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Engaging Holistic Health through interactive design in public space- Part 2

Alec Hembree

Emily Sholder

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OVERLAP OF PATH POTENTIAL

Utilizing Arsenal Park, located adjacent to Arsenal Elementary and Middle School, as a site for the “hub,” creates opportunities to engage children and members of the surrounding communities in design and active, healthy living. Pathways originating from the site tend to repurpose negative neighborhood aspects to generate safe, enticing spaces for all ages. Meanwhile, the hub will include programs and spaces functionally linked with those of the community, helping users learn in a regulated environment before utilizing skills and knowledge in public space.



Spoke Options for Connecting the Site to Existing Resources

EXISTING RESOURCES IN THE NEIGHBORHOOD

Positive resources included in the design investigation are selected for the ability to not only engage users in physical activity but also activate knowledge, social skills, and individual motivation. Every **public space in a community** has the ability to help develop an individual's Mind, Body, and Spirit simultaneously. For example, the presence of a community garden can be used to learn about **plants and nutrition**, physically care for plants, and a connect to social atmospheres surrounding the garden. Designing within and around community resources to capitalize on the multifaceted health dynamic can enable the use of preexisting resources to help children develop greater **holistic health**.

On Map	Existing Programs-Resources In Lawrenceville (0.5 mi)		
	(Positive)		
1	Carnegie Library		
2	Stephen C. Foster Community Center Meals-on-Wheels		
2	S.F.C.C. Child + Frail Adult Day Care		
2	S.F.C.C. Fitness Classes		
3	UPMC Senior Communities		
4	Small Community Garden		
5	UPMC Children's Hospital		
6	Sports Fields		
7	Schools		
8	Bike PGH/Bike Shop		
9	Grey Box Theater		
10	Butler Street Restaurants/Cafes		
11	Art Gallery		
12	Bowling Alley		
13	Live Music Bar		
14	Boy's and Girl's Club		
15	Playground		
16	Bike Path		
	(Negative)		
1	Fast Food Stop		
2	Traffic/Busy Roads		
3	Unlit Alleys		
4	Convenience Stores		
5	Limited Natural Space		
6	Private Fitness Clubs		
7	Abandoned Lots		
8	Deteriorating Sidewalks		
9	Vacant Store Fronts		

Body Mind Spirit

Existing Program-Resources (0.5 mi. Radius from site)

NEW COMPLIMENTARY PROGRAMS AND RESOURCES

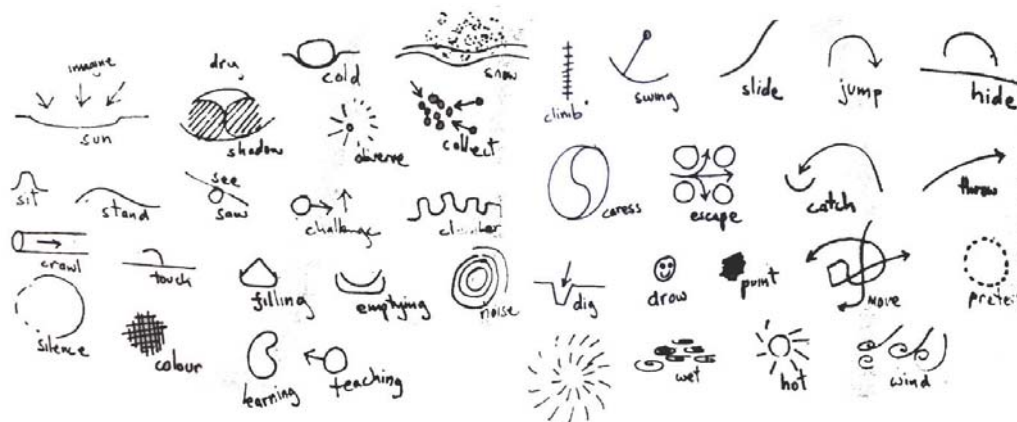
	Complimentary Programs-Resources as part of Hub and Spokes (0.5 mi)	
	(Positive)	While existing neighborhood resources are important to use, explore, and learn through, children who do not yet have the physical or psychological ability to access these resources, even through paths, can still engage in similar activities within the central hub through complimentary programs. These programs are designed to augment specific activities that occur at the other ends of the paths in the public realm, and are designed as tools for learning how to engage in and explore neighborhood-based resources. Using the example of a music rehearsal space as a complimentary program to an outdoor music venue illustrates the function and scale of these programs and hub-based spaces.
	Digital Media Space	
	Edible Garden	
	Exploratory Activity Space	
	Adult Gym	
	Exploratory Activity Space	
	Kitchen	
	Lecture/Activity Space	
	Sports Practice House	
	Various Path Installations	
	Independent Bike Repair Space	
	(Performance) Reception Space	
	Kitchen	
	Open Art Studio/Viewing Space	
	Sports Practice House	
	Outdoor Theater/Performance Space	
	Public Pool	
	Undulating Activity Landscape	
	Various Path Installations	
	(Negative Counterpart)	
	Kitchen/Healthy To-Go	
	Trees and Green Barriers	
	Lights/Permeable Pavings	
	Small Local Food Market	
	Outdoor Green Space	
	Exploratory Activity Space	
	Various Path Installations	
	Pathways Prototypes	
	Various Path Installations	

Body Mind Spirit

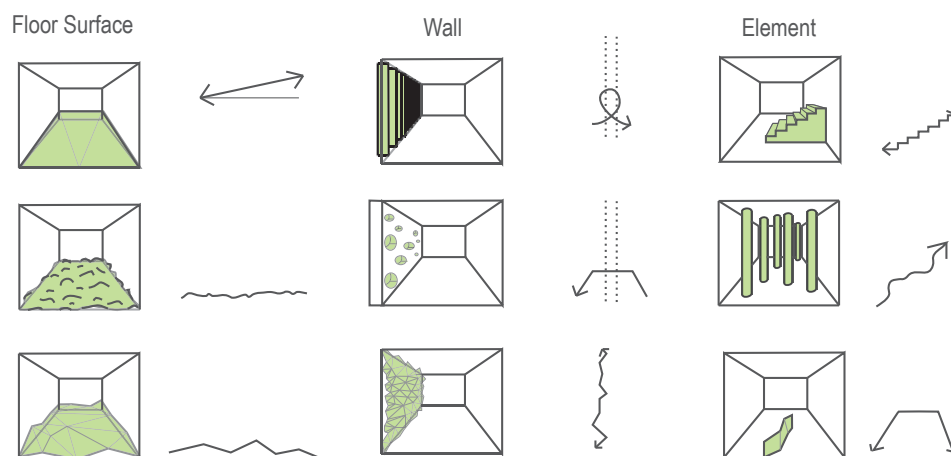
HEALTH, SPACE, LEARNING
THE CHILD
WHY SCHOOL?
PUBLIC SPACE
DESIGN STRATEGY
BIBLIOGRAPHY

PHYSICALLY ENGAGING ELEMENTS OF HUB

The hub provides space for various functions and uses that engage children and others in activities. The design of this space, however, can also provide opportunity for active **exploration and learning**. A focus on designing surfaces and elements within the hub to accommodate unguided activity not only encourages **child engagement** but also showcases the healthy identity of the hub. The potential success of this design scheme rests partly on its acceptance by the community. A center that encourages active living through programmatic arrangement together with active physical design could likely generate more opportunities for **community engagement with health and learning**.



Actions and Sensations Experienced When Interacting with the Environment



Manipulation Options for Surfaces and Elements to Promote Movement

ELEMENTS THAT PROMOTE MOVEMENT AND ENGAGED ACTIVITY



Carlo Scarpa's alternating stairs allow for physical activity between levels but also challenge the mind. Even though the movement up or down the stairs is the same as normal stairs, it challenges the mind because the form is different than what we are used to.



The Kindergarten Kekec uses toy slates with color as an engaging learning and play tool.

The widow cover facade provides a play surface along three walls. The one sided colored panels are interactive and allow children to play a part in ever changing facade design.



The undulating surface on the Maritime Youth House provides a unprogrammed playscape for children.

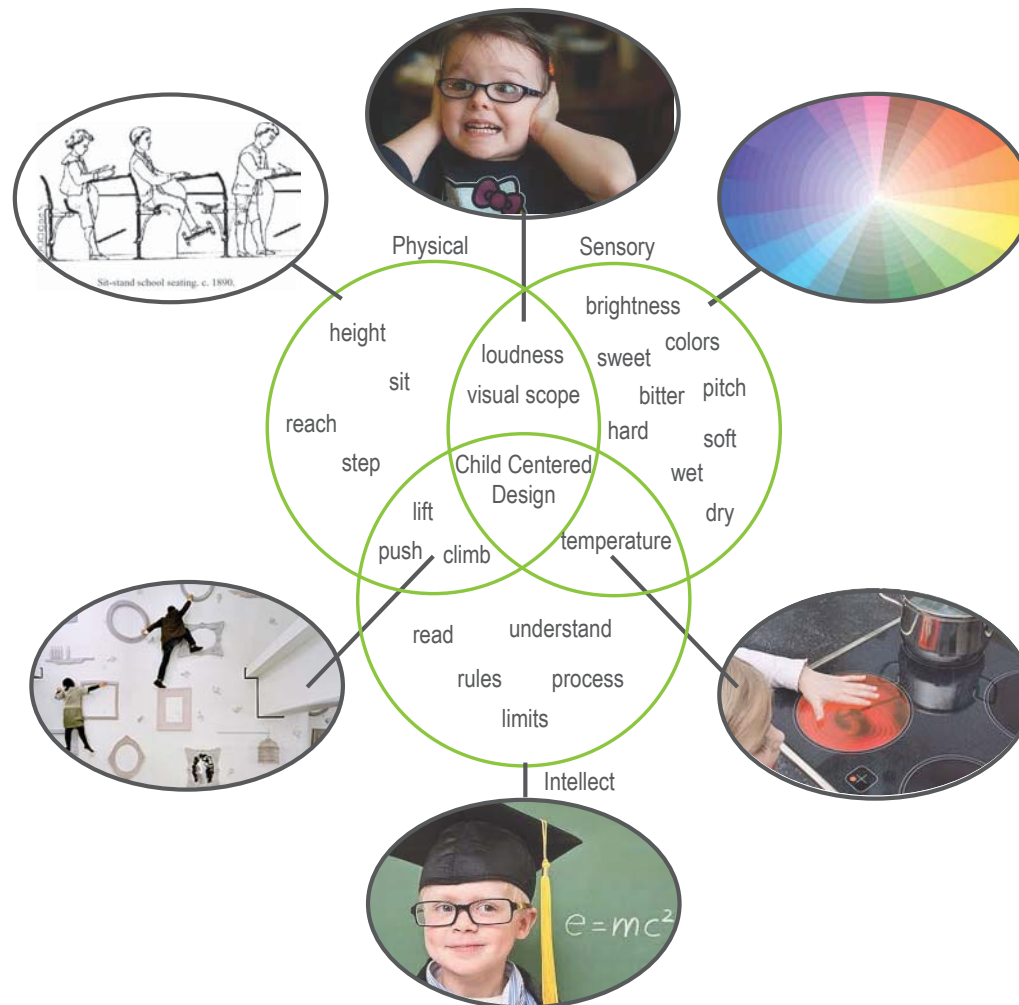
The wood decking is used to specify the outdoor play surface and creates a landscape to run around on.

Stairs, movable panels, and undulating landscapes all provide examples of how elements of the built environment can provide an interface for engaged physical activity. When people come across functional elements that deviate from the typical, like Carlo Scarpa's alternating stair pattern, the forms challenge the Mind and Body as the individual adjusts to movement along the unfamiliar (47). People and kids especially are drawn to elements like those of the Kindergarten Kekec, that encourage free-form participation and interaction. In this example, physically manipulable panels change color when children rotate them, changing the entire color arrangement along the façade (48). At the Maritime Youth House, by PLOT = BIG + JDS, in Copenhagen, Denmark, the wooden deck surface displays enticing aesthetic form encourages kids to run and play along the undulating surface (49).

Figure 60, 61, 62

DESIGNING FOR THE CHILD

When designing for any specific user group, it is important to understand the user's needs as they interact with the space, and therefore the design should reflect the user group's particular identity, ergonomic necessities, sensory abilities, and mental capacities. **Child body proportion** and ability can be reflected in forms and material that challenge children to explore, engage, and interact with space. As the child's body and mind are rapidly growing and evolving, overstimulation of noise, light, sound, or temperature can be potentially damaging. The application of sensitivity to sensory stimulation in children is important to consider as well. Design tailored to the mental capabilities of the particular age group should make the child feel empowered and **motivated to learn** as he or she is actively involved in the pursuit of holistic health. (50)



ERGONOMICS AND SENSORY STIMULATION



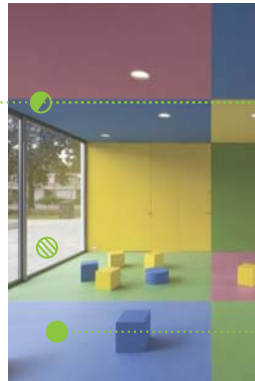
The Sjötorget Kindergarten's design has child scaled elements like low hand rails and small stair options.



Nooks in the walls and wall storage are easily accessible to children.



The Anansi Playground Building has a façade engraved with images. The idea of the building is to excite and stimulate curiosity and creativity of the children in this case though the tactile surface encouraging children to trace and touch.



Bright colors and stimulating patterns and colored objects excite children and create a fun space to play and imagine.



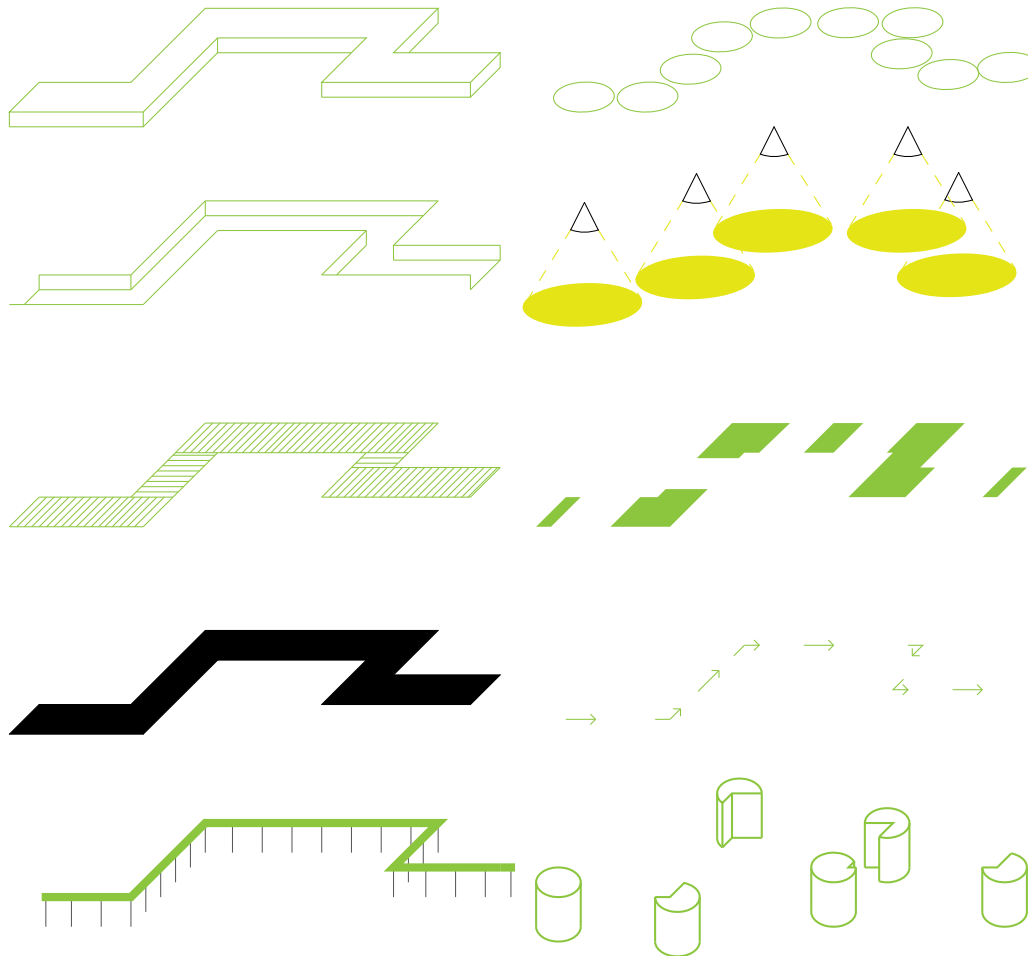
In the Carl-Bolle Elementary School, information about color and light spectrum is age appropriate allowing the children to engage and interact with the design.

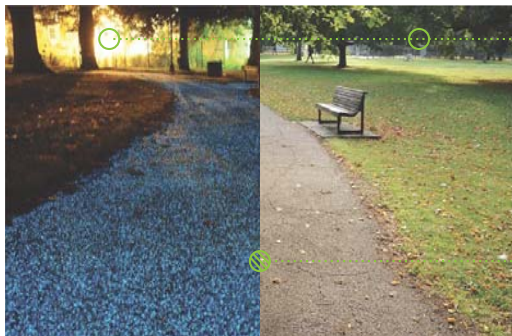
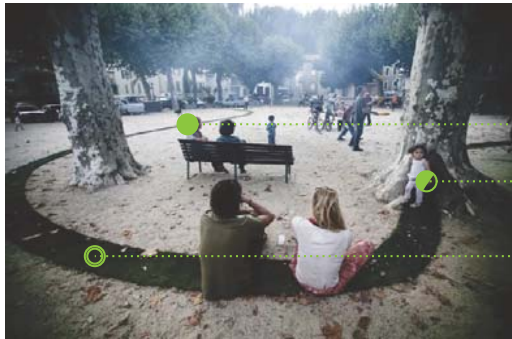
The Sjötorget Kindergarten, by Rotstein Arkitekter, in Stockholm, Sweden, has specifically designed stair and railing forms that contend directly with height and the accessibility to storage bins and seating nooks in the walls. Attention to dimensions that relate to the ergonomics of the child were highly considered in this project (51). The Anansi Playground Building, by Mulders vandenBerk Architecten, in Utrecht, The Netherlands, uses tactile and visual stimulations along the surfaces to encourage children to play and explore (52). In the "scientific observation" hallway in the Carl-Bolle Elementary School, the design of interactive tools are installed in order to challenge students' mental capacities through design by engaging children's understanding of scientific theories. (53)

Figure 63, 64, 65

PATHS

Paths, both natural and man-made, have always existed to guide. Rain-fall and animals create paths, and people have made vast networks of road paths in recorded history. While paths are designed to guide, they are not restricted to guiding only. Depending on the design of the path, paths can suggest routes, display routes, force movement, and offer deviation. The way that paths perform is also important. Depending on the wants and needs of the user, he or she can be guided by visual cues, by texture, by light, by sound, by smell, or by physical objects. The design scheme favors connection by visual cues and physical insertions, as these can also take the form of programmed elements for active exploration. (54)





Constant visual reference to path suggest a new movement through space.

Path includes aspects of interaction with the natural environment and the built environment.

Path is unprogrammed and does not connect specific programs.

Multiple interconnected pathways suggest non-linear means of moving through the park.

Undulating landscape enables imaginative individual programming.

Temporal change creates opportunities for different uses over time.

Light built into the path makes for enhanced physical safety and greater psychological comfort.

Figure 66, 67, 68

CASE STUDIES

The Grass Carpet installation on Jaujac, France, displays the path as a texture and a continuous visual cue. Winding its way through a mile of urban fabric, the temporary project acted as a suggested guide to pedestrians, becoming a place to sit, a place for small group gatherings, and a play space for children (55). The BUGA playground places a different meaning on the path. Implying its use as a foundation for imaginative play, it does not connect, but rather creates an intersecting network of routes (56). Pro-Teq's Glow surface provides an interesting look at material use on paths. This glow-in-the-dark surface increases the physical and psychological safety of using a path at night (57).

HEALTH, SPACE,
LEARNING

THE CHILD

WHY SCHOOL?

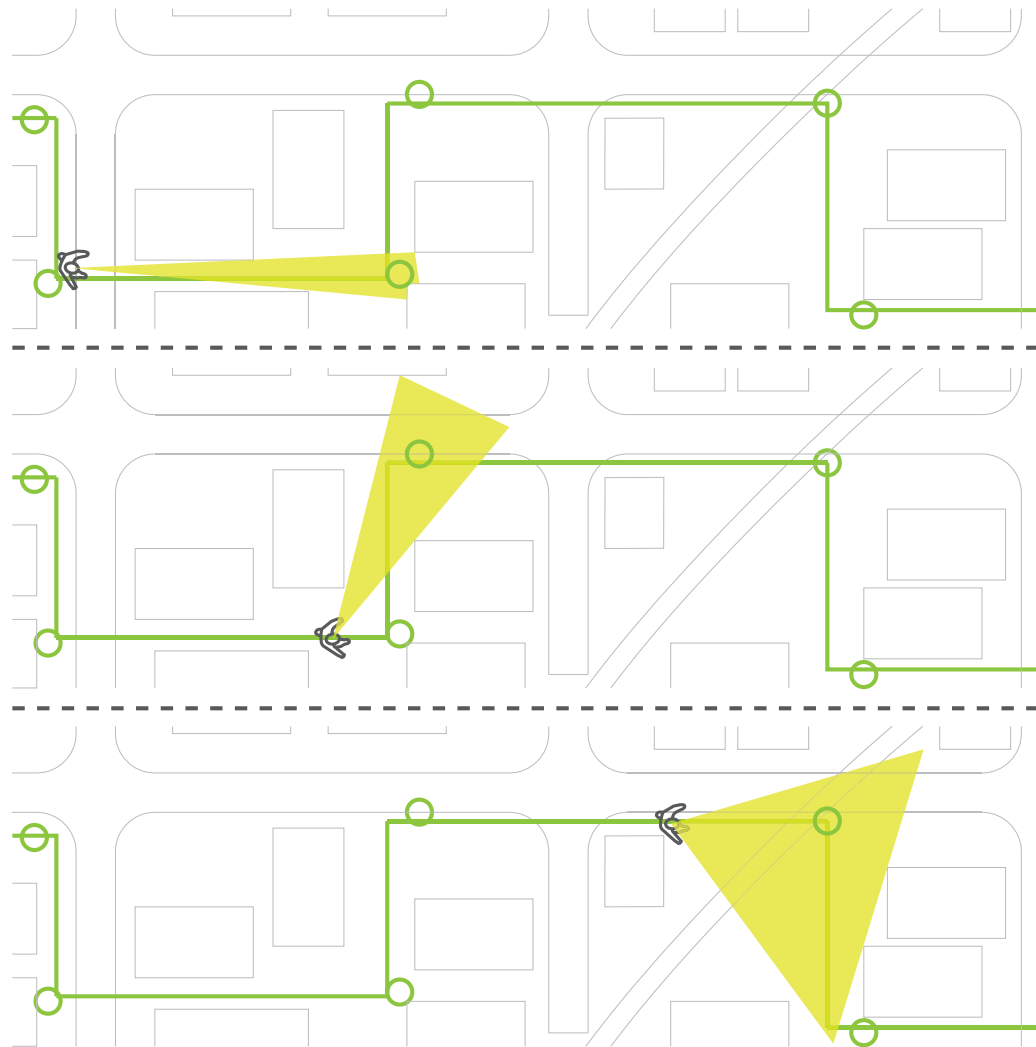
PUBLIC SPACE

DESIGN
STRATEGY

BIBLIOGRAPHY

VISUAL CONNECTIVITY

Visual connectivity along a path surface defines the effectiveness of the path. Most paths work by providing a constant, unchanging visual reference. However, the “spokes” of this design scheme require a strategy that **allows exploration** and wandering while still following a suggested route. In terms of a path, visual cues can become “guide lights” of defined movement through space. Contrary to the traditional path, the use of visually similar nodes does not impose patterns of movement or mandate specific uses. Instead, a path of physical elements could suggest movement by using enticing form, material, and color to engage the **curiosity and imagination of users**. The use of visually similar insertions and elements to recommend an exploratory path is essential to the design.



Visual Extents of Connectivity between Nodes



PARK DE LA VILLETTE

Red activity structures create a visual field condition that connects all park spaces.

A field condition that reaches into the urban surroundings enables visual access to the park without being in the park.

At least one tower is visible from anywhere in the park. This creates a sense of spatial belonging.

Physical paths are intended for linear movement while red structures and open spaces create opportunity for wandering and exploration.

Design allows movement and exploration in any direction.

Individual structures can be used in many ways, but specifically elevate the individual above the ground plane to enable greater visual scope.

Figure 69, 70

The Parc de la Villette, by Bernard Schumi, relies heavily on the presence of a field condition of visually similar insertions in the parkscape. Acting similarly to the design idea of creating a path through physical nodes, the red, un-programmed insertions constantly remind park visitors of their position relative to the parkscape and surrounding urban environment. In addition to providing opportunities for imaginative play, exploration, and higher viewpoints, the red towers can be imagined as a means of navigation to, through, and out of the park. The prominence of these visual cues could provide linear, rather than spatial, guidance in space. (58)

HEALTH, SPACE,
LEARNING

THE CHILD

WHY SCHOOL?

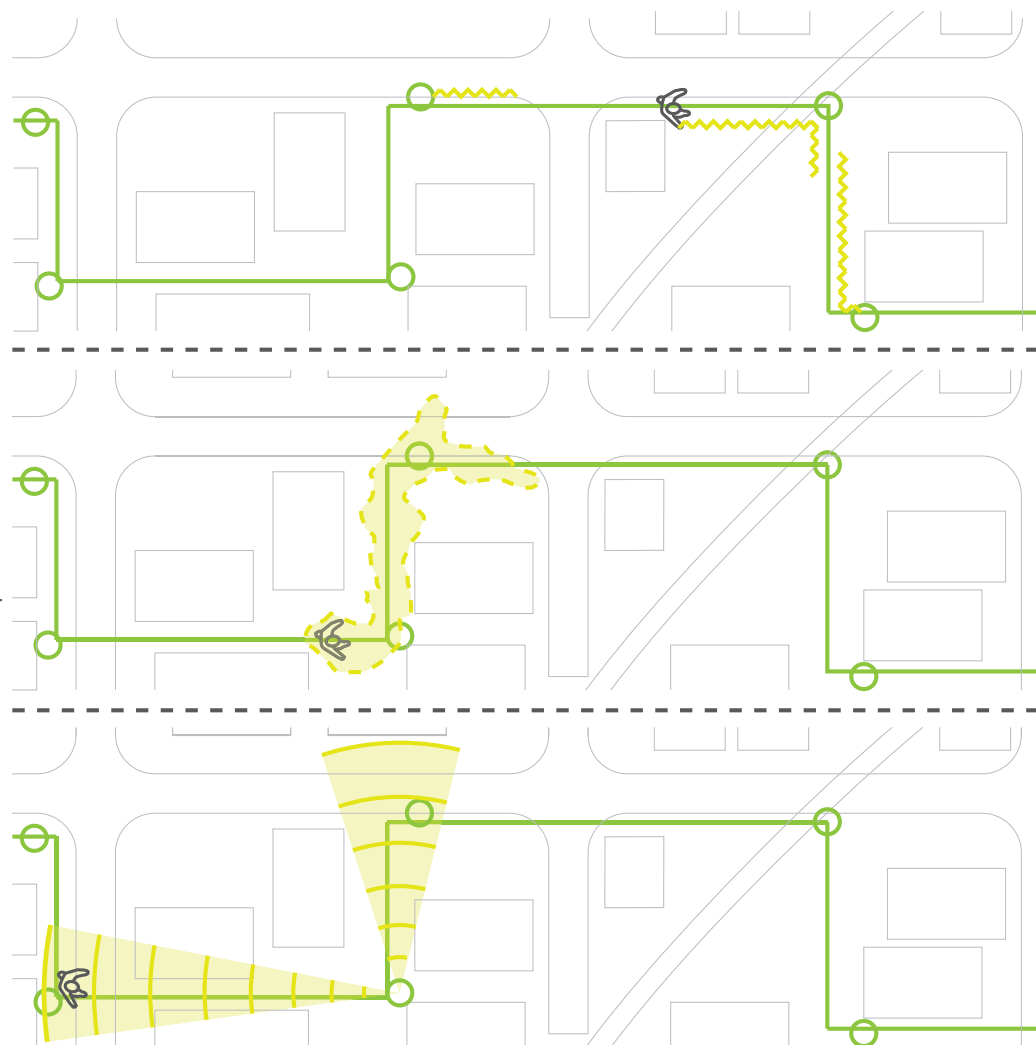
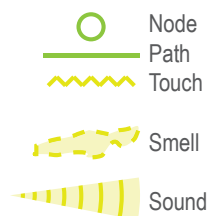
PUBLIC SPACE

DESIGN
STRATEGY

BIBLIOGRAPHY

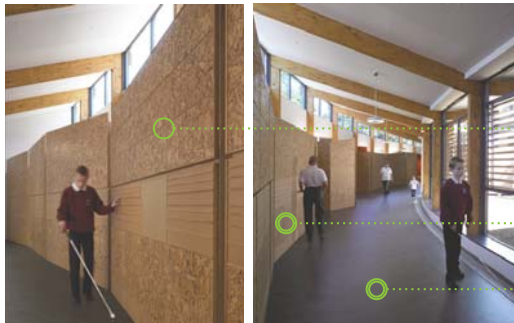
SENSORY CONNECTIVITY

Sensory perception of sounds, smells, textures, and visual nodes creates an invisible path that acts by leading users via the senses from insertion to insertion. Rather than just utilizing sight as a means of suggesting movement, nodes can employ similar effects by using sensorially interesting auditory, olfactory, or tactile insertions. Unlike visual connectivity, sensorial connectivity actively engages senses that are often not utilized by **children** during the typical daily schedule. In addition, the use of multiple senses to create paths applies to almost everyone, regardless of sensory or physical impairment.



Sensory Engagement Along Paths between Nodes

HAZELWOOD SCHOOL FOR THE MULTIPLE SENSORY IMPAIRED



Touch receptors are used by following the Trail wall, which allows students to independently navigate through the hallway.

The cork material is only used on this trail wall, while other materials are designated to other spaces.

As different floor and wall materials are used in specific locations, they have an acoustic function as well and as the child interacts with the surface they can relate to where they are.

Larch wood siding is used along walls with access to outdoors spaces. These transitional spaces stimulate olfactory letting the child to follow the scent of the larch wood to navigate to the door.





Slate tiles are along southern walls, and though proprioception students can sense the heat being emitted and understand their location to the building outside.

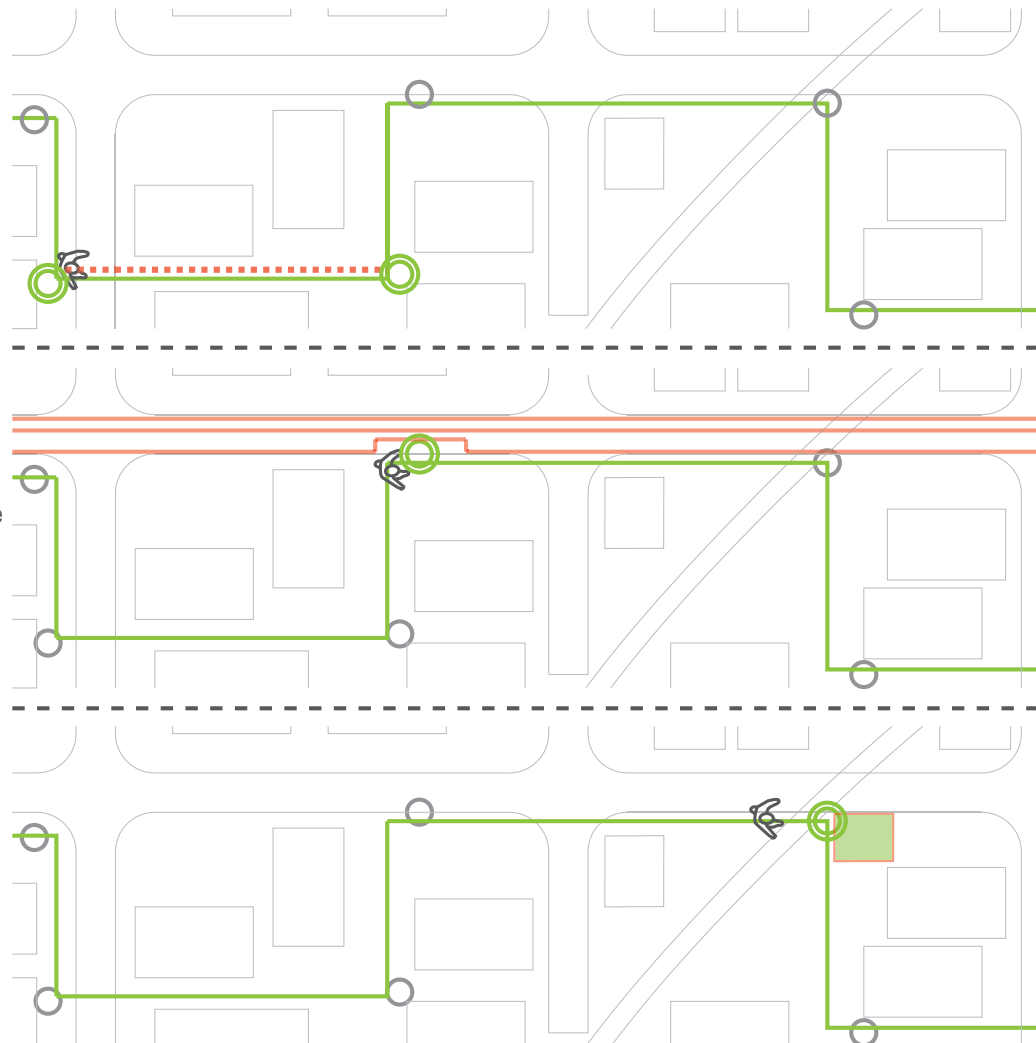
Figure 71

Gordon Murray + Alan Dunlop Architects, had in mind the specific goal to create a school in which the built environment and its sensory stimulating materials all become a learning aid for impaired children to independently navigate through the building. The sensation of touch is provided for navigation in the hallways by a cork wall with grooves and segmented angled pieces that correspond to locations in the school. Stimulation of olfactory sensation is found in the transitional spaces between indoor and outdoor space. Larch wood siding which has a distinct odor, walls this transition space. Auditory cues are perceived through walking on floor materials with different auditory feedback. The sense of heat perception is also utilized with slate tiles along the southern outdoor walls. These sensory cues help students navigate the school space. (59)

ENGAGING PROGRAM CONNECTIVITY BETWEEN HUB AND SPOKES

Between the Community Hub and the existing resources, the spokes, or paths, take routes along the sidewalks, streets, alleys, and cut-throughs in the Lawrenceville neighborhood. The success of this project's design scheme, with complimentary programs existing among the Hub, along the insertions and spokes, and within the unification of existing community resources, is determined by improving the detrimental environmental conditions. The paths and activity insertions will pass through the negative existing features, such as currently unsafe alleyways, cluttered streets, and vacant lots. Theoretically, the connectivity of the network as well as the paths themselves will revitalize these areas while making safer, more engaging paths to connect the neighborhood resources.

-  Point of Interest
-  Non-Pedestrian friendly alley ways
-  car filled streets
-  vacant lots



Paths Along Negative Urban Conditions to Revitalize Built Environment

PARKLET AND ACTIVE EQUIPMENT



Previous parking spaces along a street, the space now is a communal gathering and activity spot.

Swing seats promote active engagement in the space.



Accessible from the sidewalk, and protected from the traffic on the street, the parklet enriches the street life with activity.



Common materials are used in the parklets on different streets as a unifying visual cue.



All parklets provide space for plants, sitting, group and individual interaction, and some kind of physical activity.

The parklets are designed to re-purpose metered parking spaces on Spring Street to create mini-parks with seating, planting, and communal public spaces. By functionally extending the sidewalk into the street, they intend to enrich the vibrant street life already present and foster future investment in pedestrian and bicycle infrastructure in the neighborhood. Parklets are small installations which aim to encourage a more pedestrian friendly experience along streets and sidewalks, where people take the time to relax, play, use stationary exercise equipment, enjoy a social atmosphere, or supporting local businesses. The use of inviting materials, colors, interactive objects, and plants draw people's attention and cause the parklets to differ from their surroundings. (60)

HEALTH, SPACE,
LEARNING

THE CHILD

WHY SCHOOL?

PUBLIC SPACE

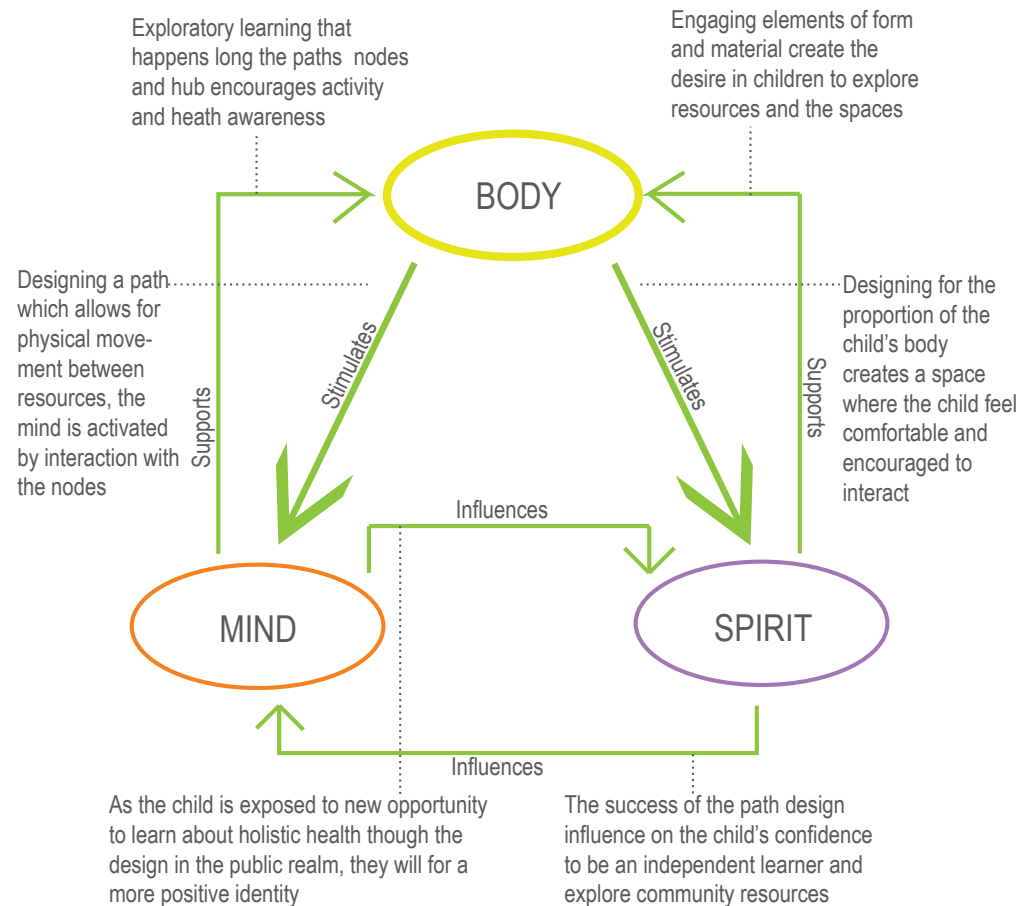
DESIGN
STRATEGY

BIBLIOGRAPHY

Figure 72

HOLISTIC HEALTH CONCLUSION

Design in public space, in learning environments, and within the child has the potential to improve holistic health. By creating a network of paths that connects the educational facility to surrounding neighborhood facilities, the child is provided with unique **exploratory and learning activities**. Utilizing the potential of children's perceptions of elements that enhance the **Mind, Body, and Spirit** can further the effectiveness of the "hub and spoke" design scheme to influence the cycle of health, space, and learning. Specific aspects of this network, including the hub, the paths, and the engagement elements can be designed such that positive **neighborhood aspects**, spaces for learning, and areas for activity and engagement become an overlaid network that can expand the realms of access for children and adults alike.





HOLISTIC HEALTH RELATED

CHILD SCALE

Design of engaging elements at a child scale creates spaces where the child wants to actively explore, therefore improving body health.

The child's role in the "hub and spoke" design scheme can both inform aspects of design in public space and promote positive change in how the child interacts, explores, and learns from features of the central hub, the exploratory pathways, and the preexisting community resources. By designing at the scale of the child in all aspects of the scheme, exploratory activity, self-image, and access opportunities are improved. By creating the hub adjacent to the Arsenal Elementary School, the physical connection between educational facility and neighborhood activity center encourages further exploration of knowledge beyond the school curriculum. Meanwhile, the paths and sensory cues for navigation through the designed network create possibilities for expansion of the child's knowledge, physical exploration, and self-empowerment to engage with urban spaces.

HUB

Complimentary programs in the hub create opportunity for children to further the development of their mind through the active interaction within the network that the hub establishes.

PATH AND NODE

The path and nodes creates the structure for the network between community resources, giving the neighborhood a united sense of identity and a physical, accessible, connection to resources.

HEALTH, SPACE,
LEARNING

THE CHILD

WHY SCHOOL?

PUBLIC SPACE

DESIGN
STRATEGY

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Figure 73, 74, 75

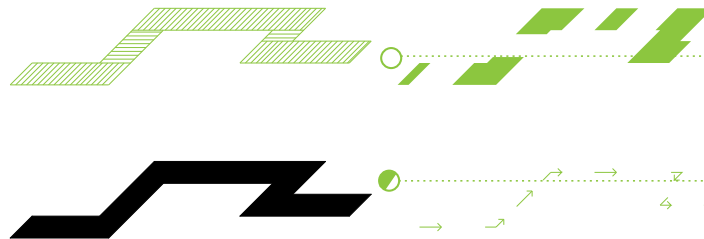
Considering knowledge of existing ideologies and designs in public spaces, we consider the “hub and spoke” diagram as a way to implement such strategies and develop new techniques for achieving design goals. The design of the network of resources and programs within the public space can be tied together through various types of paths and sensorial cues through design of visual and sensorial connectivity. Forms and materials can play a key role in the way that both path and hub spaces work to define this network. Through this design, we see an opportunity to generate greater awareness of the opportunity for children of all ages to access resources that further knowledge of holistic health. The cycle of learning, space, design, and health continues, as healthier children become better learners and more engaged community members.



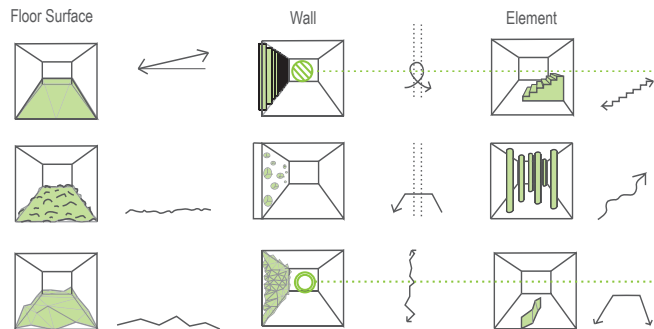


GOALS FOR NEXT SEMESTER

Designing at the scale of the urban network - exploring options within the hub and spoke framework



Design techniques for connecting the hub and spoke through programmatic and path conditions will be explored.



Surface and element design, including form and material, will take into consideration the child scale and desired activity, and how movement paths are created

Working at the broader scale of the urban network of resources and what they offer to the community to encourage better holistic health, down to the small scale with specific visual and sensorial elements to designate program in the hub and along the spokes will realize the ideology of the cycle of learning, public space, design and holistic health.

We will work between two dimensional drawings, three dimension drawings such as axons and perspectives to explore how movement and interaction takes place within the spaces, and with model to developed form and programmatic relations.

HEALTH, SPACE,
LEARNING

THE CHILD

WHY SCHOOL?

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FINAL REVIEW DOCUMENTATION

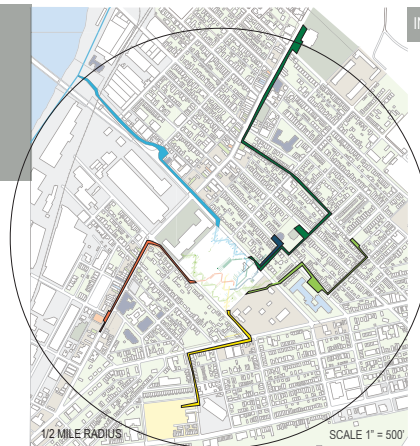
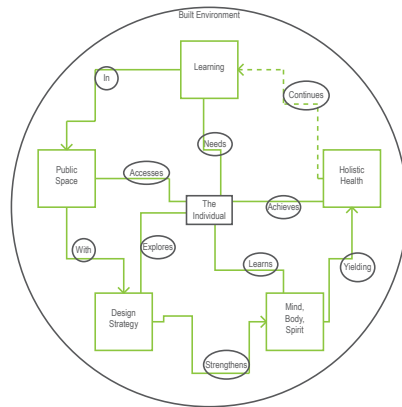
ENGAGING HOLISTIC HEALTH COMMUNITY NETWORK & CENTER

ARSENAL PARK & NEIGHBORHOOD | LAWRENCEVILLE | PITTSBURGH, PA

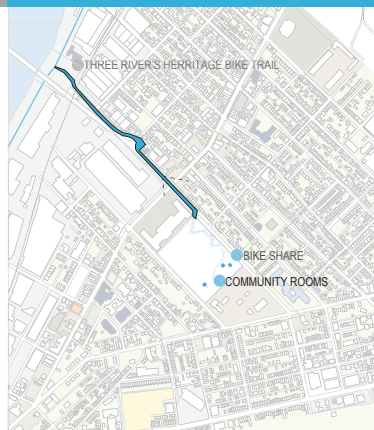
ALEC HEMBREE & EMILY SHOLDER | SPRING 2014 | THESIS RESEARCH STUDIO: LEARNING SPACES

“We envision engaging the individual and the community in a cycle of learning and holistic health through an urban network of active community exploration that revitalizes public spaces to create a new identity of public health.”

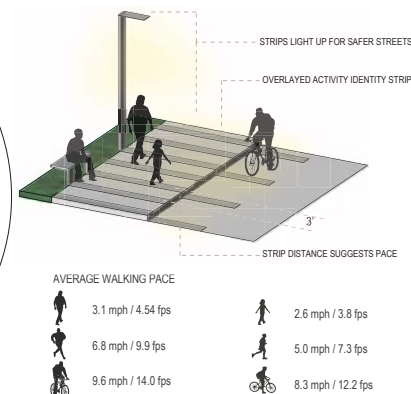
CYCLE OF LEARNING, SPACE, DESIGN & HEALTH



CITY CONNECTION



INCREASING MOVEMENT | CONNECTIVE PATH NETWORK

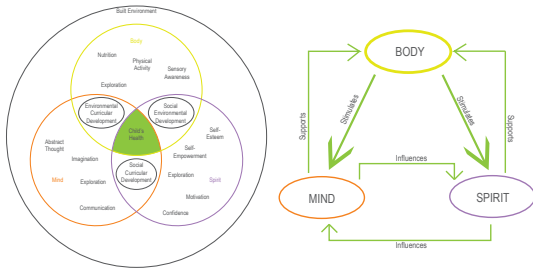


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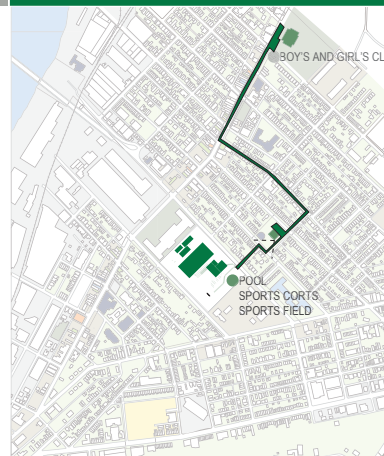
ELEVATION GAIN | EXISTING COMMUNITY RESOURCE START | SITE END



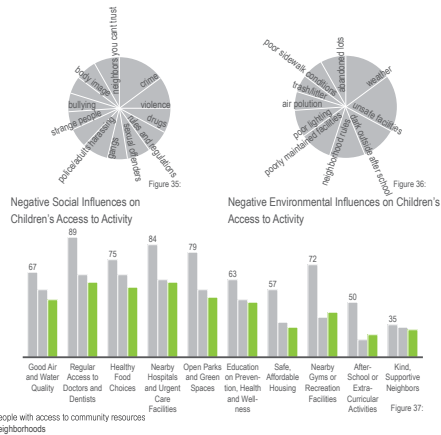
BODY | MIND | SPIRIT



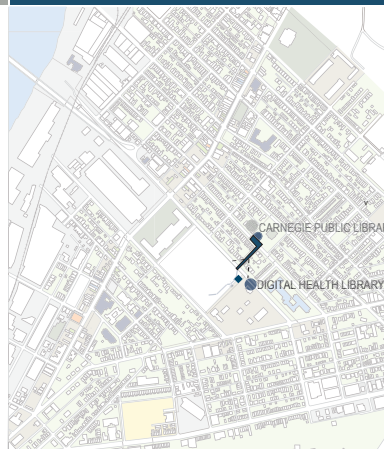
SOCIAL PLAY



ACCESS TO COMMUNITY RESOURCES



VISUAL KNOWLEDGE



HEALTH, SPACE,
LEARNING

THE CHILD

WHY SCHOOL?

PUBLIC SPACE

DESIGN
STRATEGY

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PITTSBURGH, PENNSYLVANIA



Figure 39

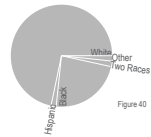


Figure 40

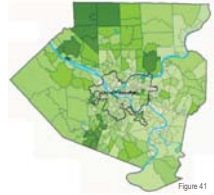


Figure 41

Crime in Pittsburgh

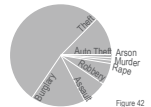
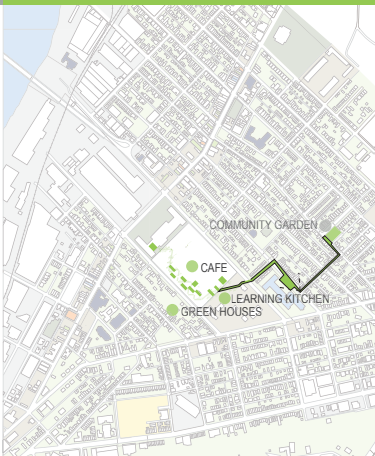


Figure 42

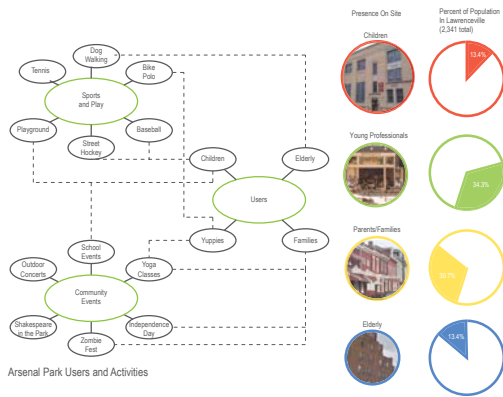
EDIBLE EXPLORATION



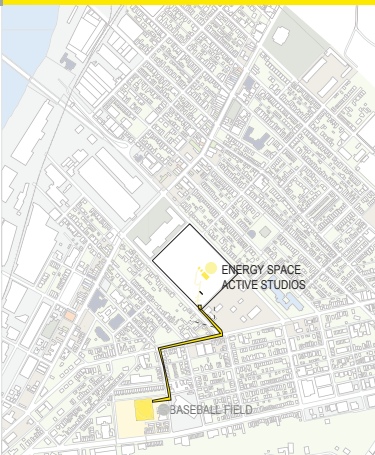
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LAWRENCEVILLE ACTIVITIES AND USERS



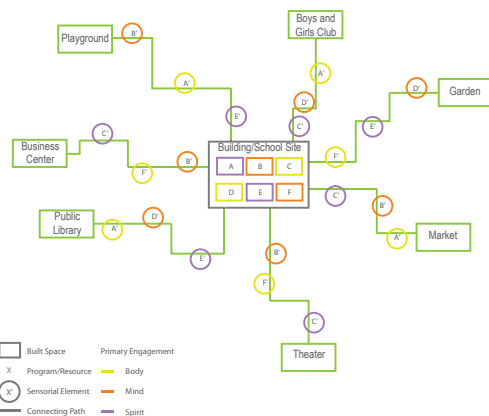
BODY CHALLENGE



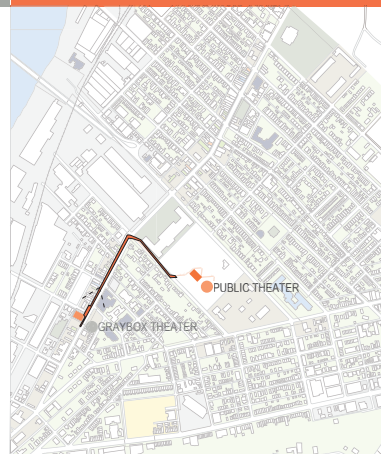
0.6 mi. 44%



INITIAL DESIGN STRATEGY | HUB & SPOKE



COMMUNITY ACT



HEALTH, SPACE,
LEARNING

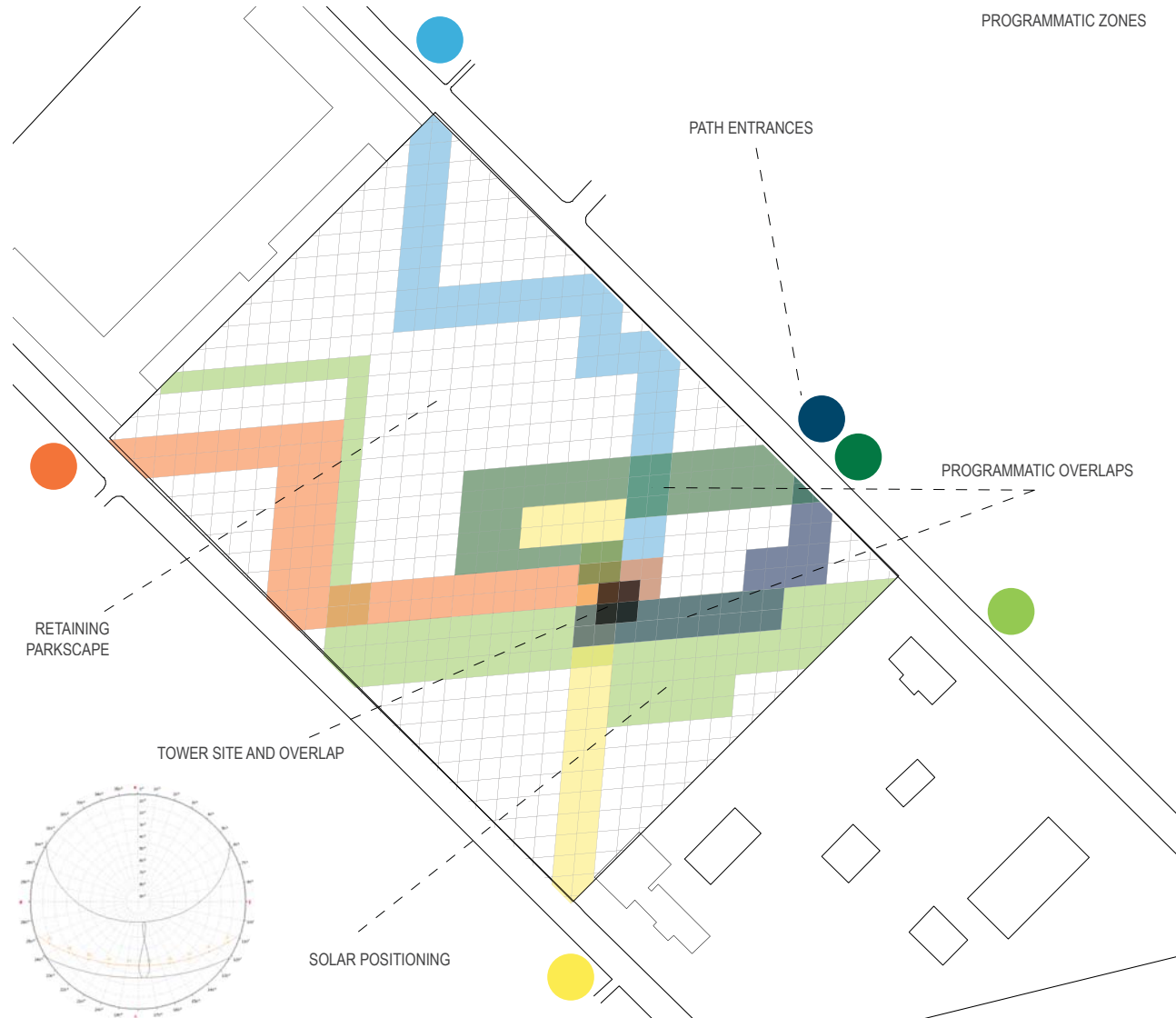
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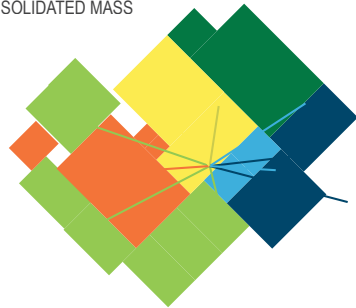
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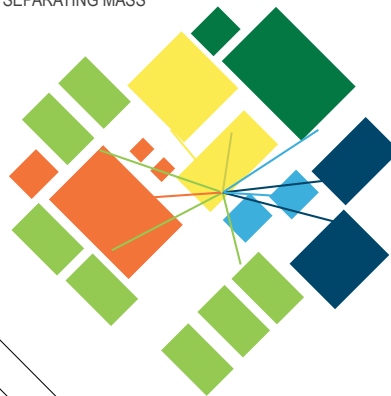
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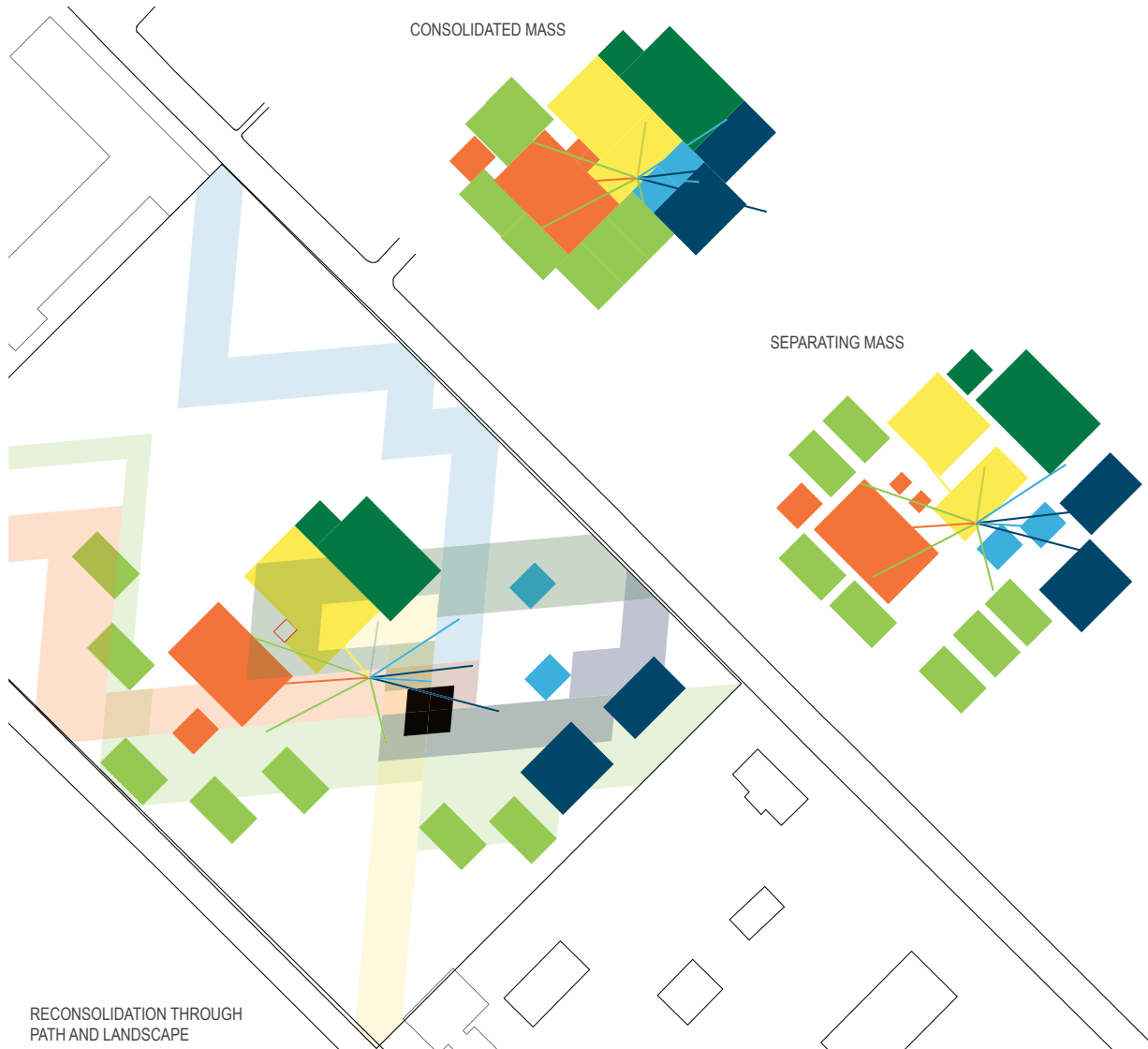
CONSOLIDATED MASS



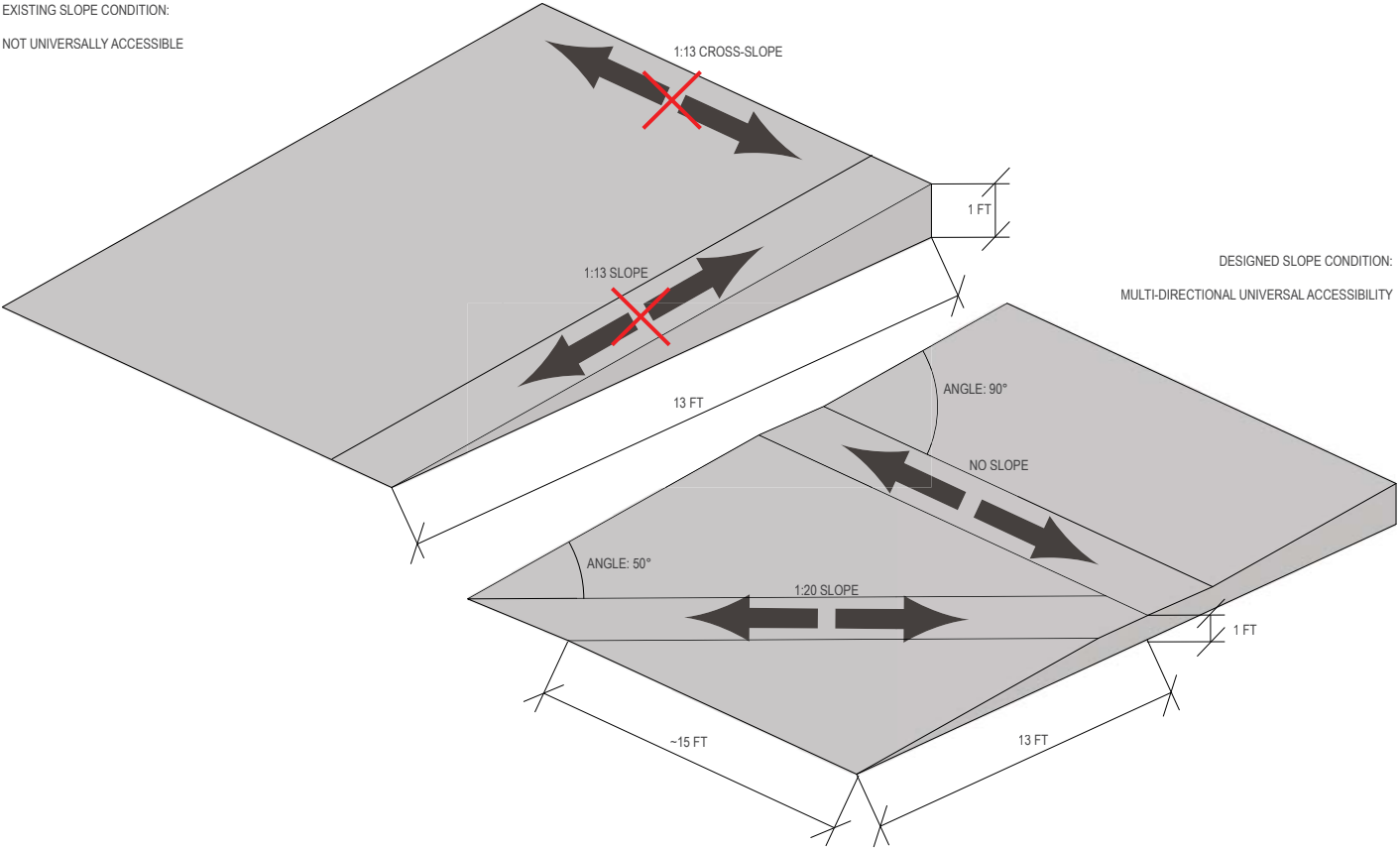
SEPARATING MASS



RECONSOLIDATION THROUGH
PATH AND LANDSCAPE



EXISTING SLOPE CONDITION:
NOT UNIVERSALLY ACCESSIBLE



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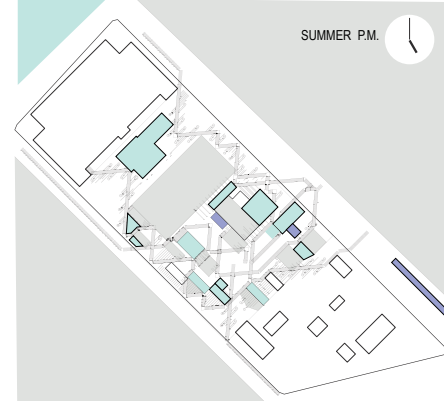
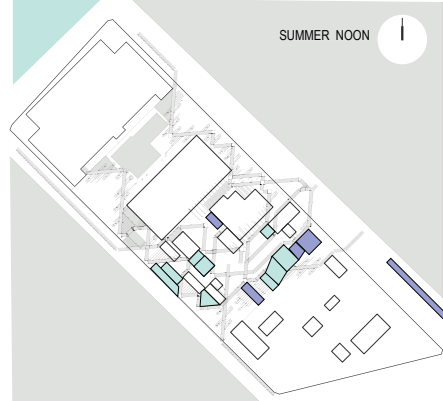
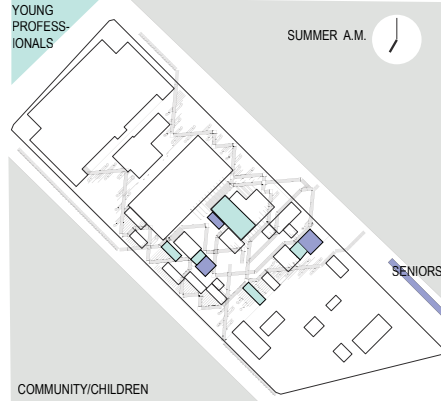
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TEMPORAL USE OF INTERIOR AND EXTERIOR FACILITIES



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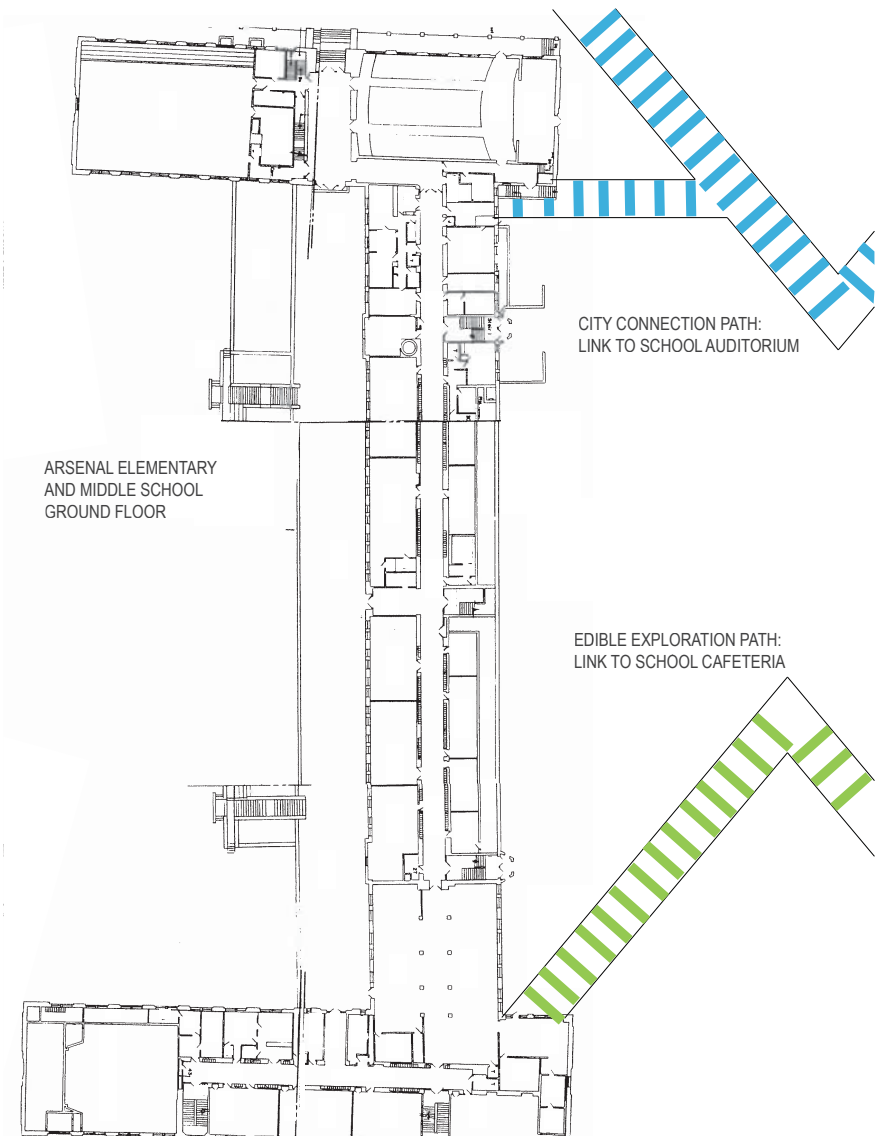
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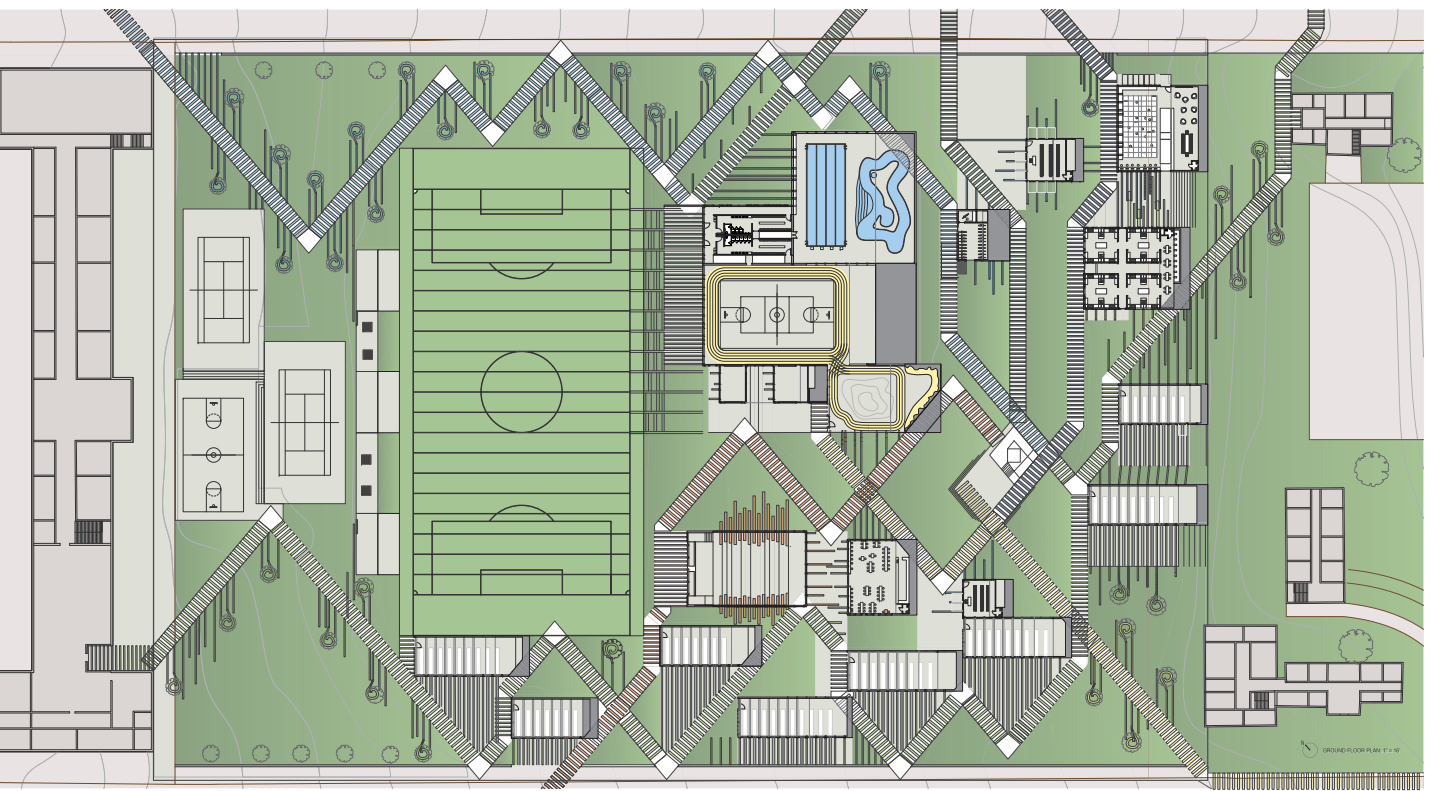




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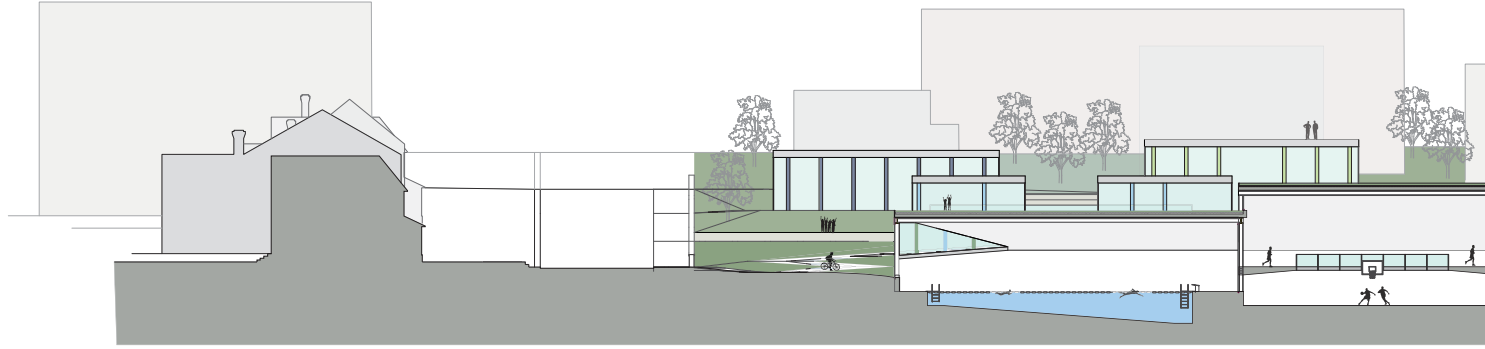
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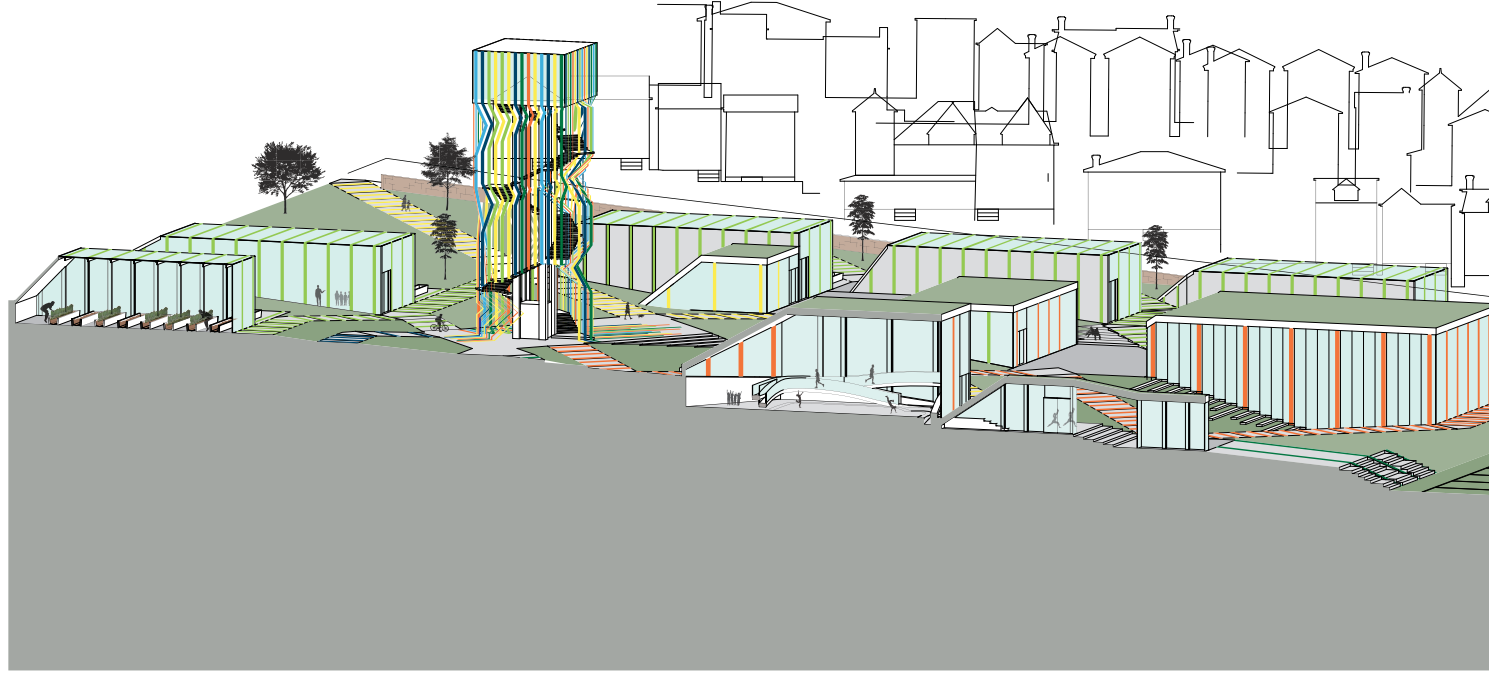
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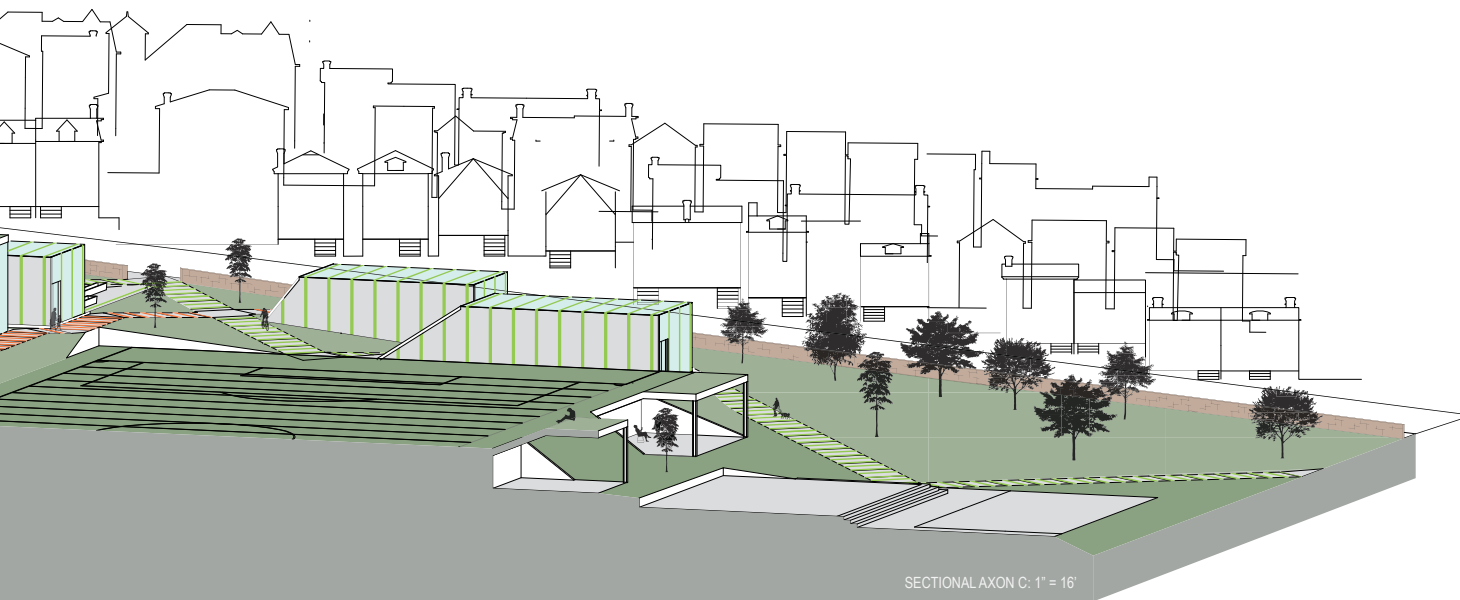
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SECTIONAL AXON C: 1" = 16'

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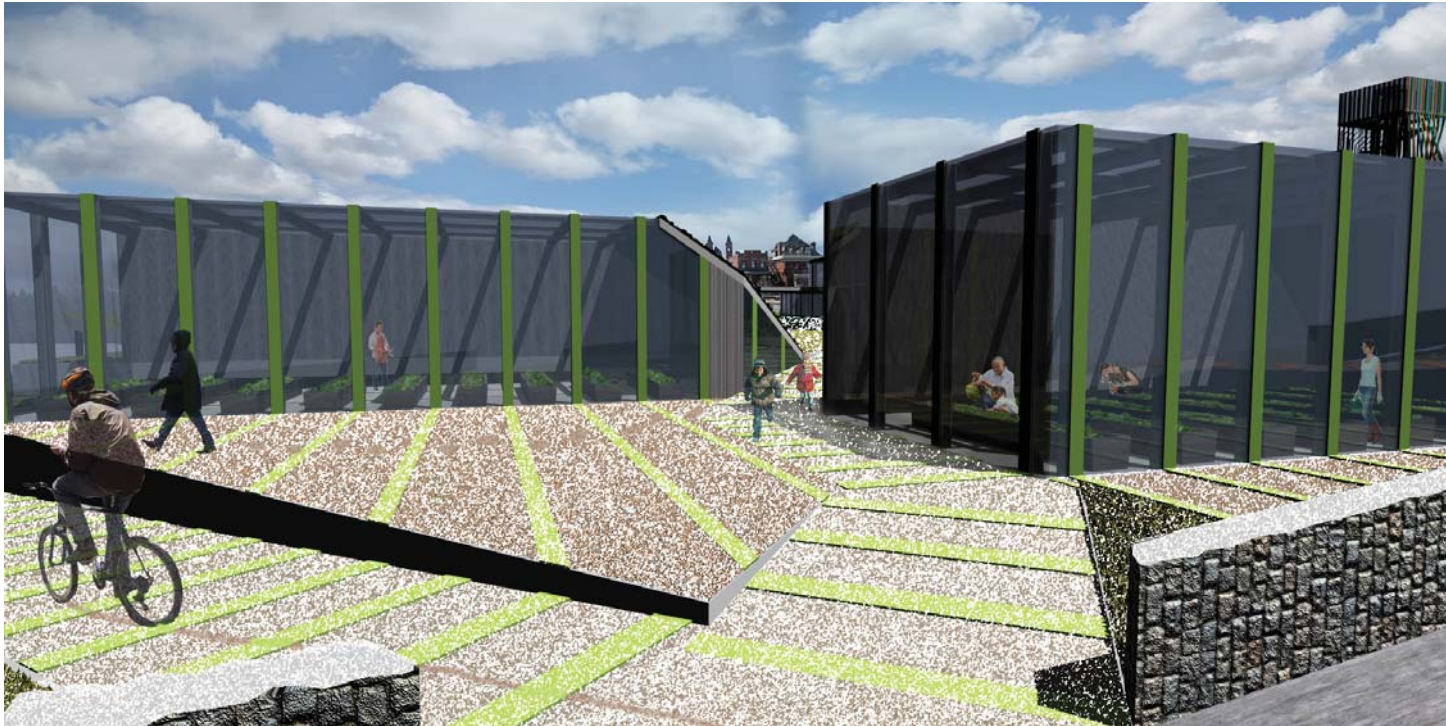
WHY SCHOOL?

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BIBLIOGRAPHY





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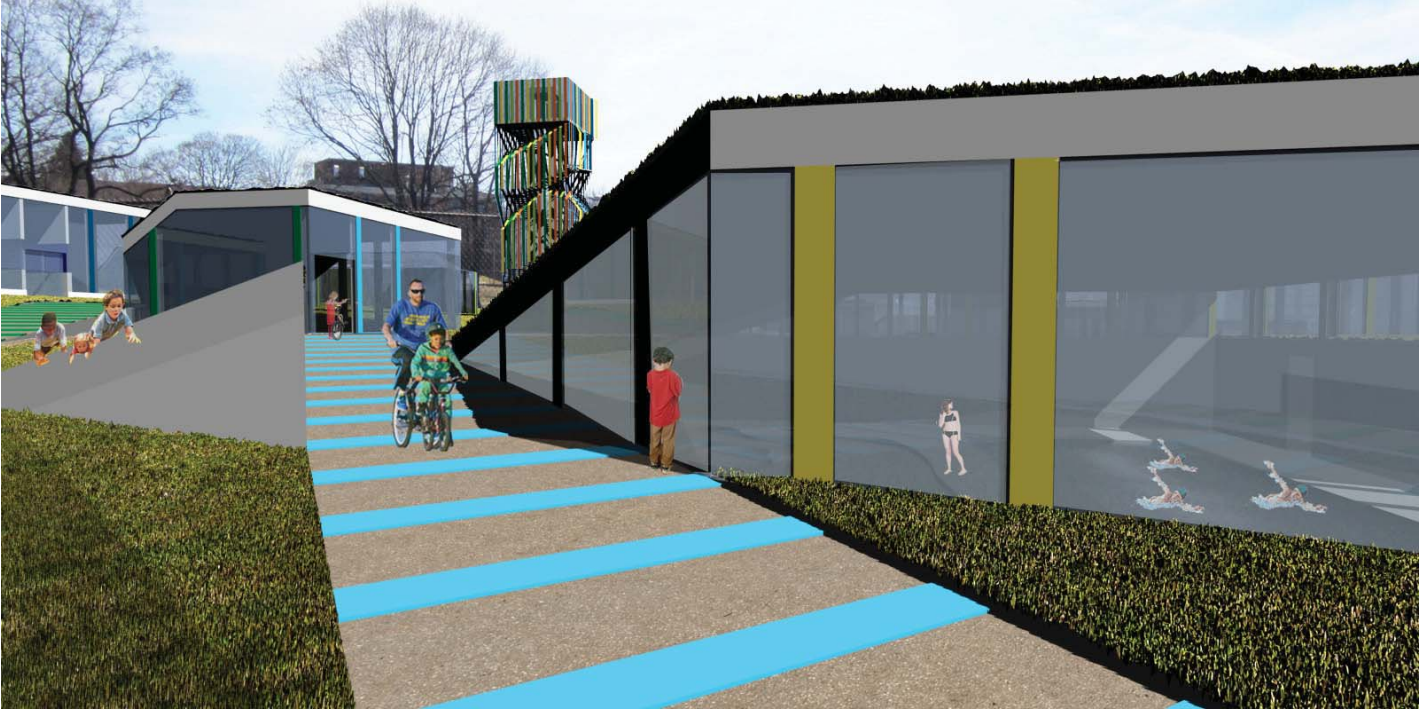
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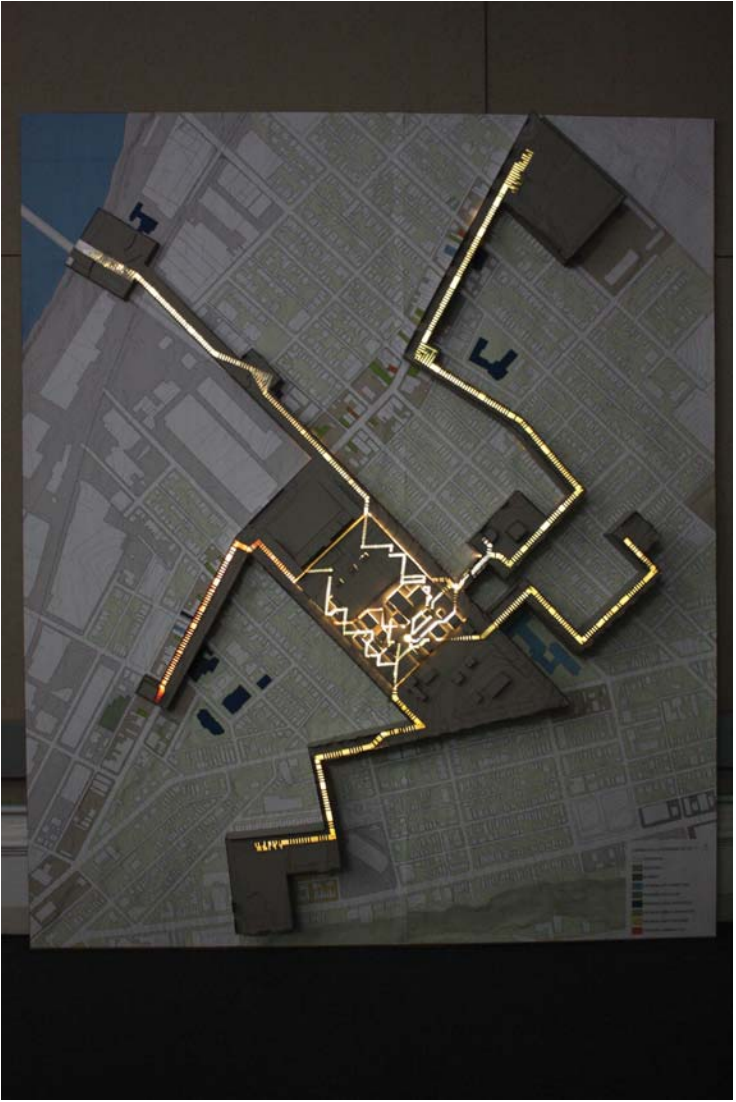
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WHY SCHOOL?

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HEALTH, SPACE,
LEARNING

BIBLIOGRAPHY

1. Maschinot, Beth. *The Changing Face of the United States: The Influence of Culture on Early Child Development*. Washington, DC: Zero to Three, 2008. Print.
2. Cecilia Chan PhD, RSW, PhD, RSW, Petula Sik Ying Ho & Ester Chow MSM, RSW (2002) *A Body-Mind-Spirit Model in Health, Social Work in Health Care*, 34:3-4, 261-282, DOI:10.1300/J010v34n03_02
3. Ries, AV, CC Voorhees, J. Gittelsohn, KM Roche, and NM Astone. "Adolescents' Perceptions of Environmental Influences on Physical Activity." Diss. Brown University, 2008. *Am J Health Behav* 1 (2008): 26-39. Print.
4. Gardner, Howard. *Multiple Intelligences: New Horizons*. New York: Basic, 2006. Print.
5. Fosnot, Catherine Twomey. *Constructivism: Theory, Perspectives, and Practice*. New York: Teachers College, 1996. Print.
6. Yan, Alice Fang, Carolyn C. Voorhees, Kelly Clifton, Carolina Burnier, Carolyn C. Voorhees, Kelly Clifton, and Carolina Burnier. "'Do You See What I See?' – Correlates of Multidimensional Measures of Neighborhood Types and Perceived Physical Activity-related Neighborhood Barriers and Facilitators for Urban Youth." *Preventive Medicine* (2009): n. pag. Print.
7. *ibid.* 3
8. *Active Design Guidelines: Promoting Physical Activity and Health in Design*. New York: City of New York, 2010. Print.
9. *ibid.* 2
10. Tsuei, Julia J. "Eastern and Western Approaches to Medicine." *Western Journal of Medicine* 128.6 (1978): 551-57. Print.
11. "The Wellness Impact: Enhancing Academic Success through Healthy School Environments." GENYOUth FOUNDATION. GENYOUth FOUNDATION, 2013. Web. 06 Dec. 2013. <<http://www.genyouthfoundation.org/programs/>>.
12. "Childhood Obesity Facts." Centers for Disease Control and Prevention. Centers for Disease Control and Prevention, 10 July 2013. Web. 03 Dec. 2013. <<http://www.cdc.gov/healthyyouth/obesity/facts.htm>>.
13. "2: Comparative Child Well-being across the OECD." *Doing Better for Children*. Paris: OECD, 2009. 21-63. Print.
14. "Children's House Dragen." Architizer. N.p., n.d. Web. 06 Dec. 2013. <<http://architizer.com/projects/childrens-house-dragen/>>.
15. *Ibid.* 12
16. "Gardens and Cooking." Berkeley Public Schools. N.p., n.d. Web. 06 Dec. 2013. <<http://www.berkeleyschools.net/teaching-and-learning-2/gardens-and-cooking/>>.
17. "Get Your Workout On! Local Parks with Outdoor Fitness Equipment." FunOrangeCountyParks.com. N.p., n.d. Web. 06 Dec. 2013. <<http://www.funorangecountyparks.com/2013/07/workout-parks-with-outdoor-fitness-equipment.html>>.
18. Nelson, M., P. Gordonlarsen, Y. Song, and B. Popkin. "Built and Social Environments Associations with Adolescent Overweight and Activity." *American Journal of Preventive Medicine* 31.2 (2006): 109-117. Print.
19. *Ibid.* 14
20. *ibid.* 16

HEALTH, SPACE,
LEARNING

THE CHILD

WHY SCHOOL?

PUBLIC SPACE

DESIGN
STRATEGY

BIBLIOGRAPHY

END NOTES

21. "Physical Activity In and Out of School." F as in Fat. N.p., n.d. Web. 06 Dec. 2013. <<http://fasinfat.org/physical-activity-in-school/>>.
22. "Carl-Bolle Elementary School / Die Baupiloten." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/26552/carl-bolle-elementary-school-die-baupiloten/>>.
23. Fernandes, Meenakshi Fernandes, PhD, and Roland Strurm, PhD. "The Role of School Physical Activity Programs in Child Body Mass Trajectory." *Journal of Physical Activity Health* 8.3 (2011): 174-81. NCBI. US National Library of Medicine, 12 Apr. 2011. Web. 6 Dec. 2013. <<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3074953/>>.
24. "Reversible Destiny Lofts Challenge the Senses Tokyo." Apartment Therapy. N.p., n.d. Web. 06 Dec. 2013. <<http://www.apartment-therapy.com/reversible-destiny-lofts-chall-64799>>.
25. Ibid. 11
26. "Buckingham County Primary and Elementary Schools." Buckingham County Primary and Elementary Schools. N.p., n.d. Web. 06 Dec. 2013. <<http://centerforactivedesign.org/buckinghamcountyschools>>.
27. Woods, Philip A., and Glenys J. Woods. *Alternative Education for the 21st Century: Philosophies, Approaches, Visions*. New York: Palgrave Macmillan, 2009. Print.
28. "Vittra Telefonplan / Rosan Bosch." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/202358/vittra-telefonplan-rosan-bosch/>>.
29. Ibid 11
30. Ibid 24
31. Ibid 26
32. Ibid 28
33. Gregory, Norman J., Sandra K. Nutter, Sherry Ryan, James F. Sallis, Karen J. Calfas, and Kevin Patrick. "Community Design and Access to Recreational Facilities as Correlates of Adolescent Physical Activity and Body-Mass Index." *Journal of Physical Activity and Health* 3 (2006): 118-28. Print.
34. "Newsroom - Organisation for Economic Co-operation and Development." Newsroom - Organisation for Economic Co-operation and Development. N.p., n.d. Web. 06 Dec. 2013. <<http://www.oecd.org/newsroom/healthspendingcontinuestooutpaceeconomic-growthinmostoecdcountries.htm>>.
35. "Superkilen / Topotek 1 BIG Superflex." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/286223/superkilen-topotek-1-big-architects-superflex/>>.
36. Cutts, Bethany B., Kate J. Darby, Christopher G. Boone, and Alexandra Brewis. "City Structure, Obesity, and Environmental Justice: An Integrated Analysis of Physical and Social Barriers to Walkable Streets and Park Access." *Social Science & Medicine* 69.9 (2009): 1314-322. Print.
37. "The Gary Comer Youth Center / John Ronan Architects." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/189411/the-gary-comer-youth-center-john-ronan-architects/>>.
38. "Pittsburgh Rated 'most Livable' Once Again." *Pittsburgh Post-Gazette*. N.p., n.d. Web. 06 Dec. 2013. <<http://www.post-gazette.com/neighborhoods-city/2007/04/25/Pittsburgh-rated-most-livable-once-again/stories/200704250312>>.
39. "Lawrenceville (Pittsburgh)." Wikipedia. Wikimedia Foundation, 12 May 2013. Web. 06 Dec. 2013. <[http://en.wikipedia.org/wiki/Lawrenceville_\(Pittsburgh\)](http://en.wikipedia.org/wiki/Lawrenceville_(Pittsburgh))>.

END NOTES

HEALTH, SPACE,
LEARNING

THE CHILD

WHY SCHOOL?

PUBLIC SPACE

DESIGN
STRATEGY

BIBLIOGRAPHY

40. "Lawrenceville." Pop City. N.p., n.d. Web. 06 Dec. 2013. <<http://www.popcitymedia.com/Cities/lawrenceville/>>.
41. "Pittsburgh Arsenal PreK-5." Discover PPS: Pittsburgh Arsenal PreK-5. N.p., n.d. Web. 06 Dec. 2013. <<http://discoverpps.org/school.php?id=108>>.
42. "Friends of Arsenal Park | Facebook." Facebook. N.p., n.d. Web. 06 Dec. 2013. <<https://www.facebook.com/ArsenalParkPGH>>.
43. Conti, David. "Lawrenceville Balance Shifts to Hipper, Pricier." TribLIVE.com. N.p., 11 June 2013. Web. 06 Dec. 2013. <<http://triblive.com/news/alleggheny/4097469-74/lawrenceville-upper-neighborhood>>.
44. Ibid 35
45. bid 37
46. Ibid 43
47. "Carlo Scarpa." Wikipedia. Wikimedia Foundation, 23 Nov. 2013. Web. 06 Dec. 2013. <http://en.wikipedia.org/wiki/Carlo_Scarpa>.
48. "Kindergarten Kekec / Arhitektura Jure Kotnik." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/117812/>>.
49. "Maritime Youth House / PLOT." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/11232/>>.
50. "Ergonomics for Children." Ergonomics for Children. Ergonomic Design of Child Products, Schools and Places. N.p., n.d. Web. 06 Dec. 2013. <<http://www.humanics-es.com/recc-children.htm>>.
51. "Sjotorget Kindergarten / Rotstein Arkitekt." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/438746/>>.
52. "Anansi Playground Building / Mulders VandenBerk Architecten." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/48692/>>.
53. Ibid 22
54. Active Design Guidelines: Shaping the Sidewalk Experience. New York: City of New York, 2010. Print.
55. "Carpet of Grass Makes for Clever Art Installation." Hidden Ghosts: History and Stories of Offbeat Travel. N.p., n.d. Web. 06 Dec. 2013. <<http://www.urbanghostmedia.com/2012/04/carpet-of-grass-makes-for-clever-art-installation/>>.
56. "BUGA 05 Playground by Rainer Schmidt Landschaftsarchitekten." Landscape Architecture Works Landezine RSS. N.p., n.d. Web. 06 Dec. 2013. <<http://www.landezine.com/index.php/2009/07/buga-05-playground/>>.
57. "Glow-in-the-dark Streets Now Possible with Pro-Teq STARPATH Spray." Vyalize. N.p., n.d. Web. 06 Dec. 2013. <<http://www.vyalize.com/5255/glow-dark-streets-now-possible-pro-teq-starpath-spray/>>.
58. "Parc De La Villette." Bernard Tschumi Architects. N.p., n.d. Web. 04 Dec. 2013. <<http://www.tschumi.com/projects/3/>>.
59. "Hazelwood School for the Multiple Sensory Impaired." World Buildings Directory. N.p., n.d. Web. 06 Dec. 2013. <<http://www.worldbuildingsdirectory.com/project.cfm?id=264>>.
60. "Parklets." Pavement to Parks: Plazas & Public Space. N.p., n.d. Web. 06 Dec. 2013. <<http://sfpavementtoparks.sfplanning.org/parklets.html>>.
60. "Parklets." Pavement to Parks: Plazas & Public Space. N.p., n.d. Web. 06 Dec. 2013. <<http://sfpavementtoparks.sfplanning.org/parklets.html>>.

END NOTES

21. "Physical Activity In and Out of School." F as in Fat. N.p., n.d. Web. 06 Dec. 2013. <<http://fasinfat.org/physical-activity-in-school/>>.
22. "Carl-Bolle Elementary School / Die Baupiloten." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/26552/carl-bolle-elementary-school-die-baupiloten/>>.
23. Fernandes, Meenakshi Fernandes, PhD, and Roland Strurm, PhD. "The Role of School Physical Activity Programs in Child Body Mass Trajectory." *Journal of Physical Activity Health* 8.3 (2011): 174-81. NCBI. US National Library of Medicine, 12 Apr. 2011. Web. 6 Dec. 2013. <<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3074953/>>.
24. "Reversible Destiny Lofts Challenge the Senses Tokyo." Apartment Therapy. N.p., n.d. Web. 06 Dec. 2013. <<http://www.apartment-therapy.com/reversible-destiny-lofts-chall-64799>>.
25. Ibid. 11
26. "Buckingham County Primary and Elementary Schools." Buckingham County Primary and Elementary Schools. N.p., n.d. Web. 06 Dec. 2013. <<http://centerforactivedesign.org/buckinghamcountyschools>>.
27. Woods, Philip A., and Glenys J. Woods. *Alternative Education for the 21st Century: Philosophies, Approaches, Visions*. New York: Palgrave Macmillan, 2009. Print.
28. "Vittra Telefonplan / Rosan Bosch." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/202358/vittra-telefonplan-rosan-bosch/>>.
29. Ibid 11
30. Ibid 24
31. Ibid 26
32. Ibid 28
33. Gregory, Norman J., Sandra K. Nutter, Sherry Ryan, James F. Sallis, Karen J. Calfas, and Kevin Patrick. "Community Design and Access to Recreational Facilities as Correlates of Adolescent Physical Activity and Body-Mass Index." *Journal of Physical Activity and Health* 3 (2006): 118-28. Print.
34. "Newsroom - Organisation for Economic Co-operation and Development." Newsroom - Organisation for Economic Co-operation and Development. N.p., n.d. Web. 06 Dec. 2013. <<http://www.oecd.org/newsroom/healthspendingcontinuestooutpaceeconomic-growthinmostoecdcountries.htm>>.
35. "Superkilen / Topotek 1 BIG Superflex." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/286223/superkilen-topotek-1-big-architects-superflex/>>.
36. Cutts, Bethany B., Kate J. Darby, Christopher G. Boone, and Alexandra Brewis. "City Structure, Obesity, and Environmental Justice: An Integrated Analysis of Physical and Social Barriers to Walkable Streets and Park Access." *Social Science & Medicine* 69.9 (2009): 1314-322. Print.
37. "The Gary Comer Youth Center / John Ronan Architects." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/189411/the-gary-comer-youth-center-john-ronan-architects/>>.
38. "Pittsburgh Rated 'most Livable' Once Again." *Pittsburgh Post-Gazette*. N.p., n.d. Web. 06 Dec. 2013. <<http://www.post-gazette.com/neighborhoods-city/2007/04/25/Pittsburgh-rated-most-livable-once-again/stories/200704250312>>.
39. "Lawrenceville (Pittsburgh)." Wikipedia. Wikimedia Foundation, 12 May 2013. Web. 06 Dec. 2013. <[http://en.wikipedia.org/wiki/Lawrenceville_\(Pittsburgh\)](http://en.wikipedia.org/wiki/Lawrenceville_(Pittsburgh))>.

END NOTES

40. "Lawrenceville." Pop City. N.p., n.d. Web. 06 Dec. 2013. <<http://www.popcitymedia.com/Cities/lawrenceville/>>.
41. "Pittsburgh Arsenal PreK-5." Discover PPS: Pittsburgh Arsenal PreK-5. N.p., n.d. Web. 06 Dec. 2013. <<http://discoverpps.org/school.php?id=108>>.
42. "Friends of Arsenal Park | Facebook." Facebook. N.p., n.d. Web. 06 Dec. 2013. <<https://www.facebook.com/ArsenalParkPGH>>.
43. Conti, David. "Lawrenceville Balance Shifts to Hipper, Pricier." TribLIVE.com. N.p., 11 June 2013. Web. 06 Dec. 2013. <<http://triblive.com/news/alleggheny/4097469-74/lawrenceville-upper-neighborhood>>.
44. Ibid 35
45. Ibid 37
46. Ibid 43
47. "Carlo Scarpa." Wikipedia. Wikimedia Foundation, 23 Nov. 2013. Web. 06 Dec. 2013. <http://en.wikipedia.org/wiki/Carlo_Scarpa>.
48. "Kindergarten Kekec / Arhitektura Jure Kotnik." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/117812/>>.
49. "Maritime Youth House / PLOT." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/11232/>>.
50. "Ergonomics for Children." Ergonomics for Children. Ergonomic Design of Child Products, Schools and Places. N.p., n.d. Web. 06 Dec. 2013. <<http://www.humanics-es.com/recc-children.htm>>.
51. "Sjotorget Kindergarten / Rotstein Arkitekt." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/438746/>>.
52. "Anansi Playground Building / Mulders VandenBerk Architecten." ArchDaily. N.p., n.d. Web. 06 Dec. 2013. <<http://www.archdaily.com/48692/>>.
53. Ibid 22
54. Active Design Guidelines: Shaping the Sidewalk Experience. New York: City of New York, 2010. Print.
55. "Carpet of Grass Makes for Clever Art Installation." Hidden Ghosts: History and Stories of Offbeat Travel. N.p., n.d. Web. 06 Dec. 2013. <<http://www.urbanghostmedia.com/2012/04/carpet-of-grass-makes-for-clever-art-installation/>>.
56. "BUGA 05 Playground by Rainer Schmidt Landschaftsarchitekten." Landscape Architecture Works Landezine RSS. N.p., n.d. Web. 06 Dec. 2013. <<http://www.landezine.com/index.php/2009/07/buga-05-playground/>>.
57. "Glow-in-the-dark Streets Now Possible with Pro-Teq STARPATH Spray." Vyalize. N.p., n.d. Web. 06 Dec. 2013. <<http://www.vyalize.com/5255/glow-dark-streets-now-possible-pro-teq-starpath-spray/>>.
58. "Parc De La Villette." Bernard Tschumi Architects. N.p., n.d. Web. 04 Dec. 2013. <<http://www.tschumi.com/projects/3/>>.
59. "Hazelwood School for the Multiple Sensory Impaired." World Buildings Directory. N.p., n.d. Web. 06 Dec. 2013. <<http://www.worldbuildingsdirectory.com/project.cfm?id=264>>.
60. "Parklets." Pavement to Parks: Plazas & Public Space. N.p., n.d. Web. 06 Dec. 2013. <<http://sfpavementtoparks.sfplanning.org/parklets.html>>.
60. "Parklets." Pavement to Parks: Plazas & Public Space. N.p., n.d. Web. 06 Dec. 2013. <<http://sfpavementtoparks.sfplanning.org/parklets.html>>.

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IMAGE CREDITS

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Figure 19: Chart, "Before and After School Care," Statistical Report, Brian Kleiner, from <http://nces.ed.gov/pubs2004/2004008.pdf>

Figure 20: Various Images, "Carl Bolle Elementary School," ArchDaily, Jan Bitter, <http://www.archdaily.com/26552/carl-bolle-elementary-school-die-baupiloten/>

Figure 21: Axonometric, "Spy In The Shimmering Cloak," ArchDaily, Die Baupiloten, from <http://www.archdaily.com/26552/carl-bolle-elementary-school-die-baupiloten/>

IMAGE CREDITS

Figure 22: Various Images, "Destiny Lofts," Reversible Destiny Foundation, Arakawa and Gins, from <http://www.reversibledestiny.org/#!/reversible-destiny-lofts-mitaka-%e2%96%91%e2%96%91-in-memory-of-helen-keller>

Figure 23: Chart, "Percentage Eligible for Free or Reduced Lunch," National Center for Education Statistics, from http://nces.ed.gov/pubs2010/2010015/figures/figure_7_5a.asp

Figure 24: Map, "Food Deserts," U.S.D.A. Center for Disease Control, from <http://www.enterrasolutions.com/2012/10/food-deserts-and-big-data.html>

Figure 25: Map, "Pounds of Packaged Sweets per Capita," U.S.D.A. Center for Disease Control, from http://usatoday30.usatoday.com/news/health/2010-02-09-usda-obesity-maps_N.htm

Figure 26: Various Images, "Buckingham Elementary School," VMDO Architects, from <http://www.vmdo.com/project.php?ID=4>

Figure 27: Various Images, "Vittra School Telefonplan," Rosan-Bosch, from <http://www.rosanbosch.com/en/project/vittra-school-telefonplan>

Figure 28: *ibid.* Fig. 22

Figure 29: *ibid.* Fig. 26

Figure 30: *ibid.* Fig. 27

Figure 31: Chart, "OECD Spending on Health Care," OECD, from <http://www.oecd-ilibrary.org/statistics>

Figure 32: Chart, "OECD Spending on Social Services," OECD, from <http://www.oecd-ilibrary.org/statistics>

Figure 33: Various Images, "Superkilen Park," Design Rulz, from <http://www.designrulz.com/outdoor-design/2012/10/superkilen-urban-park-by-big-architects-topotek1-and-superflex/>

Figure 34: Planimetric Diagram, "Superkilen Park," Architizer, from <http://architizer.com/blog/copenhagens-new-super-park-celebrates-diversity-and-fun/>

Figure 35: Chart, "Negative Social Influences," Amy V. Ries, from "Adolescent's Perceptions of Environmental Influences on Physical Activity"

Figure 36: Chart, "Negative Environmental Influences," Amy V. Ries, from "Adolescent's Perceptions of Environmental Influences on Physical Activity"

Figure 37: Graph, "Obesity and Socioeconomic Status in Children and Adolescents," CDC, from <http://www.cdc.gov/nchs/data/data-briefs/db51.htm>

Figure 38: Various Images, "Gary Comer Youth Center," Steve Hall, ArchDaily, from <http://www.archdaily.com/189411/the-gary-comer-youth-center-john-ronan-architects/>

Figure 39: Map, "Neighborhoods of Pittsburgh," Tom Murphy VII, from http://en.wikipedia.org/wiki/File:Pittsburgh_Pennsylvania_neighborhoods_fade.svg

Figure 40: Chart, "Race and Population," Lawrenceville, PA City Data, from <http://www.city-data.com/city/Lawrenceville-Pennsylvania.html>

Figure 41: Map, "Median Household Income," Pittsburgh, PA City Data, from <http://www.city-data.com/county/Allegheny-County-PA.html>

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IMAGE CREDITS

Figure 42: Chart, "Crime," Lawrenceville, PA City Data, from <http://www.city-data.com/city/Lawrenceville-Pennsylvania.html>

Figure 43: Image, "Pittsburgh Stairs," Stairway Records, from http://publicstairs.com/index_000008.htm

Figure 44: Image, from http://denverurbanism.com/wp-content/uploads/2013/06/shorpy.com_.jpg

Figure 45: Image, "Ice Skating at PPG Place in Pittsburgh," Flickr, User Paul Toth, from <http://www.flickr.com/photos/pd-toth/4318121116/>

Figure 46: Image, "PAST EVENT: WYEP Final Fridays at Schenley Plaza," Living Pittsburgh, from <http://www.livingpittsburgh.com/2013/06/wyep-final-fridays-at-schenley-plaza/>

Figure 47: Image, "Giant Duck," Personal Blog, User Bubba Harmon, from <http://blog.bubbasgarage.com/2013/09/steel-city-pe-z-gathering-and-giant.html>

Figure 48: Chart, "Lawrenceville Population," Lawrenceville, PA City Data, from <http://www.city-data.com/city/Lawrenceville-Pennsylvania.html>

Figure 49: Chart, "Arsenal Elementary Race," Lawrenceville, PA City Data, from <http://www.city-data.com/city/Lawrenceville-Pennsylvania.html>

Figure 50: Graph, "Age Distribution in Lawrenceville," Lawrenceville, PA City Data, from <http://www.city-data.com/city/Lawrenceville-Pennsylvania.html>

Figure 51: Map, "School Bus Zones," Data: Pittsburgh Public Schools, "Transportation Eligibility," from <http://www.pps.k12.pa.us/Page/396>

Figure 52: Various Images, "Features," Pop City Media, from <http://www.popcitymedia.com/>

Figure 53: Various Images, from Google Satellite and Street View Data

Figure 54: Image, from Google Street View Data

Figure 55: Image, "PPG Children's Hospital," Media Blog, User That-DarnSacramentan, from <http://www.skyscrapercity.com/showthread.php?t=1060355&page=633>

Figure 56: Various Images, from Google Street View Data

Figure 57: *ibid.* Fig. 33

Figure 58: *ibid.* Fig. 38

Figure 59: Various Images, from Google Street View Data

Figure 60: Image, "Steps – Carlo Scarpa," Flickr, User seier+seier, from <http://www.flickr.com/photos/seier/3577405139/sizes/m/in/photostream/>

Figure 61: Images, "Kindergarten Kekec," Architizer, Arhitektura Jure Kotnik, from <http://architizer.com/projects/kindergarten-kekec/>

Figure 62: Image, "Maritime Youth House," ArcSpace, PLOT, from <http://www.arcspace.com/features/plot/maritime-youth-house/>

Figure 63: Images, "Sjotorget Kindergarten," ArchDaily, Ake E:ston Lindman, from <http://www.archdaily.com/438746/>

Figure 64: Images, "Anansi Playground Building," ArchDaily, Roel Backaert, Wim Hanenberg, from <http://www.archdaily.com/48692/>

IMAGE CREDITS

Figure 65: *ibid.* Fig. 20

Figure 66: Image, "Grass Carpet Installation," Gaelle Villedary, <http://www.urbanghostmedia.com/2012/04/carpet-of-grass-makes-for-clever-art-installation/>

Figure 67: Image, "BUGA playground," Media Blog, User Paige Johnson <http://www.play-scapes.com/play-design/contemporary-design/buga-playground-munich-2005/>

Figure 68: Image Compilation, "Spray on Glow Surface," Daily-Mail, Pro-Teq, from <http://www.dailymail.co.uk/sciencetech/article-2474871/Forget-streetlights-use-glow-dark-UV-paint.html>

Figure 69: Perspective Diagram, "Parc de la Villette," Bernard Tschumi Architects, from <http://www.tschumi.com/projects/3/>

Figure 70: Images, "Parc de la Villette," Adrian Welch, from <http://www.e-architect.co.uk/paris/parc-de-la-villette>

Figure 71: Various Images, "Hazelwood School," Andrew Lee, <http://www.worldbuildingsdirectory.com/project.cfm?id=264>

Figure 72: Various Images, "San Francisco Parklet Photos," Flickr, User sfplanning, from http://sfpavementtoparks.sfplanning.org/parklet_photos.html

Figure 73: *ibid.* Fig. 63

Figure 74: *ibid.* Fig. 65

Figure 75: *ibid.* Fig. 70

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DESIGN
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BIBLIOGRAPHY

OTHER SOURCES

Aberger, Stephanie, et al. "Closing the student achievement gap: The overlooked strategy of socioeconomic integration." 20 Nov. 2009. 22 Oct. 2013. <<http://a100educationalpolicy.pbworks.com/f/Closing+the+Achievement+Gap+-+Socioeconomic+Integration.pdf>>. - Brief analysis of socioeconomic integration in schools; used for determining site

Bassett, David R. et al. "Estimated Energy Expenditures for School-Based Policies and Active Living." *American Journal of Preventive Medicine*. Vol 44. Issue 2. Feb. 2013; P. 108-113, ISSN 0749-3797. 27 Oct. 2013. <<http://www.sciencedirect.com/science/article/pii/S0749379712008057>>. - Document of Children's Health Indicators; used for defining health and providing statistics

"BikePGH!" Bike Pittsburgh RSS. N.p., n.d. Web. 27 Oct. 2013. <<http://bikepgh.org/campaigns/commuter-bike-maps/handheld-bike-map/>>. - Map and discussion of bicycle transportation and bike lanes in Pittsburgh; used for mapping/analysis

"Crime Rates for Pittsburgh, PA." Pittsburgh Crime Rates and Statistics. Location, Inc. 2013. Web. 27 Oct. 2013. <<http://www.neighborhoodscout.com/pa/pittsburgh/crime/>>. - Crime statistics by neighborhood in Pittsburgh; used for mapping and analysis

"Discover PPS." Discover PPS. Pittsburgh Public Schools, n.d. Web. 29 Oct. 2013. <<http://discoverpps.org/>>. - Main site for Pittsburgh Public Schools; used for general access to school information

Discover PPS: Pittsburgh Arsenal PreK-5. Pittsburgh Public Schools, n.d. Web. 26 Oct. 2013. <<http://discoverpps.org/school.php?id=108>>. - Main Site for Pittsburgh Arsenal PreK-5 school; used for specific school information

Kahlenberg, Richard D. "From all Walks of Life: New Hope for School Integration." *American Educator*. Winter 2012-2013. 22 Oct. 2013. <<http://www.aft.org/pdfs/americaneducator/winter1213/Kahlenberg.pdf>>. - discussion of effects of socioeconomic integration in schools; used for site selection criteria

Leigh, Roche. "Best Places to Find Farm-Fresh Foods in Winter: Pittsburgh." Yahoo Contributor Network. N.p., n.d. Web. 25 Oct. 2013. <<http://voices.yahoo.com/best-places-find-farm-fresh-foods-winter-pittsburgh-10627007.html?cat=22>>. - User created lists of places in Pittsburgh to find fresh produce and food; used for mapping/analysis

Michael, Sybolt. "Pittsburgh Transit Guide." : Best Transit Network: Radial, Trunk and Branch, or Grid? N.p., 31 May 2011. Web. 27 Oct. 2013. <<http://blog.transitguru.info/2011/05/best-transit-network-radial-trunk-and.html>>. - Blog site about Pittsburgh public transportation; used for mapping public transportation mapping

"Pittsburgh Zoning." City of Pittsburgh, n.d. Web. 27 Oct. 2013. <<http://pittsburghpa.maps.arcgis.com/apps/OnePane/basicviewer/index.html?appid=5fea701090294e008fd4677c3654bde4>>. - GIS zoning information of Pittsburgh by sector; used for program

"Supporting Students." Transportation / Eligibility Criteria. Pittsburgh Public Schools, n.d. Web. 26 Oct. 2013. <<http://www.pps.k12.pa.us/Page/396>>. - Pittsburgh Public Schools school bus eligibility information; used for mapping school regions

"2007 National Survey of Children's Health." Child and Adolescent Health Measurement Initiative. V. 1.2. Nov 2010. 23 Oct. 2013. <<http://www.childhealthdata.org/docs/nsch-docs/2007-nsch-sas-codebook-v1-2-december-2010-pdf.pdf>>. - National information regarding the status of children's health; used for identifying key issues and for defining areas of focus

Bishop, Jennifer, Rebecca Middendorf, Tori Babin, and Wilma Tilson. "Childhood Obesity." ASPE. U.S. Department of Health & Human Services, Aug. 2005. Web. 29 Oct. 2013. Facts and data on childhood obesity throughout the United States, including suggestions of causation and suggested cures

Dietz, William H. "Health Consequences of Obesity in Youth: Childhood Predictors of Adult Disease." PEDIATRICS 101 (1998): 518-25. Pediatrics. Pediatrics. Web. 29 Oct. 2013. <http://pediatrics.aappublications.org/content/101/Supplement_2/518.full.html>. - Article which states health issues relating to obesity, short term and long term effects

"Fast Facts: Factors That Influence Nutrition and Physical Activity." F as in Fat. Trust for America's Health and Robert Wood Johnson Foundation, 2013. Web. 29 Oct. 2013. <<http://fasinfat.org/facts-nutrition-physical-activity/>>. - Facts, statistics, maps, and charts on the current status of obesity

Norman, Gregory J., Sandra K. Nutter, and Sherry Ryan. "Community Design and Access to Recreational Facilities as Correlates of Adolescent Physical Activity and Body-Mass Index." Journal of Physical Activity and Health 118-128 3 (2006): n. pag. Active Living Research. 2006. Web. 29 Oct. 2013. <http://activelivingresearch.org/files/JPAH_8_Norman.pdf>. - charts, graphs, data on the importance and accessibility to recreational facilities

OTHER SOURCES

HEALTH, SPACE,
LEARNING

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DESIGN
STRATEGY

BIBLIOGRAPHY