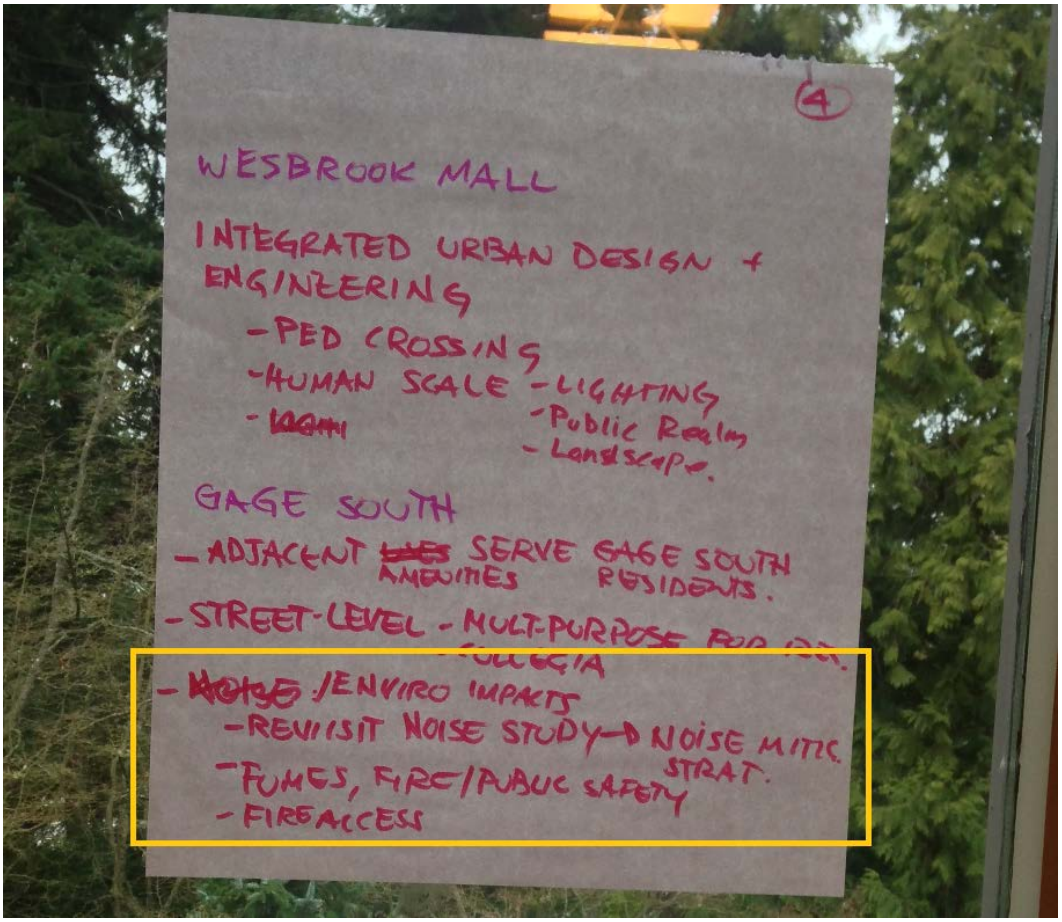

Figure 1 Identification of need to revisit the 3 year old Noise Impact Analysis

The Noise Analysis from 2012 is examined in some detail in Appendix A. This analysis used a computer modelling tool to predict noise levels over terrain based on many inputs, such as terrain elevation, building sizes and heights, mechanical system noise, people, vehicles, etc. Assumptions are made about other inputs, such as wind speed and direction, surface absorption, reflectivity, etc. There was insufficient detail in the BKL report to see the assumptions made. More importantly, the current layout of the development has changed substantially since 2012.

The major issues that the UEL CAC has with the 2012 Noise Analysis as detailed in Appendix A are;

1. It does not represent the physical layout of the development as it is currently planned.

2. It does not consider mechanical noise from all sources in the development. It should GSAB, War Memorial Gym, Aquatic Centre, etc.

3. Residents in the UEL have already raised the issue of noise generated by rooftop mechanical and ventilation systems on building with UBC that adjoin the UEL (areas A and D). Noise generated by additional mechanical systems will only add to this noise for those residents.

4. The noise analysis uses noise compatibility guidelines that are well above those adopted by surrounding cities, municipalities, and even the University Neighbourhood Area (UNA) which is part of UBC.

5. The noise analysis is confined only to the University of BC and stops at the boundary of UBC and the UEL at Wesbrook. A new noise impact analysis should be performed that includes the UEL, specifically areas A, B, C, and D.

6. The analysis for the "Concert Scenario" makes the assumption that any sound system used would have the speakers facing west, away from the UEL. The Noise Impact analysis must be done for scenarios where the speakers are facing West and East. Concert sound engineers will not always place speakers such that they are facing west, and in fact it is highly likely that they would orient them the face East based on the physical layout surrounding McInnes Field.

7. In the Concert Scenario analysis, the predicted noise levels imply that a significant number of the existing residences in the UEL East of Wesbrook would require sound insulation to mitigate the noise from the planned UBC Precinct Development.

8. The software modelling tool used in the Noise Impact analysis is based on many inputs and assumptions, and as a result only gives an approximation to expected noise levels. The analysis does not seem to have included a noise margin to accommodate any differences between the predicted noise levels and those that would be measured after project completion.

The noise levels used by BKL in their Noise Impact Analysis do not conform to accepted bylaw standards for local jurisdiction such as the City of Vancouver, the City of Richmond, District of West Vancouver, UNA, or even Vancouver Coastal Health. Levels predicted in the Noise Impact Analysis are far in excess of levels that the World Health Organization (WHO) has linked to Cardiovascular Disease (see Appendix B). The WHO states;

> *"Above 55 dB - The situation is considered increasingly dangerous for public health. Adverse health effects occur frequently, a sizeable proportion of the population is highly annoyed and sleep-disturbed. There is evidence that the risk of cardio-vascular disease increases"*

Noise levels experienced by resident of the UEL immediately East of Wesbrook could be up to 20 dB higher than the 55 dB level used by the WHO. This 55 dB level is also used in the bylaws of City of Vancouver, the City of Richmond, District of West Vancouver, UNA, and most cities in North America.

The World Health Organization estimates that the disability loss[2] due to noise rated just below loss due to traffic accidents in Europe. It is greater than the effects of lead in drinking water, food borne disease, second hand smoke, airborne particulate pollution, and other factors. Noise ranks fourth overall of the 16 environmental aspects considered.

The residents of the UEL are extremely concerned about the adverse health effects that are associated with the noise from the planned UBC development.

[2] WHO defines disability loss in terms of the Disability Adjusted Life Year, or DALY. The DALY is calculated as the sum of years of potential life lost due to premature mortality and the years of productive life lost due to disability.

Summary

The UEL Residents, especially those in the area of Wesbrook Mall, have reason to be very concerned about noise effects post UBC Precinct Construction. Evidence from the BKL Acoustics Noise Impact Analysis and various documents from the World Health Organization, European Environmental Agency, local municipal bylaws, and others raise very serious concerns as to the health effects from the very high ambient noise level that has been predicted post construction. The predicted environmental sound noise levels from the UBC Precinct development exceed levels that have been stated as leading to death from hypertension and cardiovascular disease.

Although these comments relate to the UEL which is adjacent to the planned UBC Precinct development, there should be concerns as to the impact on the UBC residents that will be living within the boundaries of the UBC Precinct.

The Noise Noise Impact Analysis performed for the UBC Planning Department by BKL Acoustics is over three years years old (Feb 27, 2012), and the planning has changed significantly since the release of that analysis. For this this reason, there is a need to revisit this Noise Impact Analysis to align it with the final concept. In In addition, there is a need to do a noise level prediction based on the as built plan that includes it impact on the area of the UEL well east of Western Parkway, ideally to include the entire UEL.

Appendix A - Analysis of the UBC Gage & Surrounds Noise Impact Analysis of 2012

The UBC Gage & Surrounds Noise Impact Analysis was reviewed by the UEL CAC. In that document, the consultant states that;

> "Potential noise effects have been considered for the following:
>
> 1. Music noise generated in the future MacInnes Field;
> 2. Pit patron speech noise generated between the SUB and Gage Towers;
> 3. Bus noise generated in the future diesel bus loop;
> 4. Road traffic noise on Wesbrook Mall; and
> 5. Mechanical equipment noise from nearby buildings such as the future Aquatic Centre.[3]"

The consultant's report identifies noise from mechanical equipment (HVAC, etc.) as a potential source of noise.

> *"Based on BKL's experience on past projects, there is a potential for rooftop equipment on the new Aquatic Centre to cause significant disturbance to the potential adjacent university rental housing within the study area. However, potential noise impacts can usually be dealt with effectively in the detailed design stage in a straightforward fashion by predicting levels using detailed building design information and relocating or providing noise mitigation for noisy equipment. Noise mitigation is usually in the form of an acoustic enclosure."*

[3] Noise predictions were not made for mechanical equipment associated with the Aquatic Centre since details were unavailable in the 2012 Study. See BKL Report.

The following figure provides the location of two sources of mechanical noise, but does not identify other sources from buildings that comprise the entire Precinct Development.

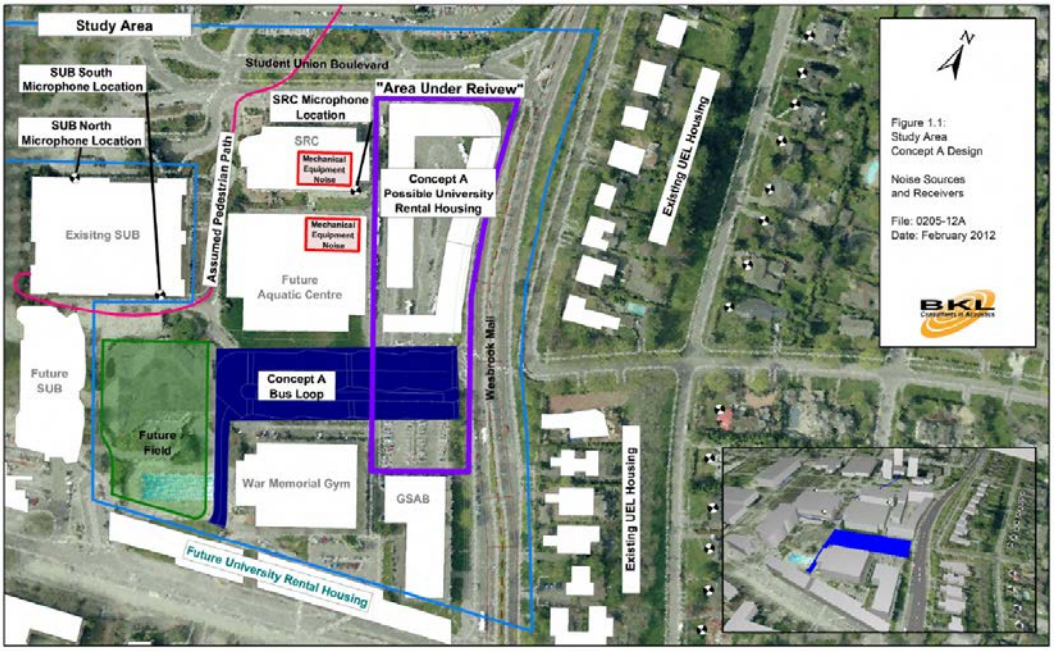

Figure 2 Two sources of noise in the UBC Precinct Development.

The author is already aware of ongoing noise issues within the UEL that are the result of mechanical equipment on buildings in UBC in the vicinity of Wesbrook and University Boulevard.

The consultants used a software package called CadnA[4] (Computer Aided Noise Abatement) to predict the noise level contours for the UBC precinct area based on what information they had available at the time of the 2012 study and any assumptions they had made. In the document the consultant states;

> *"Based on the assumptions used, the land use for the potential university rental residential development should not be ruled incompatible for acoustic reasons. Concept A is preferred from an acoustical perspective because it would provide an amenity space (the courtyard) where environmental noise levels are lower. Day-to-day noise (i.e. non-event noise) will not be excessive although windows may need to be shut at times (e.g. to block out occasional nighttime Pit patron noise) and consideration of comfort with indoor temperatures and ventilation may need*

[4] http://www.datakustik.com/en/applications/noise-mapping/

to be considered during the design process because of this. Mechanical equipment noise is also potentially significant but can usually be effectively dealt with during the detailed design phase."

One statement in the BKL report was the following;

"The noise sensitivity of residents at the possible rental housing site is anticipated to be more tolerant than the noise sensitivity of residents at existing UEL housing due to the demographic of younger, one and two person households more sympathetic to university activities and related noise, frequent turnover, and the assumption that tenants could be pre-screened through forewarning them of surrounding noise in rental agreements."

"As part of BKL's work with the City of Vancouver's North East False Creek land use study, BKL has recommended an indoors design target Leq15min of 40 to 50 dBC. However, that criterion is not recommended for this project because of the higher tolerance of the proposed type of university rental housing (non-permanent, and younger one and two person households) and the fewer events per year (as compared to the number at Rogers Arena plus BC Place plus future outdoor amenity space events)."

This statement indicates that the anticipated noise is already a concern for the UBC residents **and UEL housing**. In addition, they seem to have chosen sound level standards for the project that are well above those accepted within local municipalities. The land use guidelines chosen by the consultant is shown in the following figure.

Table 3.1: Land Use Compatibility Guidelines for Residential - Multi-Story Limited Outdoor Use

Land Use	L_{dn} (dBA) Values			
	Compatible	Marginally Compatible	Compatible with Sound Insulation	Incompatible
Multi-Story Residential Limited Outdoor Use	< 60	60 - 65	65 - 75	> 75

Figure 3 Land Use Compatibility Guideline Chosen by the Developer

These consultant provided guidelines that are well in excess of the Noise Bylaw Limits for many cities and Municipalities in the lower mainland, BC, and Canada. The UEL uses bylaw limits as referenced by Vancouver Coastal Health, who in turn base their limits on the City of Vancouver, the City of Richmond, and the District of West Vancouver. The University Neighbourhood area (UNA) has its own Noise Bylaw

limits, with these limits being approved by the UBC President and submitted to the UBC Board of Governors[5].

	Municipality			
Metric	**UNA**	**Vancouver**	**Richmond**	**West Vancouver**
Day Limit	55 dBA	55 dBA	55 dBA	55 dBA
Night Limit	45 dBA	45 dBA	45 dBA	45 dBA
Construction Limit	85 dBA	85 dBA	85 dBA	80 dBA
Meter Weighting	A	A	A	A
Fast/Slow	Slow	Slow	-Slow	Slow
Continuous Noise	3 min in 15 min period	3 min in 15 min period	-	3 min in 15 min period
Day	07:00 – 22:00	07:00 – 22:00	07:00 – 20:00	07:00 – 18:00
Night	22:00 – 07:00	22:00 – 07:00	20:00 – 07:00	18:00 – 07:00

Figure 4 List of Local Municipal Noise Bylaw Limits

Using the Acoustic Terminology definitions in the consultant's report;

> *"The basic unit for measuring magnitude is the decibel (dB), which represents a logarithmic ratio of the pressure fluctuations in air relative to a reference pressure….."A-weighting" networks are commonly employed in sound level meters to simulate the frequency response of human hearing, and A-weighted sound levels are often designated "dBA" rather than "dB".*"

[5] University Neighbourhoods Association Bylaws for Noise Control and Enforcement and Disputes
Request for Decision, Agenda Item 3.2
UBC Board of Governors Meeting, Sept 20, 2012
Stephen Toope

The following figure from the consultant's report shows the predicted noise levels on a "typical Wednesday 24 hour period" The contours in green represent areas where the noise level is predicted to be less than 60 dBA, those in yellow are predicted be between 60 and 65 dBA, and those in Orange are predicted to be between 65 and 75 dBA. The residential area of the UEL is to the East of Wesbrook in the diagram, and from the sound contours in the diagram UEL residents are predicted to experience noise levels ranging from 60 dBA to 75 dBA. It should be noted that the areas in orange (65 dBA to 75 dBA) are areas where sound insulation is recommended to reduce the impact of the noise.

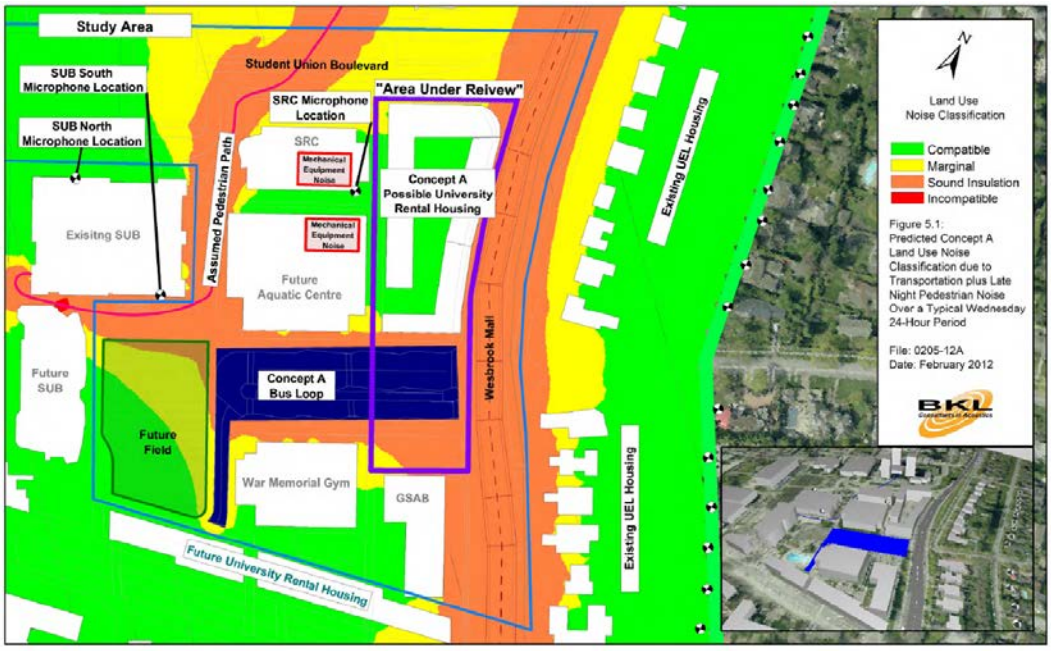

Figure 5 BKL Consultants Noise Prediction for a typical Wednesday night.

The noise predictions in the BKL Consultants report indicates that the noise levels experienced by the UEL residents east of Wesbrook could be 5 to 20 dB above the day-time limits used in local municipal bylaws, including those for the UEL and the UNA.

BKL Consultants provided a noise prediction for a concert level scenario, and the following figure provides the noise contours. In this case, the contours show that the existing UEL housing could experience noise levels up to 85 dBA and higher.

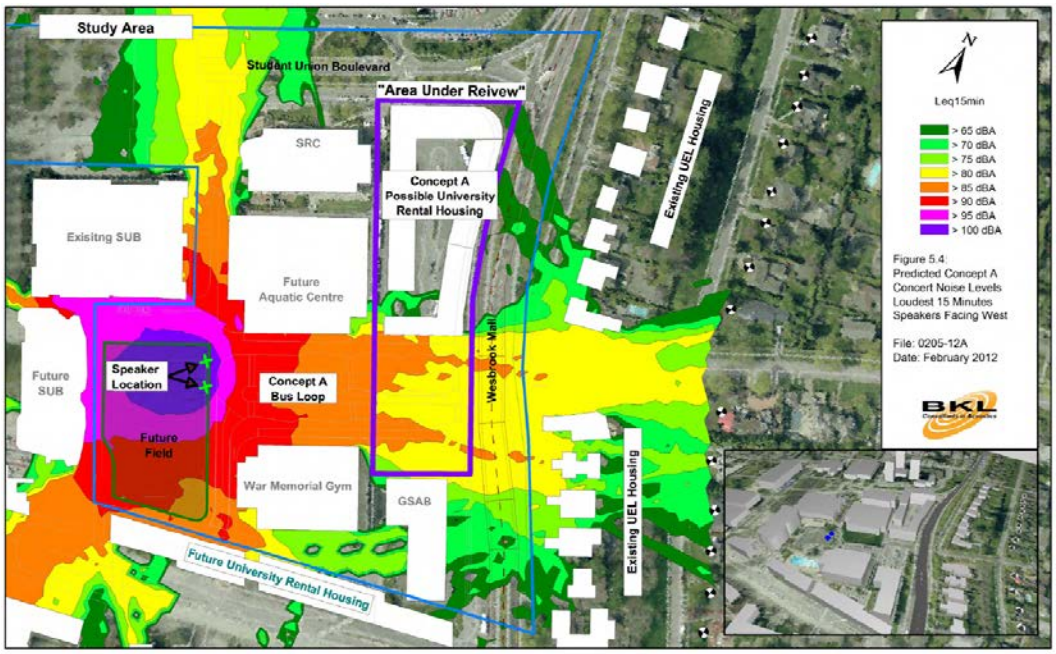

Figure 6 BKL Consultants Noise Prediction for a typical concert event.

The noise prediction by BKL Consultants only considers the noise levels east of Wesbrook Mall by a distance of about 125 Meters (ending at Western Parkway), whereas the actual eastward boundary of the UEL is about 550 Meters (ending at Acadia), as shown in the following figure. It does appear that a considerable area of the existing UEL housing east of Wesbrook Mall (and east of Western Parkway) will experience noise levels in excess of 75 dBA to 80 dBA. To determine the noise impact of the UBC Precinct Development on the UEL, another Noise Impact Analysis should be performed with the coverage area extending at least 550 Meters Eastwards, and ideally 1000 Meters.

The data for the typical Wednesday night scenario shown in Figure 5 indicates that levels above 65 to 75 dBA require sound insulation to mitigate the noise. Using the data in Figure 6 for the Concert scenario, this would imply that a significant number of the residences in the UEL would require sound insulation to mitigate the noise from the planned UBC Precinct Development.

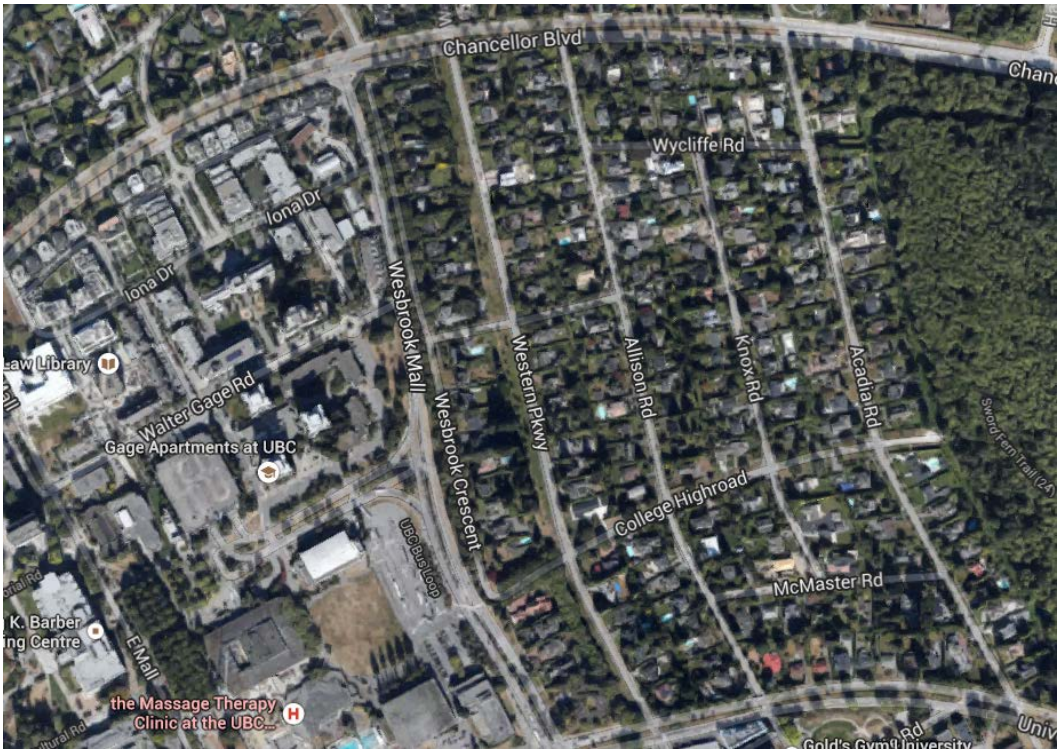

Figure 7 Map of the UBC Precinct Development Area and the Existing UEL Housing.

For the concert scenario, BKL have used the case where the speakers are facing west, away from the UEL. Large concert speaker systems are somewhat directive in nature, with the sound level at the rear of speakers being anywhere from a few dB to about 15 to 20 dB less than the front (depending on the particular speaker design and installation configuration). They have not analyzed the case where the speakers were facing east towards the UEL, which could dramatically increase Concert sound levels in the UEL.

In the Concert scenario with the speakers facing west, the maximum sound levels predicted are at the threshold level that Worksafe BC considers the maximum allowable exposure (85 dBA for 8 hours, 91 dBA for 2 hours, and 97 dBA for 30 minutes). For the Concert scenario where the speakers are facing east, the maximum sound levels could well exceed this 85 dBA level and the exposure times become considerably less than the nominal 8 hours. UBC needs to review the Noise Impact Analysis and provide sound level contours for the current design with the speakers facing West and East. The main concern here is that the noise analysis has the speakers facing west but during an actual concert the direction the speakers face can be in either direction, and it is quite likely that the event sound engineers would face the speakers to the East to avoid reflections from the buildings to the West of McInnes Field.

The CadnA model (Computer Aided Noise Abatement, the one used by BKL in the UBC Gage and Environs Analysis) used to predict the noise levels is only one of many software noise modeling tools available. Like all software modelling tools, the results are highly dependent on the algorithms used, the assumptions made for the base data, the accuracy of the Digital Elevation Models used for the site, nature of reflecting surfaces, etc. A paper from the 2004 Proceedings of Acoustics[6] compares four modelling tools (CadnA, ENM, NPL and DR 04173) and the variations in the predicted noise levels for a Wind Turbine case. The key findings from this paper are;

- The difference between the maximum and minimum noise levels predicted by the four models over ranges from 500 meters to 2000 meters differed by about 18 dB, which is quite significant.
- The CadnA modelling tool had a difference between the maximum and minimum noise levels predicted over ranges from 500 meters to 2000 meters that differed by about 7 dB. This difference arises from the variability of the Ground Absorption used in the model. This ranged from G=0.0 (hard surface) to G=1.0 (absorptive). The proportion of hard surface to absorbing surface in the proposed development area has a significant effect on the noise impacting the UEL. The Noise Impact Analysis did not make any mention of Ground Absorption factors or the actual factor used in the modelling.

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Throughout the BKL Noise Impact Analysis, there was no mention of a noise margin to allow for the fact that the predicted noise level may be less than the actual noise levels after project completion. Additionally, there was no mention of environmental effects on the overall noise impact, such as would result from variations in temperature, humidity, wind, etc. These issues are usually addressed in outdoor sound propagation analysis, such as given in ISO 9613[7].

The plan form of the UBC Precinct development since the 2012 Noise Impact Analysis has changed drastically, and can have a significant impact of the predicted noise levels post development. Once the building dimensions and locations are finalized, the CadnA modelling tool should be used to obtain new estimates of the noise level contours.

[6] Wind Turbine Generator Noise Prediction - Comparison Of Computer Models
Tickell, C.E., Ellis, J. T., Bastasch, M.
Acoustics 2004 Conference Proceedings
November 3-5, 2005

[7] Acoustics – Attenuation of Sound During Propagation Outdoors (Parts 1 & 2)
International Organization for Standardization

Appendix B - Health Impact of Noise from the UBC Precinct Development

In reviewing the materials presently available for the UBC Precinct Development, and in particular the Noise Impact Analysis done for that development, the UEL CAC has considerable concern about the adverse effects of the noise generated by that development on the UEL community. These concerns are;

- disturb, or tend to disturb, the quiet, peace, rest, enjoyment, comfort or convenience of the neighbourhood, or of persons in the vicinity.
- Expose the UEL residents to noise levels that will adversely impact their health.

The noise levels predicted by the BKL Consultants report for both the typical Wednesday night scenario and the Concert scenario create excessive noise. The predicted noise levels in the report imply that the existing UEL residents would require sound insulation to mitigate the effects of the noise.

Of more concern to the UEL CAC are the adverse health effects of the noise. Community noise levels are usually closely related to the intensity of human activity. Noise levels are generally considered low when below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA. A considerable amount of study has been done on the adverse health effects of environmental noise by the World Health Organization (WHO)[8], European Environmental Association (EEA), World Bank, Health Canada, etc. The WHO states;

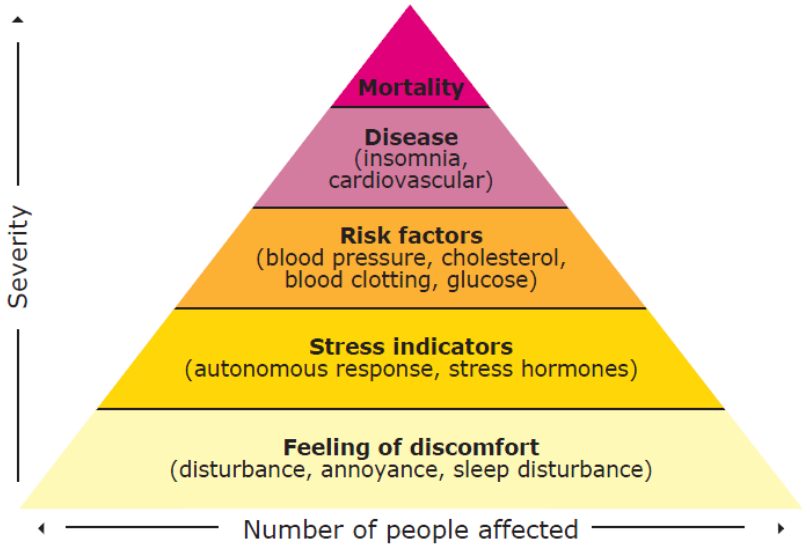
> *"Above 55 dB - The situation is considered increasingly dangerous for public health. Adverse health effects occur frequently, a sizeable proportion of the population is highly annoyed and sleep-disturbed. There is evidence that the risk of cardio-vascular disease increases"*[9] .

[8] http://www.euro.who.int/en/health-topics/environment-and-health/noise

[9] Night Noise Guidelines for Europe
World Health Organization, 2009
ISBN 978 92 890 4173

The health effects can be illustrated using a "Pyramid of Effects[10]" figure, shown below. It shows that as the environmental noise level increases, there are increasingly more serious impacts on people ranging from discomfort up to disease and mortality through disturbed sleep.

Figure 1.1 Pyramid of effects (WHO 1972 — modified)[iv]



Source: Babisch, W, 2002[xvii].

Figure 8 Pyramid of Effects.

[10] "Noise in Europe 2014"
EEA Report No 10/2014
European Environmental Agency, 2014
ISBN 978-92-9213-505-8

WHO and EEA Studies have shown that the threshold of disturbance is relatively low, with various thresholds being shown in the following table[11]. In this table, the thresholds range from about 35 dB (EEG awakening, change of sleep stages) to 42 dB (Environmental Insomnia, waking during the night). It is for reasons such as this that night time noise levels used in many, many bylaws are below 45 dBA, and lower in some countries.

Effect		Indicator	Threshold, dB
Biological effects	Change in cardiovascular activity	*	*
	EEG awakening	$L_{Amax,inside}$	35
	Motility, onset of motility	$L_{Amax,inside}$	32
	Changes in duration of various stages of sleep, in sleep structure and fragmentation of sleep	$L_{Amax,inside}$	35
Sleep quality	Waking up in the night and/or too early in the morning	$L_{Amax,inside}$	42
	Prolongation of the sleep inception period, difficulty getting to sleep	*	*
	Sleep fragmentation, reduced sleeping time	*	*
	Increased average motility when sleeping	$L_{night,outside}$	42
Well-being	Self-reported sleep disturbance	$L_{night,outside}$	42
	Use of somnifacient drugs and sedatives	$L_{night,outside}$	40
Medical conditions	Environmental insomnia**	$L_{night,outside}$	42

Table 1 Summary of effects and threshold levels for effects where *sufficient* evidence is available

Figure 9 Summary of Thresholds.

[11] "Night Noise Guidelines for Europe"
World Health Organization, 2009
ISBN 978 92 890 4173 7

The following figure[12].shows the simplified noise effects reaction scheme, and the impact of increasing noise level on human health. Ignoring the Direct Pathway leading to hearing loss, the indirect pathway shows the path from noise exposure through stress, physiological reactions to the stress, risk factors, and the health disorders. To quote from the EEA report;

> *"The biological plausibility of the association derives from the numerous noise experiments that have been carried out in the laboratory. There is no longer any need to prove the noise hypothesis as such."*

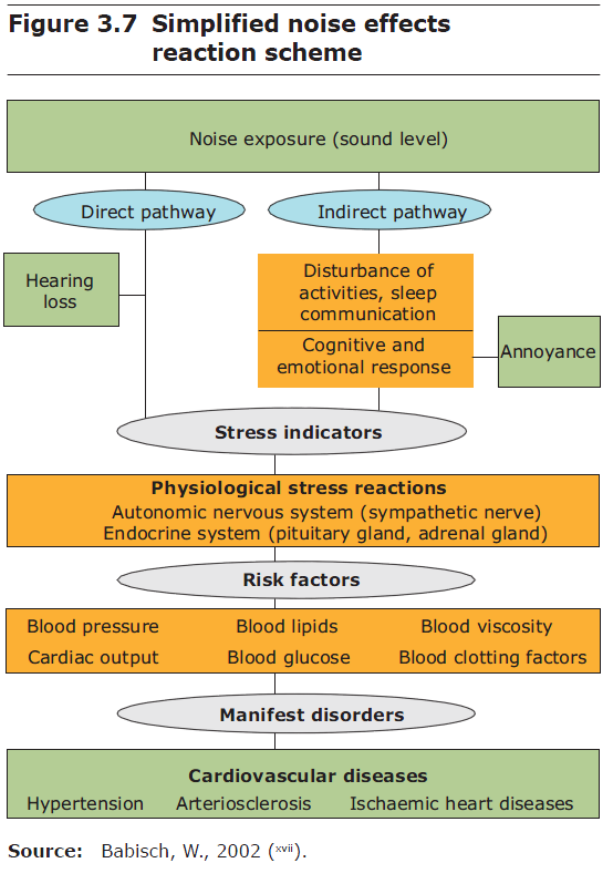


Figure 10 Noise Effects Reaction Scheme.

[12] Good practice guide on noise exposure and potential health effects"
EEA Technical report No 11/2010
European Environmental Agency,
ISBN 978-92-9213-140-1

The Disability Adjusted Life Year (DALY) was developed by WHO and the World Bank to enable policy makers to make rational choices for medical treatment. In principle the DALY is calculated as the sum of years of potential life lost due to premature mortality and the years of productive life lost due to disability.

The World Health Organization provides the following definition of the DALY[13];

Definition

One DALY can be thought of as one lost year of "healthy" life. The sum of these DALYs across the population, or the burden of disease, can be thought of as a measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease and disability.

DALYs for a disease or health condition are calculated as the sum of the Years of Life Lost (YLL) due to premature mortality in the population and the Years Lost due to Disability (YLD) for people living with the health condition or its consequences:

Calculation

DALY = YLL + YLD

The YLL basically correspond to the number of deaths multiplied by the standard life expectancy at the age at which death occurs. The basic formula for YLL (without yet including other social preferences discussed below), is the following for a given cause, age and sex:

YLL = N x L

where:

N = number of deaths
L = standard life expectancy at age of death in years

Because YLL measure the incident stream of lost years of life due to deaths, an incidence perspective has also been taken for the calculation of YLD in the original Global Burden of Disease Study for year 1990 and in subsequent WHO updates for years 2000 to 2004.

To estimate YLD for a particular cause in a particular time period, the number of incident cases in that period is multiplied by the average duration of the disease and a weight factor that reflects the severity of the disease on a scale from 0 (perfect health) to 1 (dead). The basic formula for YLD is the following (again, without applying social preferences):

YLD = I x DW x L

[13] http://www.who.int/healthinfo/global_burden_disease/metrics_daly/en/

where:

I = number of incident cases
DW = disability weight
L = average duration of the case until remission or death (years)

The following figure from the WHO[14] provides an estimate of DALY's from different environmental aspects, with loss due to Noise rated just below loss due to traffic accidents in Europe. It is greater than the effects of lead in drinking water, food borne disease, second hand smoke, airborne particulate pollution, and other factors. Noise ranks fourth overall of the 16 environmental aspects considered.

Figure 4.1 Estimate of DALY's from different environmental aspects

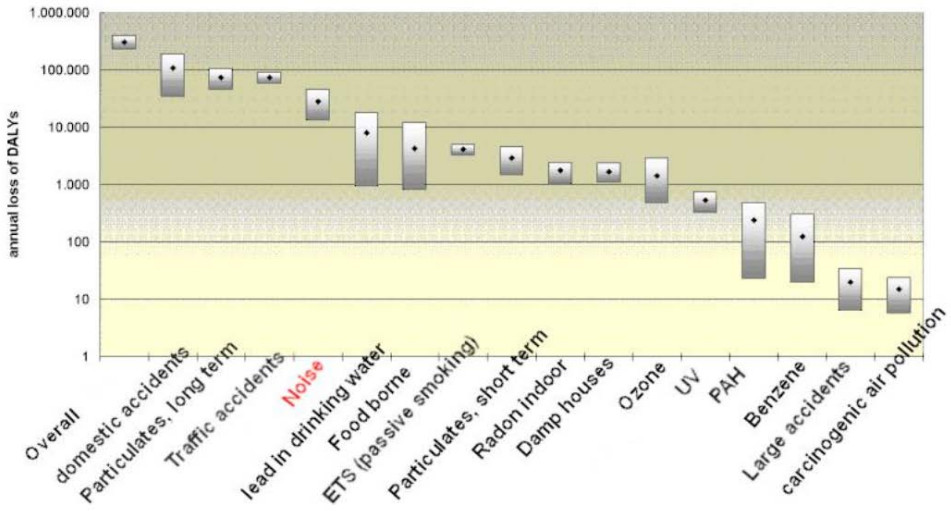


Figure 11 Estimate of Disability Adjusted Life Years from environmental effects.

[14] Good practice guide on noise exposure and potential health effects"
EEA Technical report No 11/2010
European Environmental Agency,
ISBN 978-92-9213-140-1

The DALY figure for noise on its own is somewhat abstract to the average person, but the following figure puts the impact of noise on human health into a more understandable perspective[15].

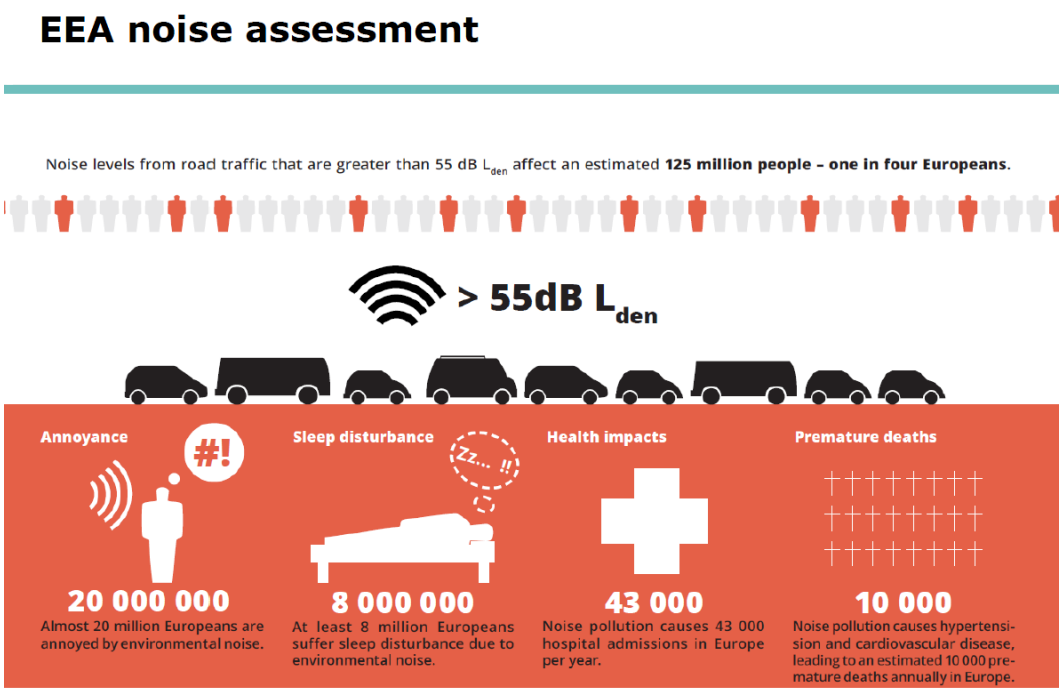


Figure 12 Estimate of environmental effects due to noise.

This figure indicates that for environmental noise levels greater the 55 dB L_{den}, where L_{den} is defined as;

> *L_{den} is defined in terms of the "average" levels during daytime, evening, and night-time, and applies a 5 dB penalty to noise in the evening and a 10 dB penalty to noise in the night. The definition is as follows:*
>
> $$L_{den} = 10 \log [(12/24).10^{LD/10} + (4/24).10^{(LE+5)/10} + (8/24).10^{(LN+10)/10}]$$
>
> *Here L_D, L_E, and L_N are the A-weighted long term LA_{eq} as defined in ISO 1996-2 (1987) for the day (7-19h), evening (19-23h), and night (23-7h) determined over the year at the most exposed*

[15] "Noisewatch"
European Environmental Agency
Citizen Observatories: Empowering European Society, Brussels, 4th December 2014
Colin Nugent & David Stanners

facade. L_{den} has been put forward as the noise metric for the prediction of annoyance in the proposal for a Directive on the Assessment and Management of Environmental Noise[16].

The environmental noise impacts for L_{den} values greater than 55 dBA are;

- 20 million Europeans annoyed by environmental noise
- 8 million Europeans suffering sleep disturbances
- 43 thousand hospital admissions **annually**
- 10,000 deaths **annually**

The European Population in 2000 was approximately 726,777,000, so the environmental noise impacts are significant.

[16] "Position paper on dose response relationships between transportation noise and annoyance"
EU's FUTURE NOISE POLICY, WG2 – Dose/Effect, 20 February 2002
European Commission
ISBN 92-894-3894-