

# ALL THINGS MATERIAL

## PROJECT STATEMENT

*In the past 50 years, humans have consumed more resources than in all previous history.<sup>1</sup>*

*The average American consumes more than 46,000 pounds of materials in a year.<sup>2</sup>*

*That is the equivalent of 23 full dump trucks worth of materials for every man, woman, and child in the country.<sup>3</sup>*

*...and by 2050, there will be 50 percent more people, 500 percent more economic activity, and 300 percent more materials needed.<sup>4</sup>*

These are just a few of countless figures that tell the same dire story, one that we probably hear almost every day and that only seems to get longer with each telling. Strangely, the tangled plot of messy historical chapters and contested futures is so huge, so global, that it is actually quite easy to ignore on a personal, everyday scale.

Still, as a student and eventual professional in an industry that, by some accounts, consumes 40% of the world's energy and resources, it would be irresponsible not to acknowledge and attempt to address at least one facet of the story--and materials matter.<sup>5</sup> Issues of consumption, performance, and impact are all the more relevant in a place on the verge of growth and enterprise, both new and revitalized:

a place like Southeast Portland. It is especially fitting that this area is the heart of the city's industrial history--a messy but formative experience that all American cities share.

This project is not the solution, but the theme is inspired by those trying to solve it. In 20, the non-profit group PopTech hosted an Ecomaterials Innovation Lab, a conference of diverse experts and visionaries to discuss, share, and ideate new developments and opportunities for material use and processes. The most notable and inspiring strategies in the subsequent report all pertain to innovative science and research--strategies that are not about changing how we use and dispose of materials, but how to make them better in the first place. These involve developing green chemistry practices, bio-based material research, and bio-inspired (i.e., biomimicry) design to replace the highly toxic, inefficient and intensive processes embedded in everything we make.

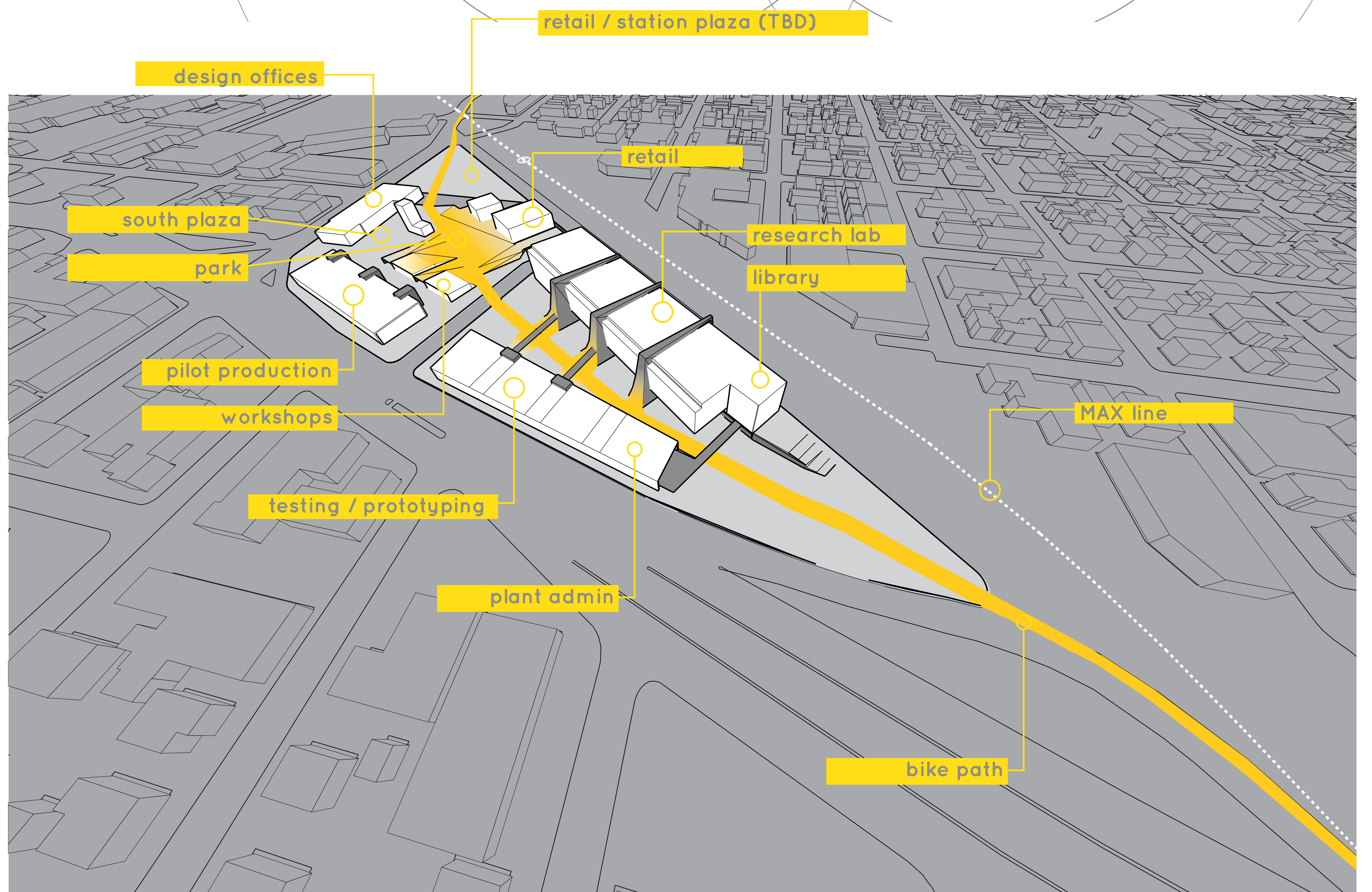
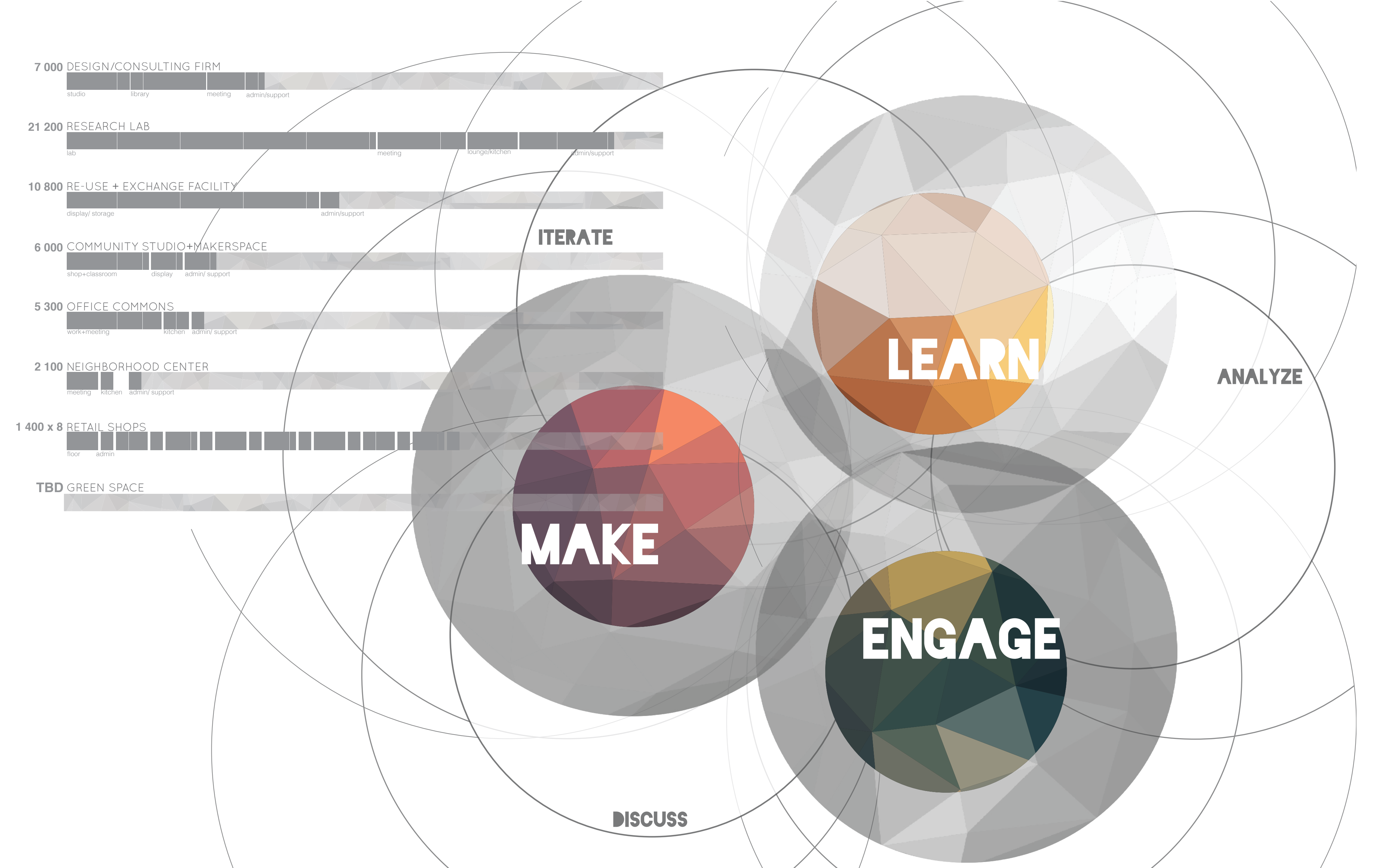
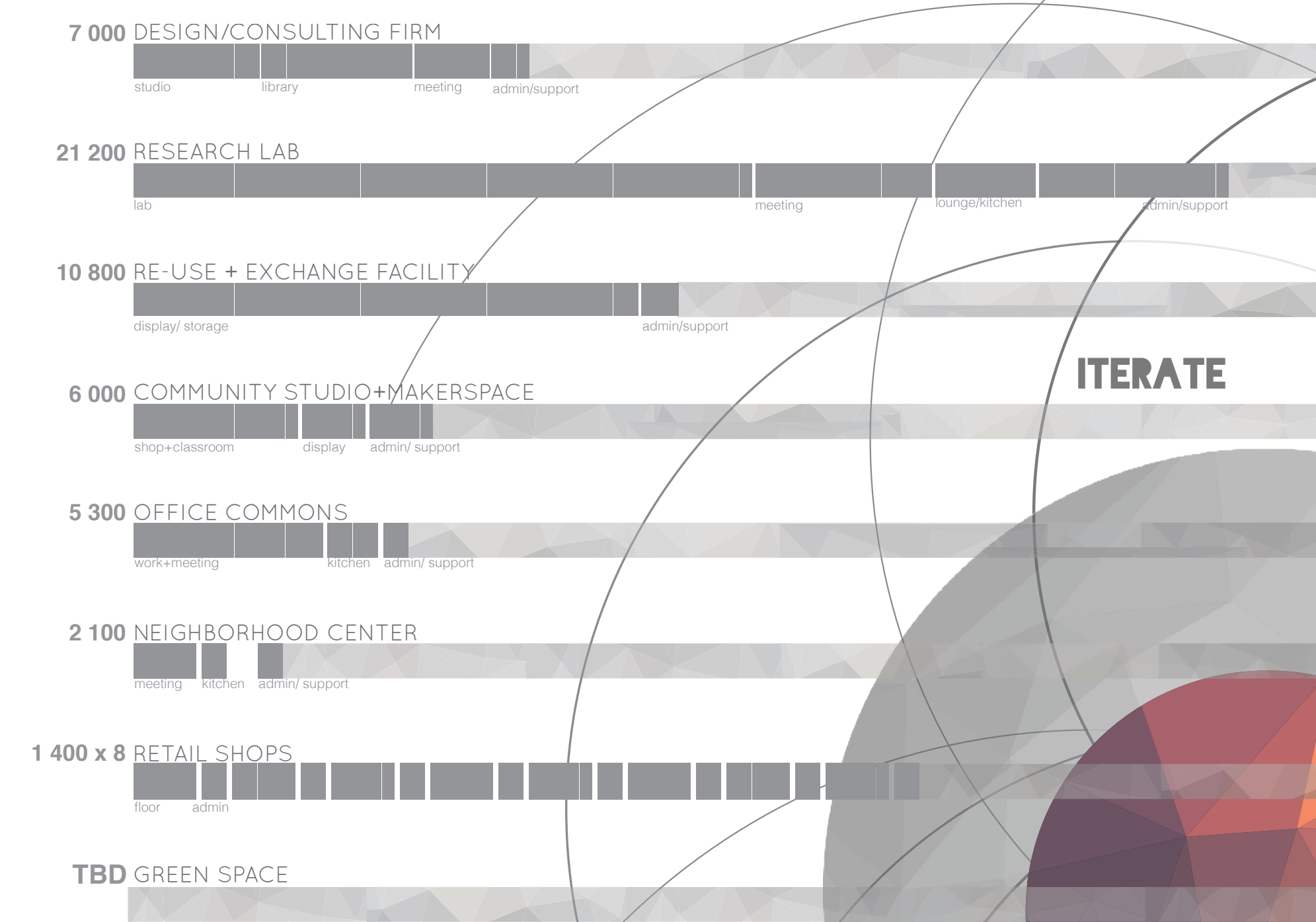
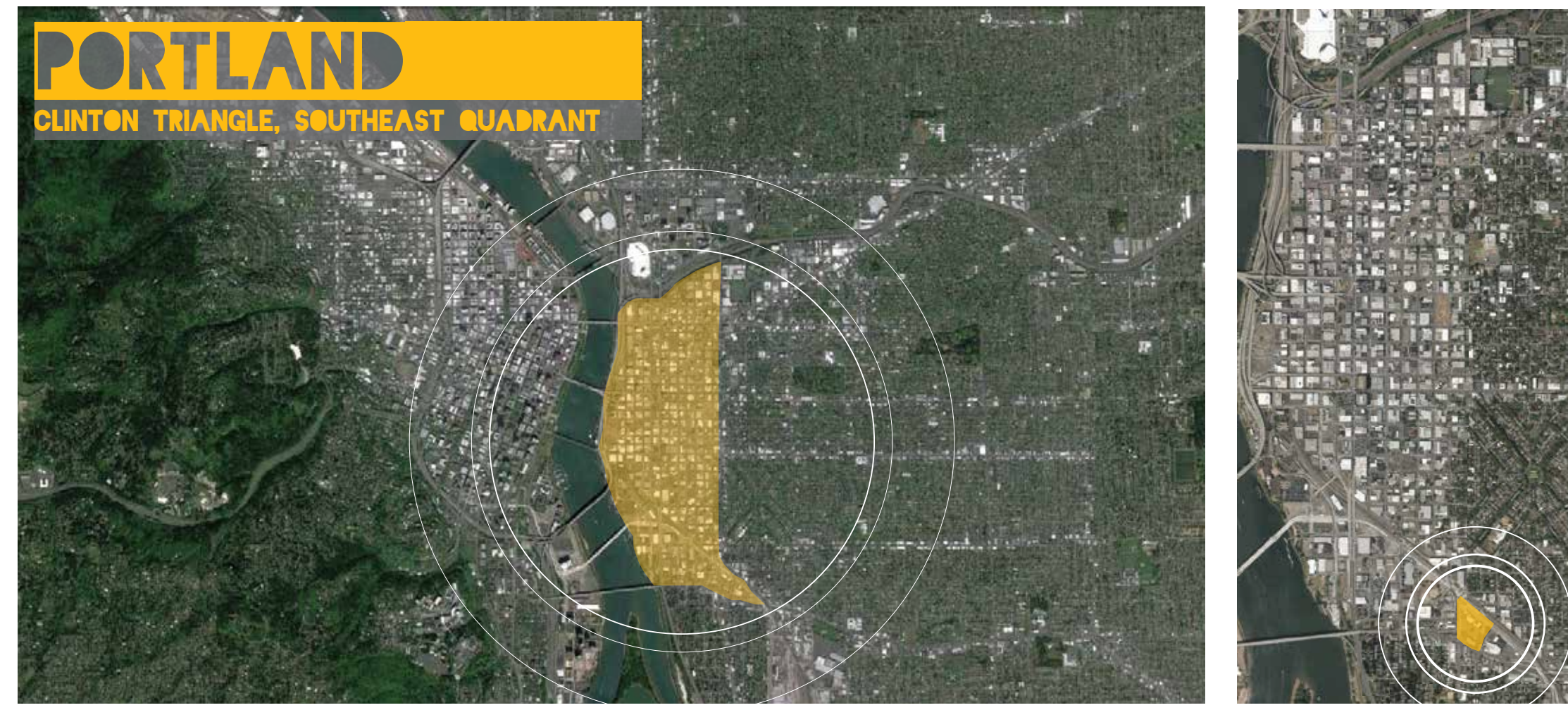
As such, the programmatic anchor of this project is a material research lab. The addition of the material design and consulting firm connects those on the forefront of new ideas with those who can apply and promote them, connecting fellow consumers with sustainable solutions and inspiring more responsible practices with their own body of work. Meanwhile, the material exchange facility and makerspace promote the imaginative use, reuse and maximization of the products and resources we already have,

activating the growth of a diverse and local economic ecosystem--with support from the office commons and neighborhood center.

Making, learning and engaging are critical pieces to a thriving whole. Matters of all things material provide a fitting medium through which to apply these concepts to the Southeast Quadrant: both as a demonstration for accessible, perceptible change and a fertile environment for local participation and collective growth.

### References

- Reflections on the PopTech Ecomaterials Innovation Lab
- Stephens, Jack. "Live Lightly on the Earth - Statistics that Teach," Natural Building Network (July 21, 2009). <http://nbnetwork.org/2786>
- Reflections on the PopTech Ecomaterials Innovation Lab. "Based on a standard, dual-axle commercial dump truck with a maximum load-bearing capacity of ten short tons."
- Allen, Derry, et al. Sustainable Materials Management: The Road Ahead, (Washington, D.C.: United States Environmental Protection Agency, 2009), p. 8.
- Geiser, Ken, Materials Matter: Toward a Sustainable Materials Policy (Cambridge: MIT Press, 2001).



## URBAN TAXONOMY

# THE AVENUE

**activities:** commerce, transit, errand-running

**qualities:**

- direct, usually fast-paced movement, bustling
- high and long windows, few interruptions between buildings to form straight, consistent, unbroken (although diverse) facade—property value is high so no space is wasted
- wide sidewalks and roads, with variety of transit types
- built environment may be polished/ trendy/ flashy/etc (sometimes overly so) because their high-public visibility creates self-consciousness

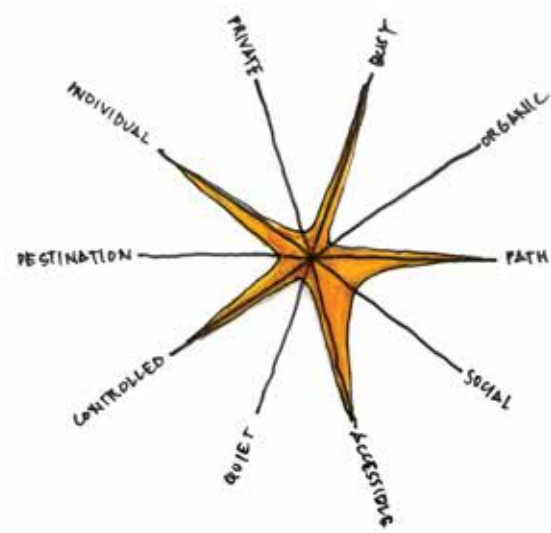
**degree of publicity:**

**access:** very accessible, usually the front and center/ main route; very visible and apparent

**human interactions:** crowded but not highly sociable, as everyone seems to be on their way to somewhere (except from outdoor restaurant patios). The degree of hustle and bustle is often a function of peak transit times, so more a casual/ sociable atmosphere may exist at non-peak/ weekend hours.

**materials:** primarily glass+metal (storefront), ground plane is hard/ durable/ navigable/ optimized for movement (concrete, flat, even pavers)

**landscape:** controlled/ confined to planters/ rows, greenery tends to be more horizontal than vertical



## URBAN TAXONOMY

# THE SIDESTREET

**activities:** window/ leisure-shopping, cafe-sitting (people-watching), exploring

**qualities:**

- bustling, but with more opportunities to pause, more ambling
- large windows, though as much for seeing out (window seats) than for showing off/ looking in
- street may be just one or two lanes, or entirely car-free—meaning narrower, which helps pace of activity feel slower, more casual/ intimate
- street front may have more 'character'/ nooks and crannies, and may not be a straight path—while open space may not go unused, it is not necessarily entirely used by buildings

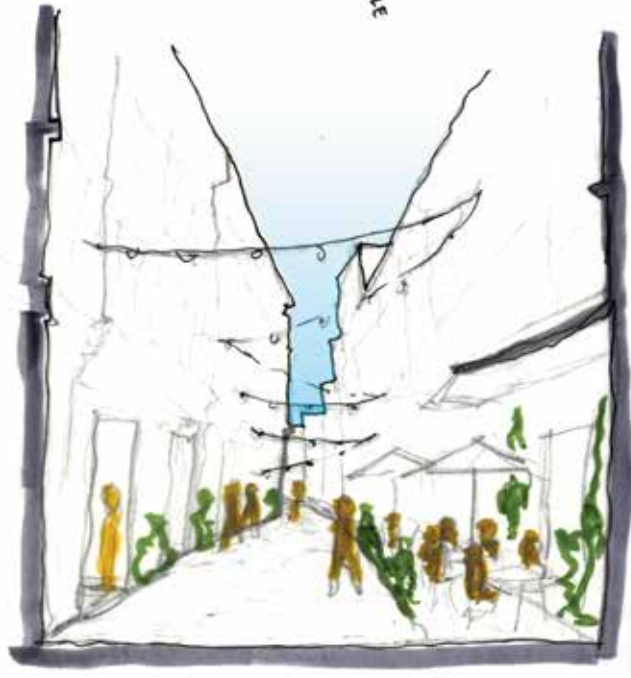
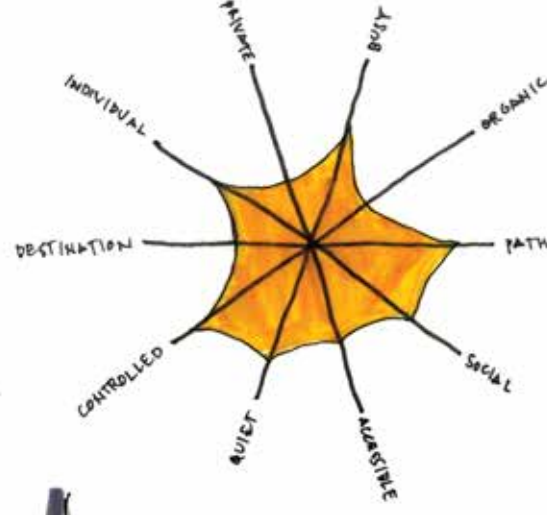
**degree of publicity:**

**access:** may not be as obvious/ visible but can often be found right off of main avenues and thoroughfares, still technically public, but the most sidestreet of side streets—the back alley—can feel quite enclosed/ private, almost as a building itself. This is a function of both how tucked away the path is, as well as how narrow/ winding

**human interactions:** may not be crowded but definitely more conducive to social interactions—healthy mix of groups, gatherings, couples, and the lone explorers. Likely to come alive more at after-hours, lunch breaks, weekends

**materials:** heterogeneous mix that balances solid facade and glazing, ground plane may be composed of more pattern/ smaller-scaled units for slower movement

**landscape:** controlled but perhaps not as pruned/ confined, and more likely to be vertical (taller, larger trees, ivy, window planter boxes, etc)



## URBAN TAXONOMY

# THE GREENWAY

**activities:** all things human-powered—strolling, running, biking, skating...

**qualities:**

- "green" for its car-free uses or actual greenery (though usually both—typically lined with trees/ growth/ other form of landscape on at least one side
- may follow vehicle thoroughfares or be an exclusive path for non-motorists
- used for both (human-powered) transit as well as leisure/ exercise
- may provide variety of surfaces/ path geometries for different modes of movement (paved thoroughway for bikes versus circular/ winding mulched jogging path, etc)

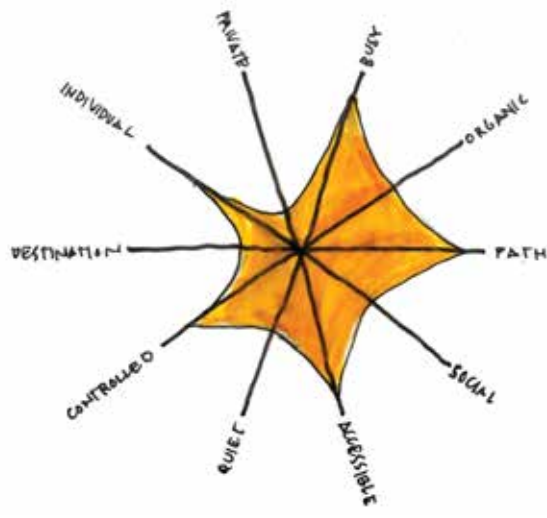
**degree of publicity:**

**access:** very public amenity, though may have more "private"-feeling side trails, garden paths, etc

**human interactions:** can be a highly social space, though usually for smaller groups (couples walking, a few friends jogging, etc) or a family unit; also just as likely to find people commuting/ exercising/ ambling alone

**materials:** all things green and natural, perhaps variety of ground plane surfaces (mulch, gravel, asphalt, paving stones) to facilitate/ allow for different uses/ modes of transit

**landscape:** everywhere, can be highly controlled or arranged "organically"



## URBAN TAXONOMY

# THE PLAZA

**activities:** gathering, civic and cultural ceremonies, events, celebrations, exhibits

**qualities:**

- very open, often with few permanent fixtures save a fountain or shaded space to allow for flexible use
- often defined by building edges, which often feature some kind of porch-like space (colonnade, cafes, etc) or transparent edge to create a public/ semi-public border
- usually crowded/ bustling throughout the day as it is a sort of "pool" within the flow of pedestrian circulation

**degree of publicity:**

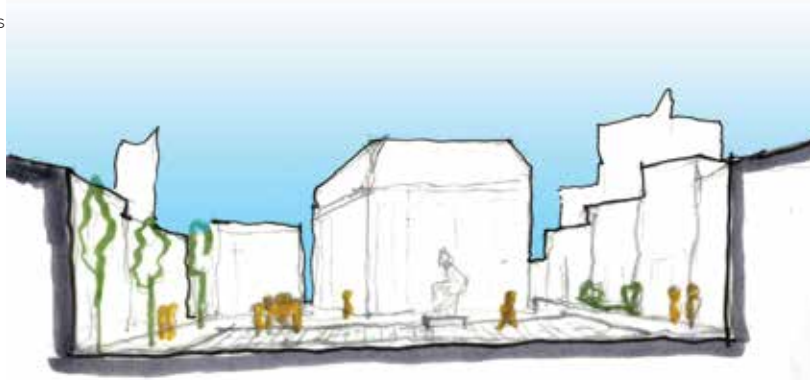
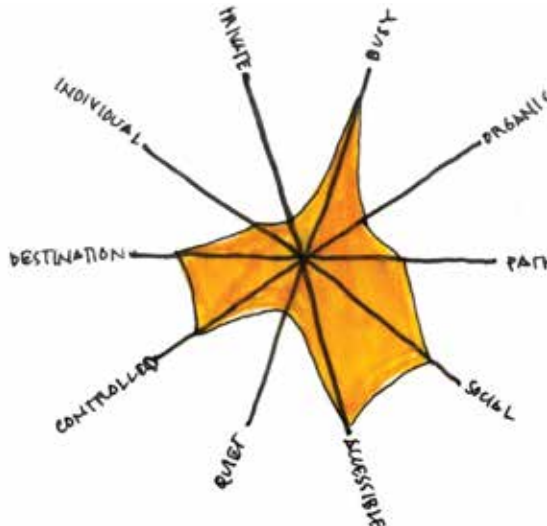
**access:** very public/ accessible as it is quite an obvious opening among narrower streets and walkways

**human interactions:** highly social, especially during any sort of event or ceremony, ideal for group meetings or gatherings of any size

**materials:**

- often completely and aesthetically paved (bricks or other smaller units as opposed to asphalt and the like)
- contrasting materials can help define spaces used for events or to mark certain pathways or processional routes

**landscape:** very controlled and usually very limited and/ or uniform (ie a grid of trees for shade or geometric patterns of grassy space)



## URBAN TAXONOMY

# THE COURTYARD

**activities:** quiet activities for work or leisure (reading, studying, writing, sketching) or more intimate gatherings

**qualities:**

- much like a park or plaza but on a smaller scale

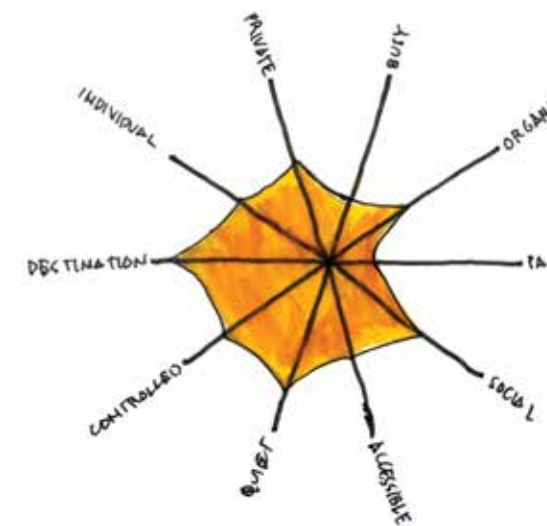
**degree of publicity:**

**access:** can be a more public offshoot of larger spaces or streets, or a more private space belonging to a particular building/ group of buildings and meant for a more limited set of occupants

**human interactions:** often used for more individual/ personal activities and smaller social interactions

**materials:** depending on its context or intended purpose, can feature materials and design similar to a plaza or park

**landscape:** will often feature natural elements to create an inviting space, but usually in a controlled manner due to its smaller scale



## URBAN TAXONOMY

# THE PARK

**activities:** any range of leisure or athletic activities, from picnicking to kite flying to sport games

**qualities:**

- very green and often very open, with any spatial interventions defined by landscape elements (copses of trees, lakes, etc) or open structures (pagodas, covered picnic areas, etc)

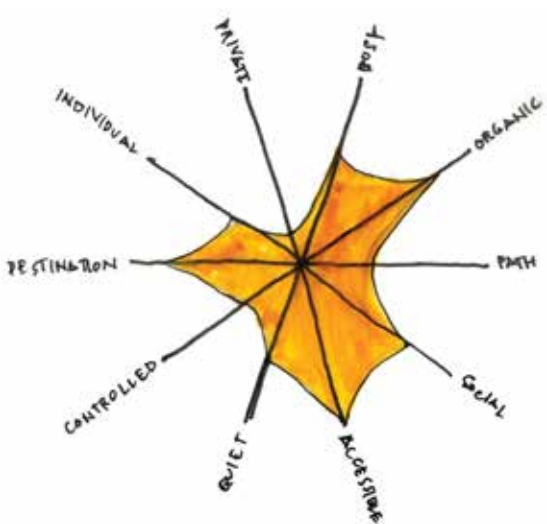
**degree of publicity:**

**access:** very public and open amenity

**human interactions:** wide range of activity, as it can be used for personal/ individual exercise/ relaxation or group and family gatherings and sports

**materials:** all things green and growing, with paving elements or open structures used to suggest but not completely control activity

**landscape:** can be very loose/ organic or quite planned and controlled, but usually in a manner to seem natural and unplanned



# PDX MATERIAL INNOVATION DISTRICT