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Reinvigorating the Hill in Turners Falls, MA

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Reinvigorating the Hill in Turners Falls, MA

Masters of Landscape Architecture Project

Patrick Burns

May 2022

Reinvigorating a Neighborhood Asset in Turners Falls, MA

A Masters Project by Patrick Burns
Master of Landscape Architecture
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LA&RP Landscape Architecture & Regional Planning

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Abstract

This masters project will focus on the site of the Hillcrest and Sheffield Elementary School campus in the "The Hill" neighborhood of Turners Falls, MA. This project aims to create a vision of possibility for an underutilized neighborhood amenity. This project reviews social, demographic, physical data of the neighborhood in Turners Falls as well as research on play, nature play, outdoor experiential learning, and the local ecology of Montague Wildlife Management area. To execute this goal, the study aims to achieve the following objectives:

- Revitalize an underutilized space into a neighborhood asset;
- Improve elementary school campus reinforcing a positive learning environment;
- Increase biodiversity on site that connects to local ecologies.

Key Words

- Experiential Learning
- Montague Plains
- Nature Play
- Neighborhood Park
- Outdoor Classroom
- Playgrounds
- Social Infrastructure
- Turners Falls

Table of Contents

Introduction.....2

Research in Review.....4

Site Assessment.....14
- Connecting Open Space.....17
- The Hill Neighborhood.....18
- Race & Median Income.....19
- Age Breakdown.....20
- Accessibility and Connections.....21
- Neighborhood Site Photos.....22
- Land Use History.....23

Site Analysis
- Existing Conditions.....26
- Site Photos.....27
- Topography.....28
- Hydrology.....29
- Sun & Shade Analysis.....30
- Soils.....31
- Vegetation.....32
- Circulation.....33

Case Studies.....36

Conceptual Design.....41

Design.....44

Conclusion.....58

References.....59

Appendix A.....61

Introduction

This masters project will focus on the site of the Hillcrest and Sheffield Elementary School campus in Turners Falls, Massachusetts, a small post-industrial village in Montague, Massachusetts. The goal of the study is to develop a vision that creates a neighborhood amenity while updating and modernizing existing play areas of the respective elementary schools.

The project is about turning an underutilized space of lawn into a neighborhood asset. To execute this goal, the study aims to achieve the following objectives:

- Revitalize an underutilized space into a neighborhood asset;
- Improve elementary school campus reinforcing a positive learning environment;
- Increase biodiversity on site that connects to local ecologies

The project site is located in a neighborhood called “The Hill” of Turners Falls due to the steep topography change between the suburban residential neighborhood and downtown Turners Falls. The Hill was mostly developed post World War II when suburban growth was rampant across the country. Although most residents in the largely single-family neighborhood have yards of their own, what the neighborhood lacks is a space for social gathering. The site itself is approximately 29 acres between the two elementary schools, baseball fields, and large lawn. Once used for organized sports activity, including softball and football, a declining population including the districts’ student population meant that the need for additional fields did not outweigh the cost to maintain them. As an elementary school campus, this project further studies types of play, particularly, nature play and outdoor experiential learning. The Hillcrest School serves students of Montague from Preschool to Grade 1 and Sheffield serves students Grades 2 - 5. Each of these schools are the only public elementary schools in the Town of Montague. The existing designated play structures are outdated and not accessible and are therefore in need of improvements or replacement.

Aerial view of existing project site

During the peak of the COVID-19 pandemic, schools were under immense stress to keep students healthy and safe. Many students faced anxiety and isolation, especially during the early stages of the pandemic. The need for fresh air and time spent outdoors proved to be essential and was encouraged. For many schools, including this project site, the grounds do not adequately allow for constructive opportunity for learning.

As a design study, the project first synthesizes the different research topics of play, nature play, outdoor learning and the local ecology of the town. After identifying and evaluating the site assessment, site analysis, and conducting case studies, what is revealed is the eventual design.

Currently, there is not a formal plan by the town to make large scale changes to the site. The Town Planner, Walter Ramsey, has been the point of contact from the town for this thesis project. This project is meant to be an initial exploration of how the space could be used as a community center and a more functional and supportive school environment. However, in the future, if the town were to take on a larger master plan level look at the site or receives grant funding for smaller projects, this report provides visuals to generate ideas or show how the space could potentially be used.


Photo taken of former softball field on existing project site

Research in Review

Play

Play is an essential element of a child's development. It improves skills such as communication, critical thinking, and risk taking. It also allows a child to understand and learn about their bodies through physical activity. Studies have shown that levels of physical activity correlates to a school environment itself and its play infrastructure, (Broekhuizen, et al. 2014). It is recommended that a school aged child spends at least 60 minutes of moderate intensity activity each day. Because a child spends a significant part of their lives in school, recess, becomes a significant factor in achieving the 60-minute goal, (Broekhuizen, et al. 2014). Realizing the role that play during school hours has in a child's life, understanding preferences of playgrounds is an important factor in promoting active play. For instance, physical activity in children, particularly in schools, is often stimulated by diverse equipment and designated areas instead of an open field, (Farley, et al. 2008).

Photo courtesy of Studio Ludo

The research of this project further explores other preferences for play types including nature-based playgrounds; it will discuss if and how schools have incorporated those elements into their playgrounds. Beyond children's preferred play environments, creating a restorative outdoor spaces for children is also important. Balancing the tension between an active playground and a restorative space, especially in a confined schoolground, is a challenge. A driving goal behind the research of play for this design project was to discover how school playgrounds can be both active spaces for physical and cognitive health and be restorative spaces for a child's well-being and psychological health.

There are physical and cognitive benefits of play during a child's development. Play facilitates a child's learning in the classroom. Physical activity through play helps maintain healthy weight and combats childhood obesity. Play also improves self-regulation, empathy, and social skills, (Hirsh-Pasek et al., 2007). Self-regulation is the ability for a child to control their feelings and emotions without acts of aggressive behavior, (Wilson and Ray, 2017). Despite the noted benefits of play, children's physical activity levels have declined. For that reason, a study published by the International Journal of Behavioral Nutrition and Physical Activity and written by Broekhuizen et al., assesses playgrounds in schools to determine what fosters the greatest benefits of physical activity. Moderate evidence showed that play equipment on all school types and interventions of organized play or playground markings did contribute to increased levels of physical activity for primary school aged children, (2014). An example of playground markings might be painted lines for a game of four-square. While this study indicated it limitations in size and its scope on physical activity instead of also looking at other outcomes like social behavior, this study reveals an importance of equipment in school playgrounds compared to an open lawn. This speaks to preferences of playgrounds and how it relates to overall use of the space.

When thinking about playgrounds, most recall the playgrounds they used as children during elementary school. Across the United States, these playgrounds are often brightly color manufactured pieces of steel or metal picked from a catalog. The origin of these more traditional types of play equipment goes back to the American Playground Movements during the early 1900's. With the invention of the car, children playing in city streets became increasingly dangerous. Designated playgrounds removed from the road became the spot for children to play. In 1908, a Massachusetts law required towns with populations greater than 10,000 people to have public playgrounds. This movement was capitalized by manufacturers who would eventually mass produce assembled steel play structures like see-saws, slides, and swings. These would be found in parks and school playgrounds across the country, (Frost, 2007.) Playgrounds evolved over time through phases. Playgrounds in the 1970's and 1980's included modular wood equipment that could be modified and linked in different variations to encourage children to move from one piece to another thereby increasing motor activity and development. Playgrounds in the late twentieth century returned to a more standardize palette which may have incorporated more motor skills like climbing, strength, and balance, but they were mostly large pieces of brightly colored steel and plastic, (Frost, 2007).

Risky Play

Risky play includes elements where children learn risk perception and how to navigate it and avoid injuries. Often, risky play is misconstrued as a safety hazard. The difference between risk and hazard is that risk can be acknowledged and evaluated, whereas a hazard is harm that is not evident to a child. Equating the two reduces possibilities in play which in turn, restricts potential physical and cognitive development for a child, (Brussoni, et al., 2014). Playground safety also deals with material choices as well. For instance, impact-absorbing surfaces are a requirement for many types of play structures, but it comes at a cost economically, which reduces play opportunities with a negligible result in reducing deaths or serious injury. Regulations surrounding playgrounds has a created a "checklist" of dos and don'ts that leads to playgrounds with limited play value, says Susan Harrington, a landscape architect and place space researcher, (Brussoni, et al., 2014). In an evaluation of the Smale Riverfront Park in Cincinnati, Ohio, Kate Tooke, a landscape architect at Sasaki Associates discusses the different risky elements intentionally incorporated into the park. Tooke notes that the Sasaki design responded to Ellen Sandseter's article in the Evolutionary Psychology journal that defined six categories of risky play. These were: great heights, rapid speeds, dangerous tools, dangerous elements, rough and tumble, and disappearing/getting lost. Elements of Smale Park like slides, climbing walls and bridges were constructed to represent feelings of great height and rapid speeds. She also describes how until recently, playgrounds have been modified because of a "litigious culture." During the post occupancy visit of the park, Tooke interviewed several parents who noted that children were engaged for far longer than traditional parks. A notable successful takeaway of the park was the design layout. The design fostered continuous movement through the park via connected elements which meant

Photo courtesy of Studio Ludo

it was engaging, both physically and cognitively. This is unlike many traditional parks which are object focused and separate from one another, (Tooke, 2017). While the Smale Riverfront Park is a successful example of an active park that designers might model, it should be noted that parks like these are costly and require maintenance. This park in Cincinnati received significant private funding who were supportive of the concept of an active and innovative park.

Nature Play

Another movement within playground preferences are nature-based playgrounds or 'nature play'. This movement strongly relates to biophilia. In the article, Dimensions, Elements, and Attributes of Biophilic Design, Stephen Kellert notes that biophilia is "the inherent human inclination to affiliate with natural systems and processes" (2005, 3). There have been many findings to support that humans have biophilic needs. One of them is that "healthy childhood maturation and development has been correlated with contact with natural features and settings," (Kellert, 2005). It is no coincidence that nature-based playgrounds also have benefits to children and their development. Nature play provides an environment that not every child has access to. In general, access to nature is often an inequitable reality. By providing it in school playgrounds, all children would have the opportunity to experience nature and its benefits.

Most people have an innate preference for nature. Kaplan and Kaplan, 1989, research and assess people's preference for nature through the Attention Restoration Theory. This theory states that access to nature restores people minds after stress or mental fatigue. Their are four key components of the Attention Restoration Theory. These components are qualities that a space should have in order to be restorative. These are Being Away, which should provide the sense of being in a different space; Fascination, which should capture and hold one's attention without strenuous effort. Extent, similar to Being Away, offers the feeling of being fully immersed in the environment. Lastly, Compatibility offers a feeling of enjoyment and familiarity allowing a true sense of restoration. This theory and its components are significant features that can be incorporated into a play or learning environment

While preferences for nature may vary, it was noted that all people can understand that nature has value and is important. Nature has

Photo courtesy of Studio Ludo

positive outcomes related to cardiovascular health and mental health outcomes like stress and depression, (Stevenson, 2020). Nature based playgrounds or green schoolyards are grounds with natural elements. This may include equipment itself with wooden structures instead of exclusively metal and plastic. It may include natural trails, water capture features, or large boulders to climb on. Native plants like trees and shrubs with pollinators to attract local insects are common elements of nature play. There are different modes of experiencing plants which offers restorative experiences. One can observe vegetation or nature through a window or from a distance which has its own set of therapeutic and psychological benefits, (Ulrich, 1984). In his article, Gardening as Healing Process, Charles A. Lewis, 1990 writes that vegetation can also function as a "shock absorber for the human sensory system." Incorporating native vegetation, even if not gardening can alleviate stress, and provide a feeling of refreshment which can alleviate symptoms of being overwhelmed for a child.

Nature-based playgrounds can be considered restorative environmental design by use of natural and local materials and native plantings. This lessens the environmental impact by increasing energy efficiency, sustainable products, reducing pollution, and increasing biodiversity, (Kellert, 2005). These benefits are not only positive for the environment, but they have lasting impacts to the users of the playgrounds as well. It provides the children a sense of place knowing that the playground was built with local natural materials which reflects the local ecology of the area that they are in. Research also shows that children who are introduced to nature are more likely to take better environmental care and stewardship roles later in adulthood, (Derr, 2012 and Chawla, 1998).

Natural playgrounds can be used for learning opportunities as it facilitates hands on learning. It also generally diversifies the experience for a child on the school ground. Eventually, a traditional playground may become mundane. A nature-based playground however can display change seasonally or in relation to the weather. This reduces potential for boredom and provides another social and play environment. Furthermore, as shown in the picture above, A nature playground does not necessarily mean lack of play or play without risk as categorized by the Sandseter article. Often nature playgrounds incorporate play through use of natural features in the landscape.

Although natural playgrounds are becoming more common in the United States now, natural playgrounds in Europe, specifically London, are more prevalent. The concept of natural playgrounds calls on children to move around and create their own playground with the natural materials present. Children are not told the right way to play or how to use natural materials during play, (Owenz, 2020). The article written by Owenz compares two Australian playgrounds at the same school: one is traditional, and the other is a natural playground. The naturalized one exhibited more socio-play where children act out imaginary situations and stories. Play also lasted longer than play on traditional playgrounds.

Photo courtesy of Studio Ludo

Key Features of Nature Play

Loose Parts

Nature-based playgrounds often incorporate loose parts which can be defined as materials that can be picked up, or moved and used in a variety of ways to hold or experiment with. This fosters creativity, an important element of play and childhood development, (Houser, 2016). Additionally, sticks, leaves, stones, or sand are examples of "loose parts." Natural materials support longer engagement, more cooperation,

and a wider variety of play behaviors compared to traditional play materials (Dennis, 42.) Furthermore, children with autism spectrum disorder (ASD) are attracted to loose parts

Photo courtesy of Studio Ludo

and parents found that being in contact with them improved motor skills, (Li et al, 2018).

Alone Zones

While much of this paper has discussed an active playground, there are times when a child needs a moment of rest. Nature playgrounds, or just busy playgrounds in general, can be overwhelming. Finding somewhere to take a break is sometimes a challenge in those situations. In an article that Lauren Leffer writes, titled, "The elements that make a perfect playground," she notes to "provide solo space." Having places to retreat is an important and underused element of playgrounds. It can also act as an element of risky play, "disappearing/ getting lost." These quiet spaces are sometimes referred as "alone zones." These zones are especially beneficial for children that face adversity or trauma, (Leffer, 2021). This can be a challenge when active playgrounds are often high sensory places. If busy, finding a space to retreat to on a playground can feel futile. Nature-based playgrounds offer a great opportunity to provide these spaces through natural materials like a hollowed tree trunk or a planting design that visually separates a child from an activity. There are more options to provide "alone zones" or retreat zones in a nature-based playground than a traditional playground which features one or two large play equipment structures and wood chips.

Alone zones may be a brief moment to catch one's breath, but it also can have restorative properties too. An alone zone in a nature-based playground could easily be next to a small, raised planter bed for gardening. A major element of restorative environments is "being away," meaning one's mind can escape a reality that is challenging or stressful. This is another great example of natural playgrounds offering a restorative environment. True quiet and peace is not a likely occurrence in a playground, especially during recess time. A school that has ample space might have greater opportunity to create quiet areas. It is worth noting that this would also require more staff to be able to effectively monitor children.

There is an evident tension between creating active playgrounds and restorative spaces. Restorative spaces should feel like an escape, offer quietness and calmness, or be an absorber of the stress and tension of daily life. Playgrounds, even if active, can at least be an escape from a child's schoolwork, but it may not offer the same quietness that restorative spaces often achieve. However, we know that even a small plant on a windowsill can be restorative, let alone being surrounded by nature. While a Zen garden may not be found next to a playground, nor should it, there are ways to incorporate the quiet and calming benefits of nature into playgrounds that are deemed 'active.' A nature-based playground is a great example of beginning to find that balance. A nature playground that has a fountain might drown out noise. Specific vegetation might also act as a sound barrier from the screams of children playfully running in circles. Trees that are climbed or sat under or perennial beds that flower or produce fruit in the spring and fall months add interest and have restorative properties. While people often associate gardens with vegetable gardens, a wildflower garden can still be tended and cared for. This is an example of Lewis' experiencing plants through participation, (1990). These natural elements offer benefits of well-being and connectedness that a nature-based playground can provide.

Alone zones are often cited as necessary components of playgrounds in order to provide a space for a child to rest. Alone zones do not have to mean standing up against the wall of the school building, however. These zones are not meant to feel like isolation. Natural elements can be used to create spaces for children to retreat to and still feel connected, assuming other elements of the playground are natural materials too. Cost is an admitted challenge in creating successful playgrounds, especially when there is an expectation that staff are monitoring all children at the same time. Staffing, however, should not be the deterrent for creating spaces for children to play, something that is so valuable to their physical and cognitive health. Traditional playgrounds may be more cost effective, but that does not mean vegetation and natural materials cannot be incorporated. Adding plants and loose parts like pebbles and sand are small additions that could create large improvements to a playground that would benefit a child's development and well-being.

Photo courtesy of Green Schools America

Outdoor Learning

More than ever, schools have engaged in outdoor experiential learning during the COVID-19 pandemic. In an effort to reduce infection rates and boost overall immune systems, pediatricians and public health experts were urging students to spend more time outside. (Latane, 8). This was a difficult to manage because many schools grounds were not equipped to support this type of outdoor learning.

Even before the pandemic, research indicated that experiential outdoor learning has positive outcomes for students. One study conducted by Samuel F. Dennis, Jr. et al shows that students in outdoor natural classrooms were "more relaxed, happier, less impulsive, more focused, more creative and better behaved," compared to indoor classrooms or traditional playgrounds (42). Studies have also shown that time spent in nature correlates to a child's ability to foucus. Van den Berg indicates that children with attention deficit hyperactivity disorder (ADHD) can increase their concentration after spending time outdoors (2010).

Outdoor learning supports environmental literacy through hands-on learning. It also supports the trend for more project-based learning because the outdoors can serve as a living laboratory. This type of learning has positive outcomes for many students but especially students who are less confident and reluctant in the classroom. Having the opportunity to learn through exploration provides a different type of learning which creates a more accommodating

educational experience. In "Schools that Heal," Latane summarizes the benefits of providing alternative experiential teaching methods, "Students who don't perform well have incredible strengths that simply don't show up in traditional classrooms. Providing a variety of places where students can interact with and learn from the environment in a variety of ways will give more students the sense that they belong in school" (19).

Pathways & Steppers

In "A Post-Occupancy Study of Nature-Based Outdoor Classrooms, Dennis, et al studied hundreds of outdoors classrooms and evaluated whether the spaces produced successful outcomes. In the process, Dennis identifies five qualities that the most successful outdoor learning environments provided. One those qualities was pathways and borders. Pathways especially support children with special needs. Pathways encourage initial exploration in what otherwise can be an overwhelming experience. Pathways also provide a method for self-calming.

Gardening

Gardening in schools is not a new phenomenon but often overlooked. From the literature, we have seen that greater biodiversity in outdoor spaces create overall better experiences for children. Gardens increase the ecological complexity and promotes experiential learning in areas of science and food education, (Blair, 2009). School garden programs can also lead to healthier diets and increased motivation to try new foods, (Garcia, 2017).

Photo courtesy of Studio Ludo

Gardening is restorative as it can also achieve a feeling of tranquility and peacefulness. Nature fascination satisfies many things for people including holding one's attention, providing sensory benefits like smell and touch. One can become so focused on gardening their mind can forget everything else, (Kaplan and Kaplan, 1989). Gardening is an example of experiencing plants through participation. Participating in caring for vegetation offers a more intense experience of plants which overall improves well-being, (Lewis, 1990).

Local Ecology | Montague Management Wildlife Area

The Montague Plains Wildlife Management Area plays a significant role in the identity of Montague. The necessity to understand the conservation efforts to protect rare and endangered species is an important aspect of cohabitating with an important landscape. Studies have shown that children who have had positive exposure to nature, often are more likely to be environmentally sensitive and aware, (Chawla, 1998). This is significant because it could ensure further protection and respect for the large resource area that exists in town.

The Montague Plains Wildlife Management Area is a fifteen-hundred-acre site operated by the Massachusetts Department of Fisheries and Wildlife as a state wildlife refuge because of its rare ecological conditions. The Montague Plains are on a large sand delta formed more than 10,000 years ago from melt water of retreating glaciers. Glacial Lake Hitchcock was a massive lake that spanned Montague and a sizable portion of the Connecticut River Valley. As glaciers melted and drained into what is the Connecticut River today, they deposited large amounts of sandy sediment which makes up the upland site of the Montague Plains. This outwash of excessively draining sandy soils create a rare pine-scrub oak barren natural community that supports unique and rare habitats, particularly early successional species which are declining throughout the Northeast (UMass, Montague Plains Wildlife Management Area & Mass Audubon, Montague Sandplains).

The Massachusetts Division of Fisheries and Wildlife plans to maintain and restore nearly 1000 acres of this rare plant community as it is the largest type in New England. Prior to agricultural practices, the site was dominated by oak but post agricultural abandonment, the previously plowed areas became overstocked with pitch pine and low diversity in understory plantings. These conditions make the site more susceptible to forest fires. To battle this, the state has begun clearing stands of pitch pine through managed burning and mowing. The hope is that the future will have a fire adapted community of overstory trees with a dense shrub understory.

Limiting the canopy also protects rare species that live in grass and shrubland habitats like the barrens buckmoth and early successional bird species which migrate and breed in these habitats (Mass Audubon, Montague Sandplains). This unique area is used for passive recreation, field trips for nearby colleges, and other activities which make up a large identity of Montague, MA. There is an opportunity to model and educate children on the value of appreciating and protecting habitats and supporting biodiversity. Additionally, the Franklin Regional Council of Governments (FRCOG) recently developed the Montague Pollinator Action Plan to identify and expand wild pollinator habitat in town. The Sheffield Elementary school was identified as a potential town-owned parcel for pollinator habitat. Pollinator plant species and pollinator-friendly mowing practices could be adopted in a redesign of the site which supports the objective of promoting awareness and increasing biodiversity to the local ecology, (Montague Pollinator Action Plan, 2021).

Photo taken during site visit of Montague Wildlife Management Area

Rare Species

Desmodium humifusum

Gentianopsis crinita

Prenanthes alba

Amelanchier nantucketensis

Ceonothus americanus

Lupinus perennis

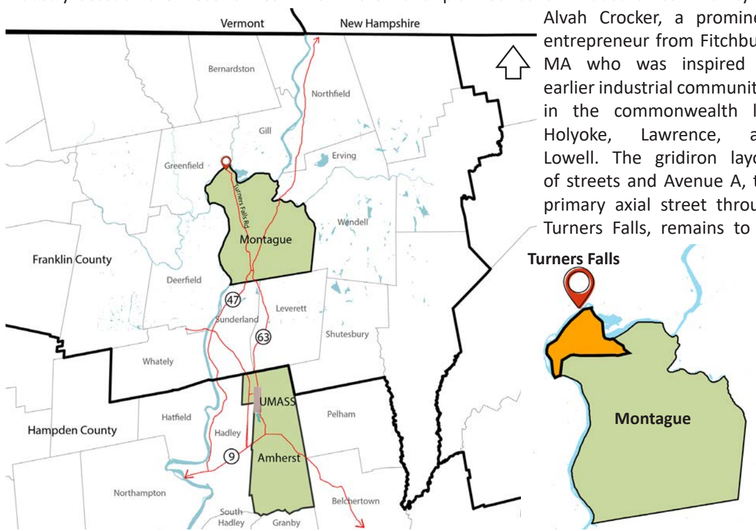
Hemileuca maia

Toxostoma rufum

Terrapene carolina

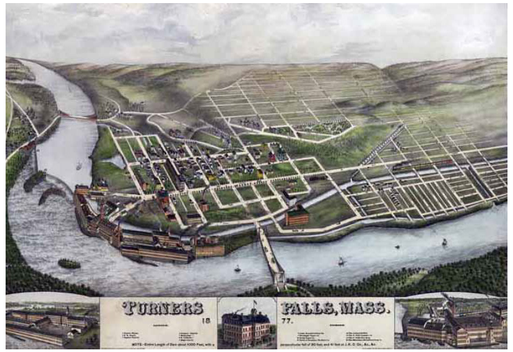
Site Assessment | Downtown Turners Falls

Turners Falls is a small post-industrial village in Montague, Massachusetts. Situated east of the Connecticut River, this mill town had a booming economy in the 19th and early 20th century. The village housed several mill buildings which were supported by the Power Canal bifurcating the island from the downtown core of Turners Falls. Like many post-industrial towns and cities in New England, a changing manufacturing industry setback their economies which were dependent on these obsolete mill structures. In the last few decades, communities have made an earnest effort to adapt and repurpose mills structures for housing or new types of commercial development (Kotval and Mullin, 2009). Turners Falls is no exception to this effort. Despite that mills have closed and companies have left, the Turners Falls village is largely intact from its original conception. It was designed and planned as an industrial community by Alvah Crocker, a prominent entrepreneur from Fitchburg, MA who was inspired by earlier industrial communities in the commonwealth like Holyoke, Lawrence, and Lowell. The gridiron layout of streets and Avenue A, the primary axial street through Turners Falls, remains to be the main commercial district of Montague as designed in 1868. Although the village does not have the same vitality it once had in its prime of the late 19th century, the fact that the layout and most buildings remain standing, makes it a promising area to revitalize while keeping its existing urban fabric.



In the last decade, numerous planning studies have been conducted focusing on the downtown area and the “Canal District.” In 2013, Dodson and Flinker, Inc. prepared “The Turners Falls Downtown Livability Plan” and developed a vision statement and prioritized key redevelopment sites. In the Fall of 2016, a University of Massachusetts Amherst Regional Planning studio also conducted a robust analysis of the Turners Falls Canal District.

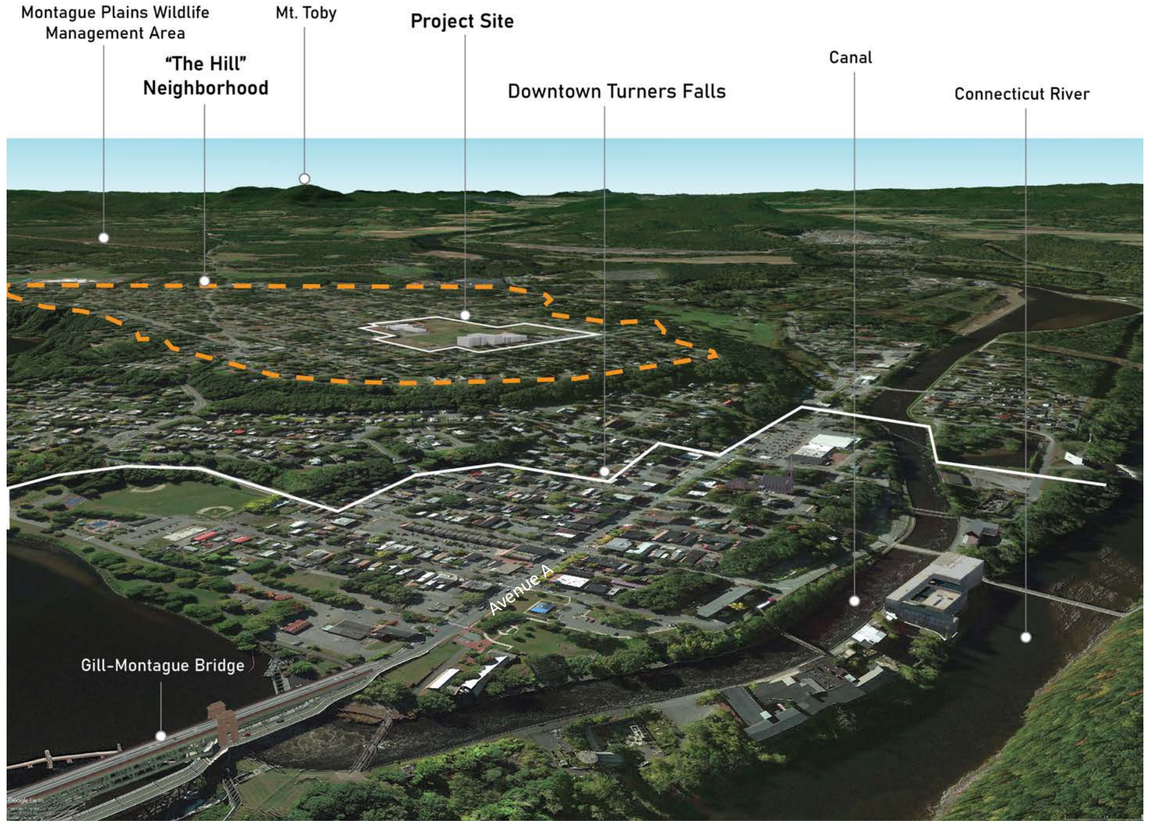
In 2020, the Montague Planning Department hosted an update on the 2013 Livability Plan. This meeting included stakeholders and members of the public to hear about what projects were completed and what still needed work. Because downtown is a business district, there is greater opportunity for revival and to create a larger tax base. Additionally significant investment have been made to expand open spaces opportunity downtown and overall accessibility. A large concentration of Montague's lowest income residents reside in downtown where development is most concentrated.



1877 Downtown Turners Falls, Image in Dodson & Flinker 2013 Report

View of the Gill-Montague Bridge in the distance along the Canalside Rail Trail

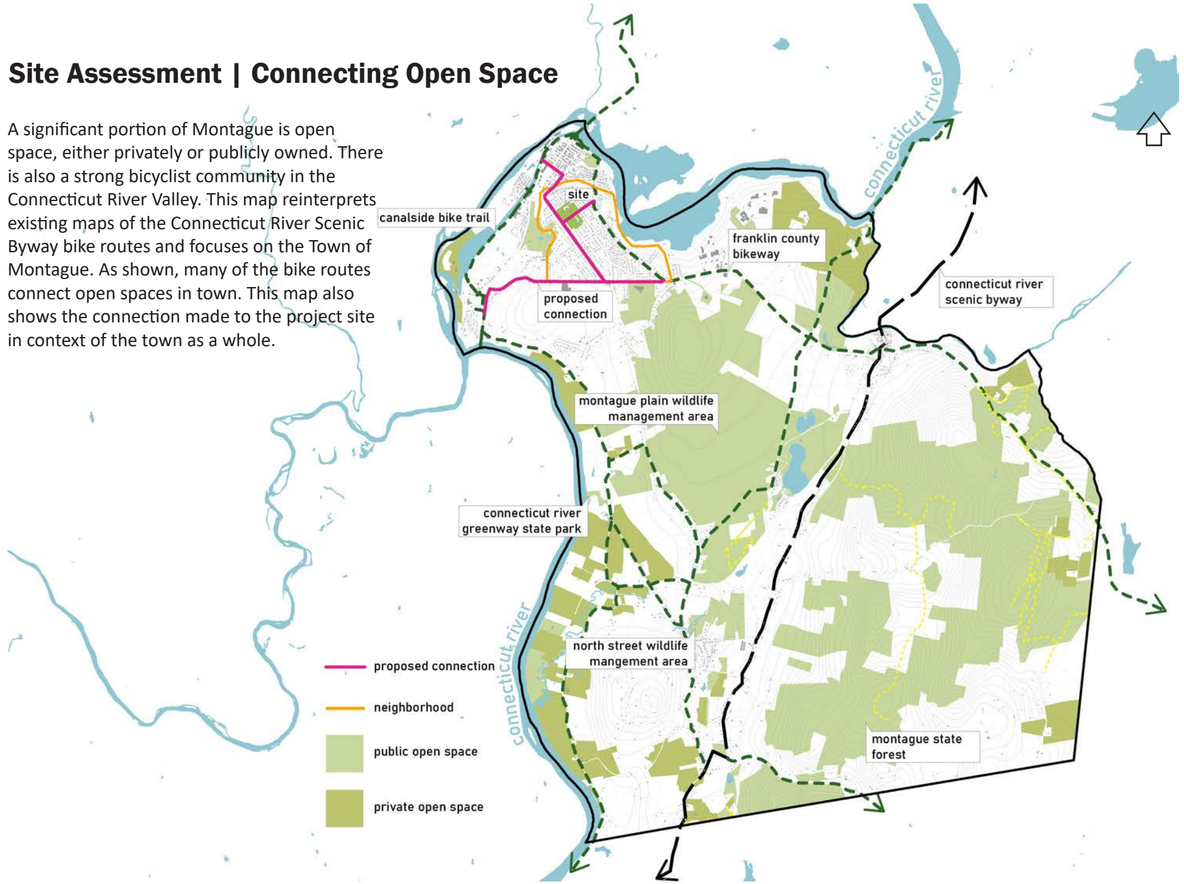
Site photographs illustrating the character of Avenue A, the downtown commercial corridor



View showing proximity of The Hill neighborhood and the project site in relation to downtown

Site Assessment | Connecting Open Space

A significant portion of Montague is open space, either privately or publicly owned. There is also a strong bicyclist community in the Connecticut River Valley. This map reinterprets existing maps of the Connecticut River Scenic Byway bike routes and focuses on the Town of Montague. As shown, many of the bike routes connect open spaces in town. This map also shows the connection made to the project site in context of the town as a whole.

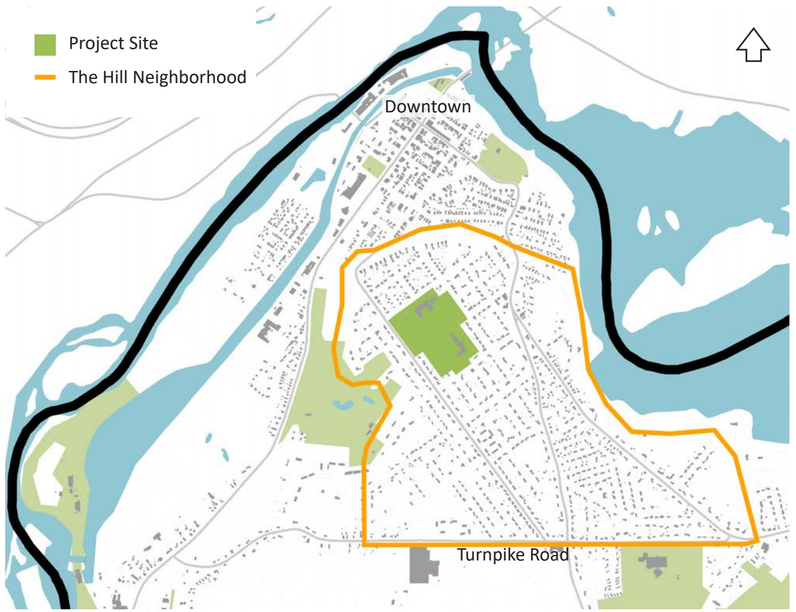


Site Assessment | The Hill Neighborhood

Downtown Turners Falls is very different in character and density from The Hill of Turners Falls. Less than a mile away, "The Hill" is a suburban mostly single family residential neighborhood. Although close in distance, a steep grade change of almost one hundred feet in difference of elevation is what separates "the Hill" from downtown. The layout of the Hill neighborhood is primarily a grid. This is the location of the project site and the primary focus of this study.

In order to understand "the Hill" neighborhood, U.S. Census Data was gathered to identify information on race, age, and median income. To get as close of an accurate depiction of the neighborhood as possible, data at the Block Group level was used. Appendix A shows the block groups within Turners Falls that were used for the provided data.

The Hill neighborhood has a population of approximately 1900 people.



Data provided by MassMapper

Site Assessment | Race & Median Income

The Hill	
White	86.65%
Hispanic or Latino	6.14%
Black or African American	5.40%
American Indian & Alaska Native	4.20%
Asian	0.92%
Other	2.75%
Two or more races	10.10%

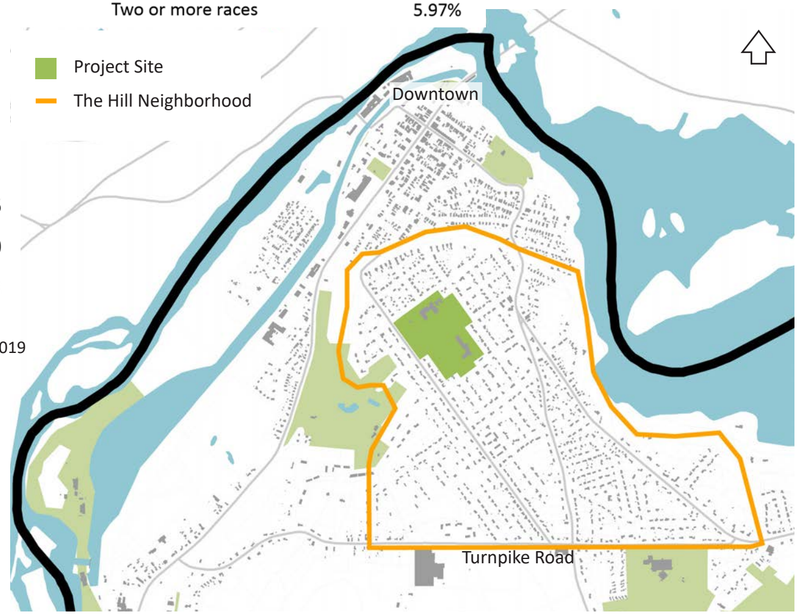
Franklin County	
White	87.85%
Hispanic or Latino	5.06%
Black or African American	1.51%
American Indian & Alaska Native	0.27%
Asian	1.69%
Other	0.51%
Two or more races	5.97%

U.S. Census Bureau, 2020 Decennial Census

Median Income

The Hill	$42,356
Montague	$54,430
Franklin Co.	$60,018

U.S. Census Bureau, American Community Survey, 2019



Site Assessment | Age Breakdown

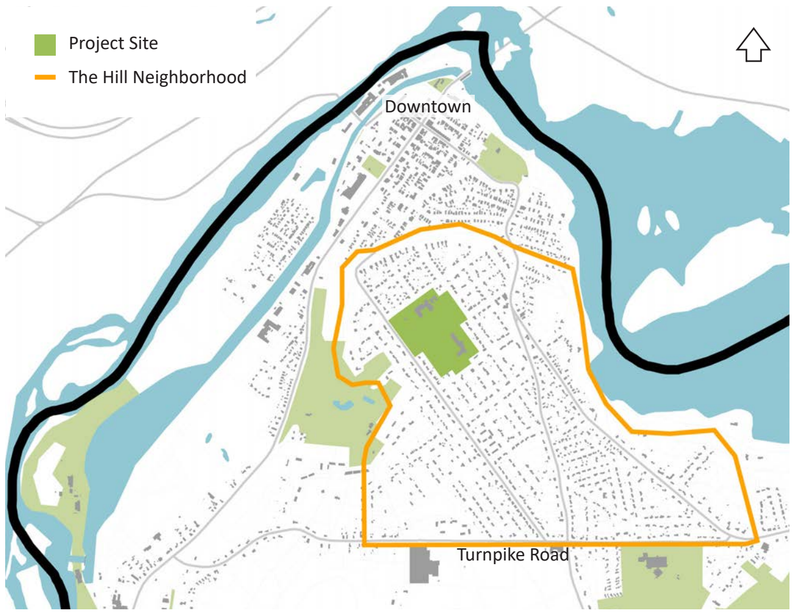
Under 5 yrs	6.60%
5-9 yrs 6.20%	6.20%
10-14 yrs	5.40%
15-17 yrs	4.20%
18-29 yrs	11.80%
30-39 yrs	13.70%
40-49 yrs	14.70%
50-69 yrs	25.50%
70 + yrs	12%

22.4% of neighborhood
<17 yrs

37.5% of neighborhood
50+ yrs

U.S. Census Bureau, 2020 Decennial Census

The Hill neighborhood has an aging population with nearly 50% of the population being older than 40 years of age. This is significant as most of this population will not have children. The Town of Montague published its Open Space and Recreation Plan in 2018 and notes, "the Town of Montague will need to provide for an aging population in its open space and recreation programming. Seniors require different recreational facilities and services, including accessible walkings paths, arts, and leisure programs" (3-13). This primarily aging in place neighborhood should be accounted for in the design of this project while still considering the needs for children.



Site Assessment | Accessibility and Connections

The Town of Montague has improved its sidewalk connections and accessibility over the last decade. Currently however, the project site lacks sidewalks along significant adjacent roads. The purple line in Figure 1 shows proposed needed sidewalk connections including going through the site. Many sidewalks in the vicinity of the school site were just completed in 2022, particularly along Montague Street.

Montague has also made improvements to bike infrastructure with designated lanes or at minimum, created shoulders that have painted bicycle symbols indicating a route. There is a lack of consistent connection of bicycle routes in the villages of Turners Falls. During an initial site assessment, the Town Planner indicated a desire for a multi-modal path going through the site. Figure 2 shows that connection starting downtown, then going through the site, and connecting to Montague Street and Turnpike Road.

Figure 1

Figure 2

Site Assessment | Neighborhood Photos

Site photos surrounding the elementary school campus show the suburban and uniform nature of "the Hill" neighborhood. Wide streets and often similar architectural styles of homes can be found throughout the neighborhood. Lot sizes are approximately a half-acre.

The bottom right picture is one of the two multi-family apartment complexes that exist on the Hill. The one shown is the closest of the two to the project site.

Site Assessment | Land Use History

Much of Montague including the Hill has an agricultural past. While some tree cover exists, this aerial photo of the site from 1934 was largely used for grazing. The orange outline is the block where the project site is located. Visible is the location of the Sheffield Elementary School on Crocker Ave. The residential neighborhood northwest of the site is also built by this time.

Today

N

Agricultural Past, 1934

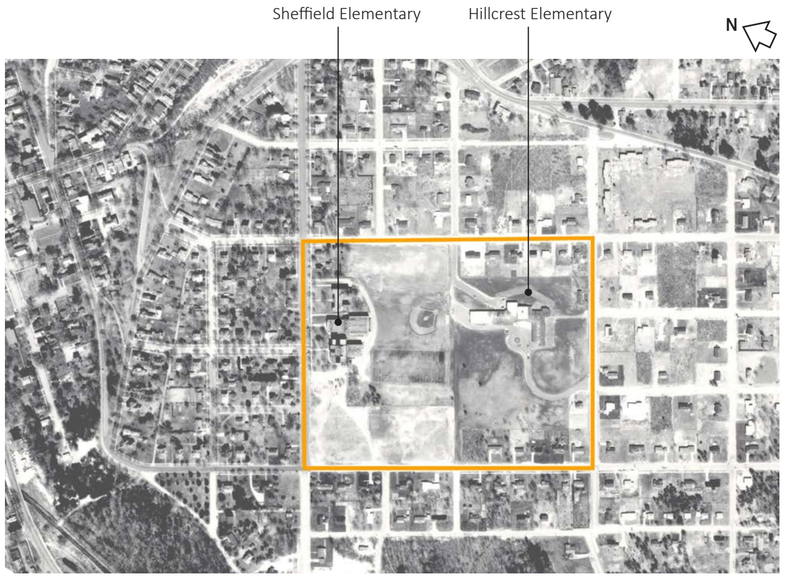
Photo courtesy of MA Dept. of Transportation Survey

Site Assessment | Land Use History

A very different neighborhood exists twenty-five years later. A post war suburban neighborhood begins to develop as suburbanization grows rampant across the country. As "the Hill" of Turners Falls grew, so did the need for new elementary schools. The Sheffield School was expanded and the Hillcrest School was built new in 1958.

Residential parcels are built out along many of the same paths in existence during the 1930's while other roads are newly developed in a uniform grid pattern.

Today



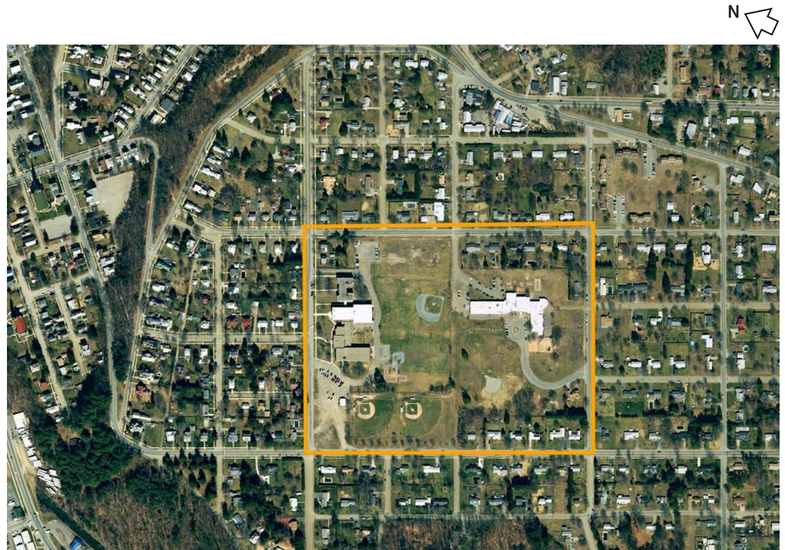
Post War, 1960

Photo courtesy of MA Dept. of Transportation Survey

Site Assessment | Land Use History

By 2005, the remaining parcels undeveloped in 1960 were built out within ten years. This photo of the site in 2005 is very similar to today. However, besides two baseball fields that are still present today, back in 2005 and up until the last few years, there were also softball and football fields. Montague has had a stagnant population growth in the last few decades. The student population has declined which meant that there was no longer a need for fields for practice or games. Since fields require maintenance and the demand for use declined, the fields faded away and became open lawn which is the condition of the site today.

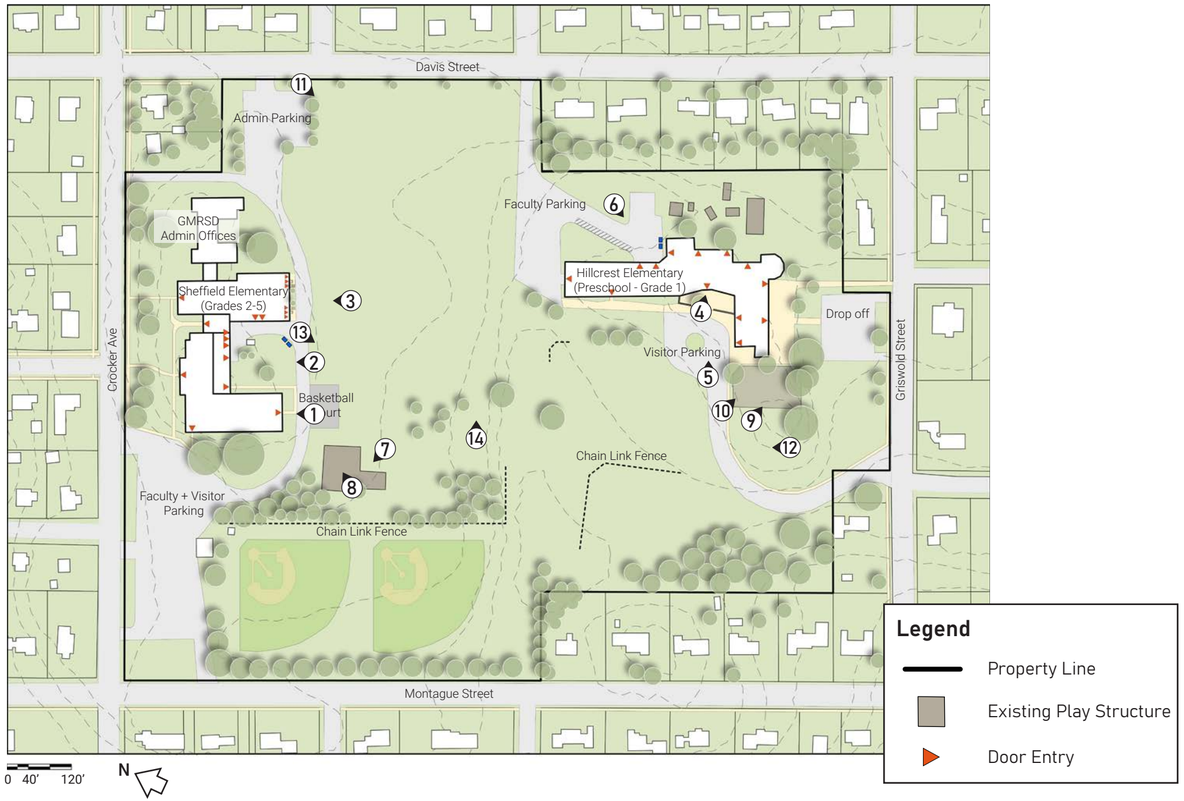
Today



2005

Photo courtesy of Google Earth Pro

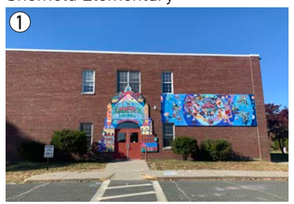
Site Analysis | Existing Conditions



Site Analysis | Existing Conditions

The following photos were taken during several site visits.

Sheffield Elementary



Hillcrest Elementary

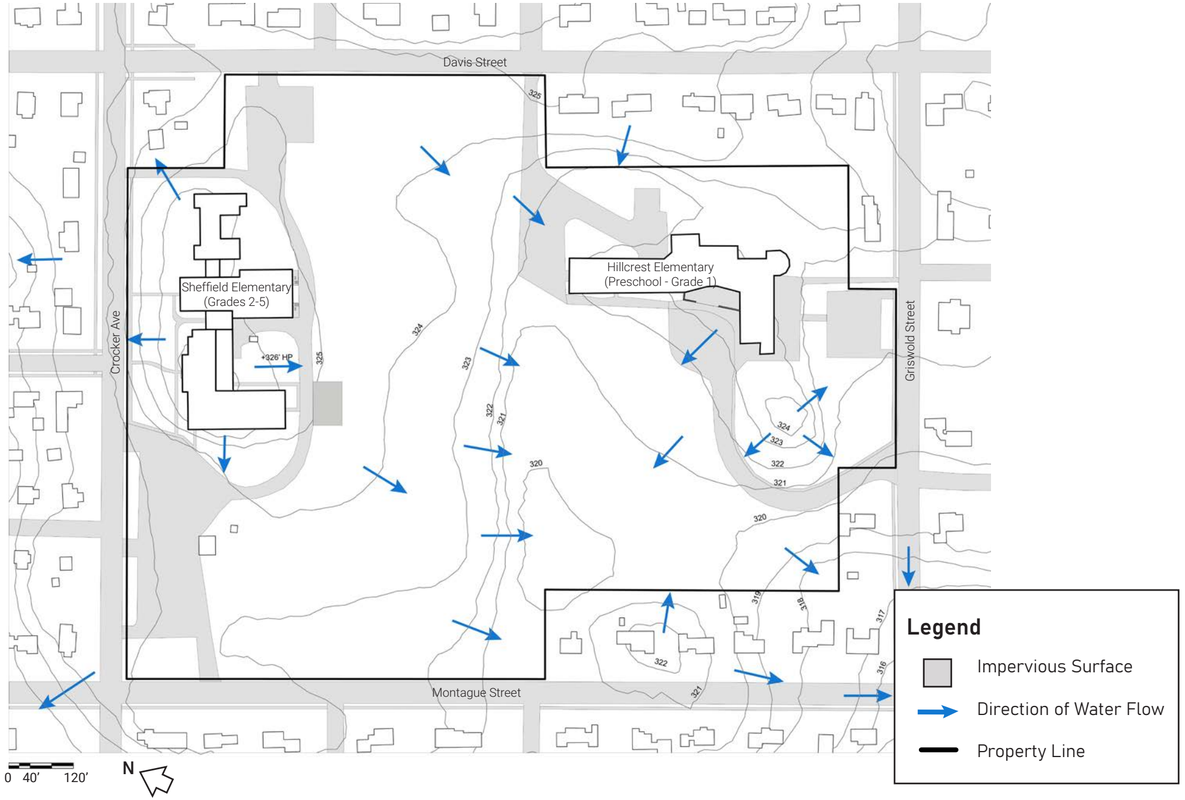
Existing Play

The Grounds

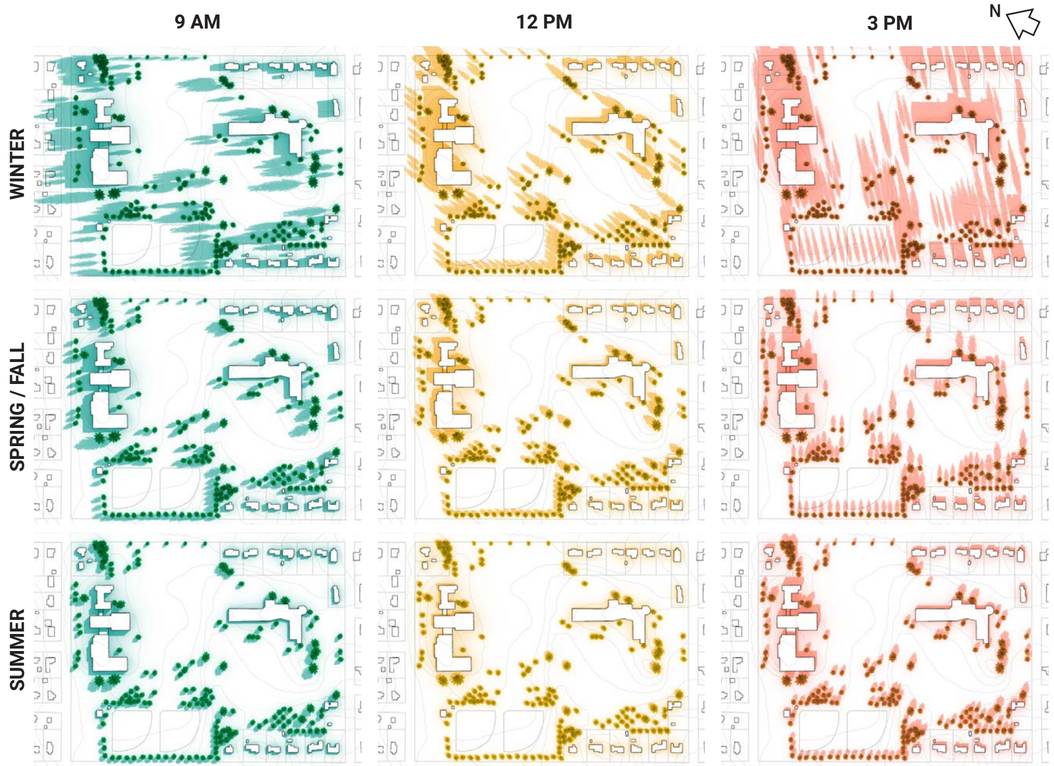
Site Analysis | Topography

The slope analysis shows how flat this site is. Most of the 29-acre site has less than a 2% slope. Site photos reveal how vast the site feels when being in it.

Site Analysis | Hydrology

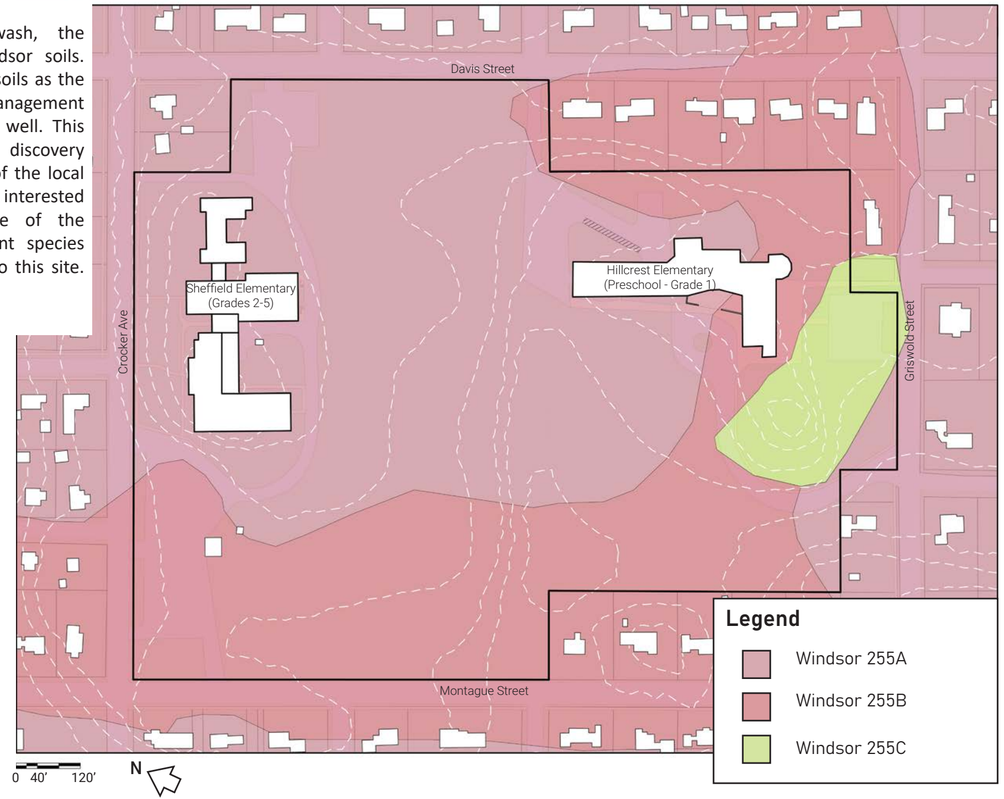


Site Analysis | Sun/Shade Study

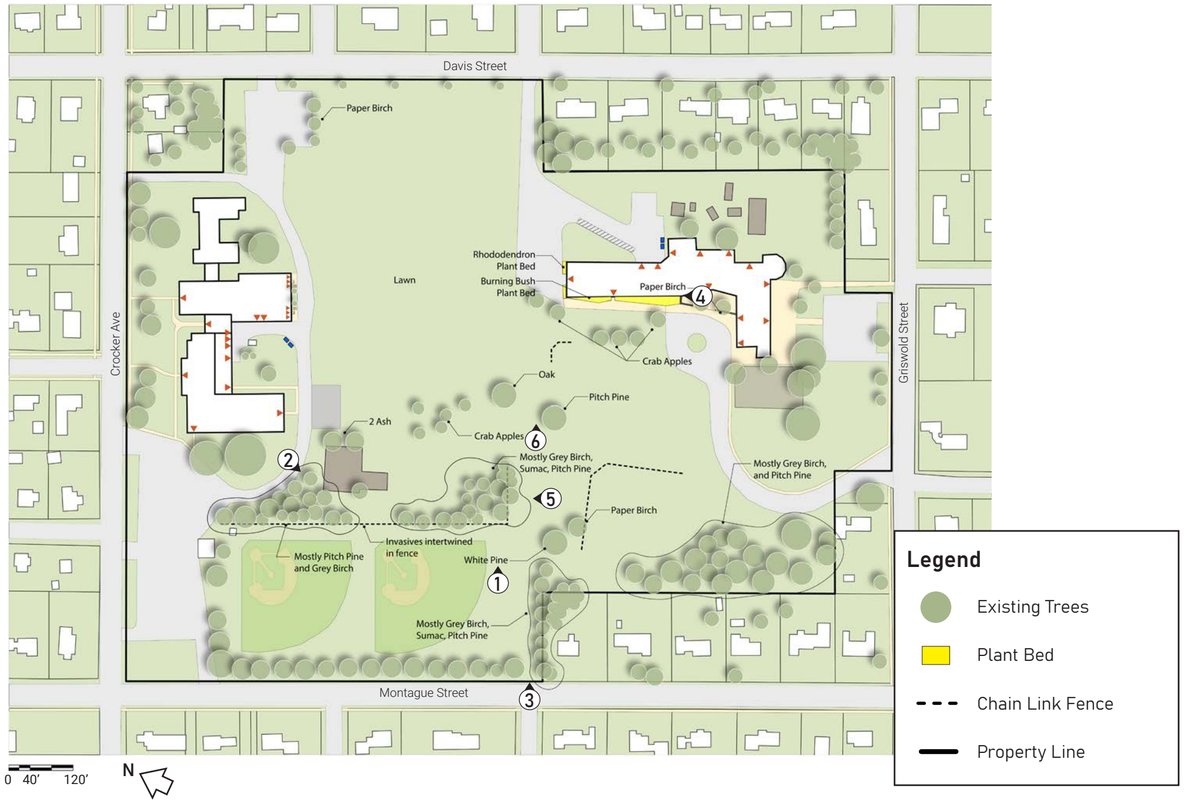


Site Analysis | Soils

As a glacial outwash, the site has sandy Windsor soils. These are the same soils as the Montague Plains Management Area and drain very well. This was an important discovery during my research of the local ecology because I was interested in introducing some of the native and rare plant species found in the plains to this site.



Site Analysis | Vegetation



Site Analysis | Vegetation

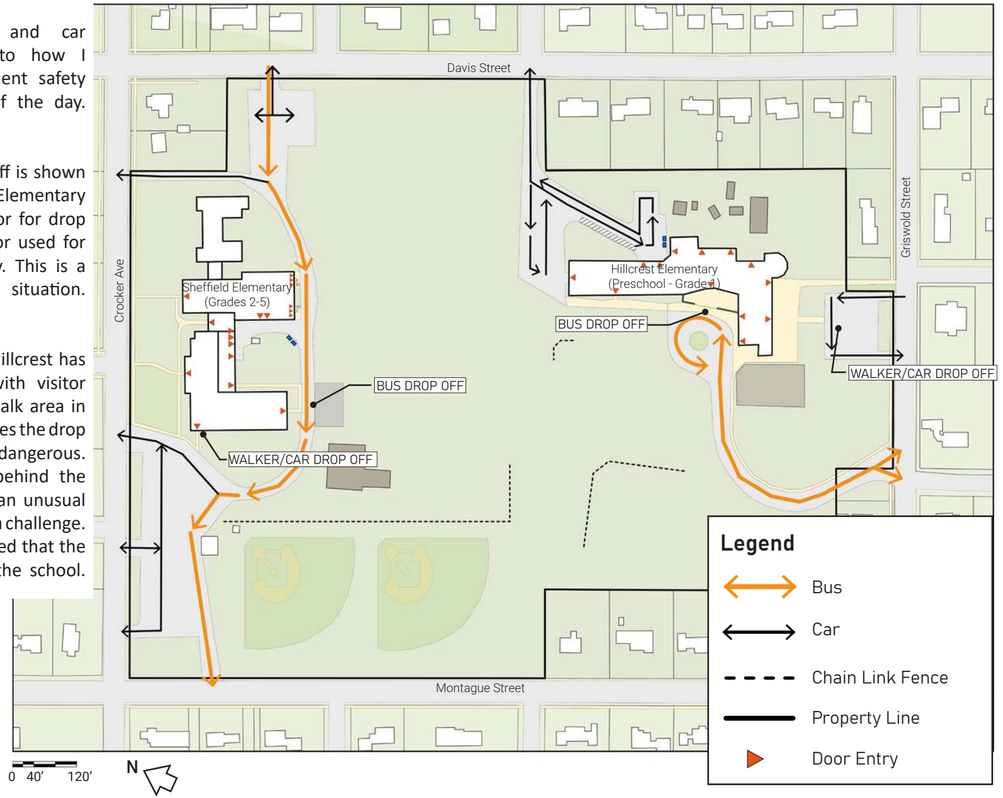
The site has small stands consisting mostly of pitch pine and gray birch and other successional species. A strong vegetative buffer exists behind the residential properties on Montague Street. This will want to be kept during the design phase. Significant mature trees should be preserved as much as possible considering so few exist on the site in the first place. There are many invasive species intertwined in the chain link fence behind the baseball fields which should be removed with the fence.

Site Analysis | Vehicular Circulation

Understanding bus and car drop off also led to how I would maximize student safety during busy points of the day.

Sheffield Elementary
A one-way bus drop off is shown behind Sheffield Elementary School. This same door for drop off is the primary door used for recess during the day. This is a potentially dangerous situation.

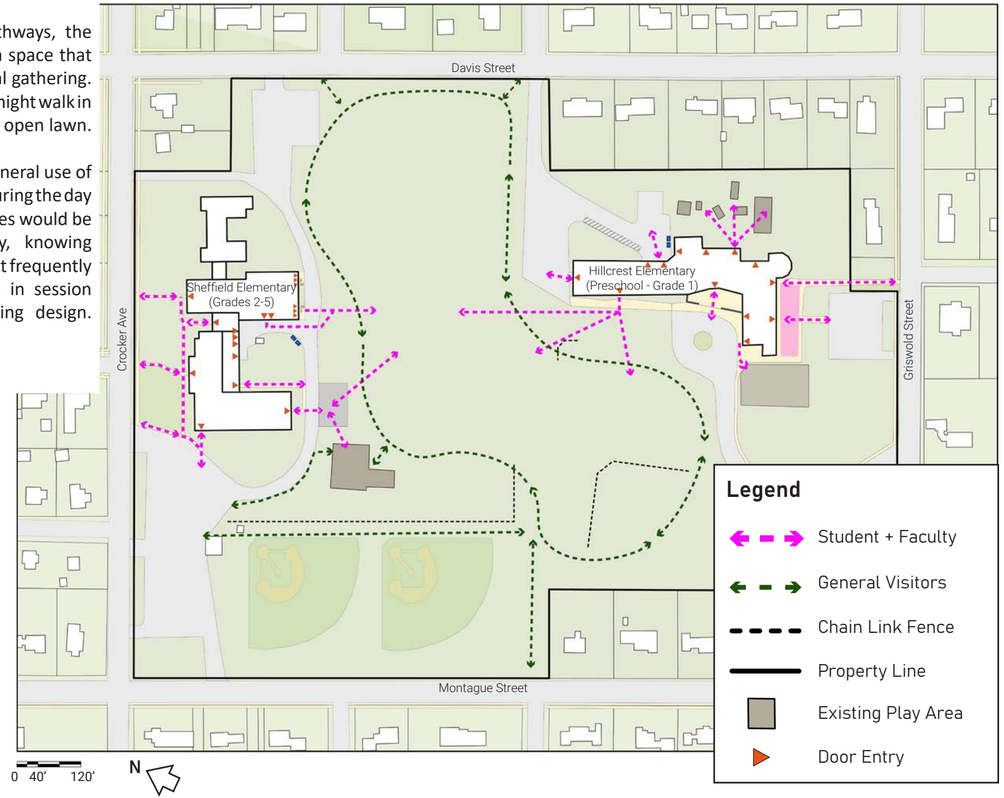
Hillcrest Elementary
The bus drop off for Hillcrest has a turnaround loop with visitor parking. A wide sidewalk area in front of the school makes the drop off and visitor lot less dangerous. The faculty parking behind the school as shown has an unusual shape making parking a challenge. The town planner stated that the lot was an issue for the school.



Site Analysis | Pedestrian Circulation

With no internal pathways, the site does not create a space that is well suited for social gathering. Neighbors of the site might walk in loops around the vast open lawn.

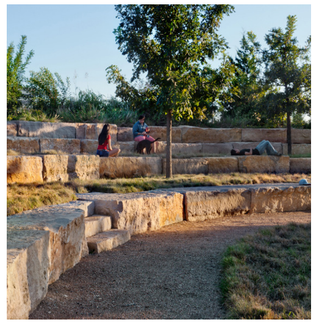
Learning about the general use of the school buildings during the day determined how spaces would be designed. Particularly, knowing which doors were most frequently used when school is in session was informative during design.

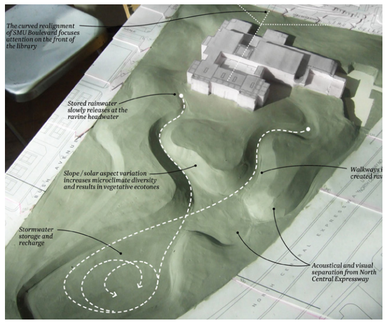


George W. Bush Presidential Center

Michael Van Valkenburgh Associates (2008-2013)

This project was designed to be used by surrounding neighborhoods. The 23-acre park has meadows of native plantings from Texas. The goal of this park was to increase biodiversity, restore native habitats, reduce the need for irrigation. Reuse of stormwater through vegetated bioswales and collection of water reduces overall water usage. This park is open to the public and is intended to be admired throughout the year as the native plantings change through the seasons.





Photos: Michael Van Valkenburgh Associates

Sarah E Good STEM Academy

Jacobs/Ryan Associates (2012)

This redesign of the school was highlighted in the Landscape Performance Series as a case study. The new design reduces stormwater runoff and captures and treats runoff on site. Native plants were introduced to the site increasing biodiversity compared to the industrial site before. Throughout the site, opportunities for seating are offered. The site also has community garden plots and is intended to be a neighborhood park as well as a school campus.

Photos: Landscape Perforcemance Series & Jacobs/Ryan Associates

University of Chicago: Early Childhood Center

MikYoung Kim Design (2012)

The design focuses on learning through ecology and unstructured play. Exterior classrooms, a rain garden, native vegetation, and play mounds become learning labs for natural systems. The entry includes linear benches which extend into the landscape to provide seating throughout the design.

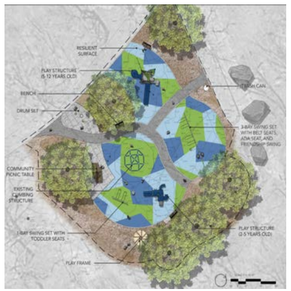
Photos: MikYoung Kim Design

Dorchester Park Playground

Copley Wolff Design Group (2020)

The playground redesign is universally accessible and successfully introduces natural elements while not sacrificing accessibility. This project kept some existing play structures while introducing new ones as well.

Native trees, logs, and boulders and a curved path introduces and allows children to experience natural environments and to participate in creative play.



Photos: Copley Wolff Design Group

Case Studies Children's Play & Park

Chicago Botanical Garden Learning Campus

MikYoung Kim Design + Jacob Ryan Associates (2012)

This ASLA Honor Award project is "an environmental discovery center and nature playground." Design to be used by a variety of ages, the project has an interactive stone water runnel for discovery and play. The project has many natural elements with a butterfly garden and an outdoor classroom space for art and gardening classes. Large mounds and terraced lawn creates a dynamic and imaginative space for visitors of many ages.

Photos: MikYoung Kim Design

Conceptual Design

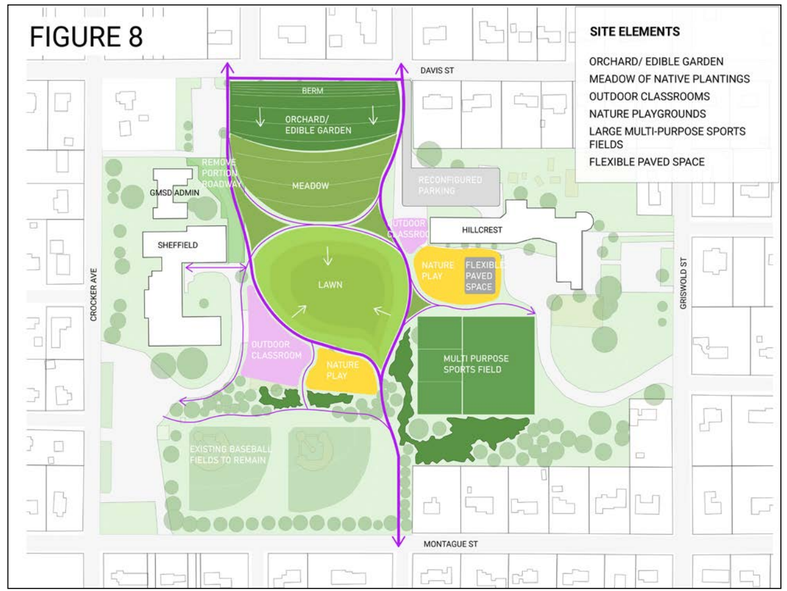
Having the research, site assessment and analysis, and case studies well underway, developing concepts for a design was the next step. Understanding key elements of play that create a supportive, imaginative, and educational experience was helpful to begin envisioning what was possible and determine what to look for in case studies. The neighborhood site assessment identified who lived nearby and who might be the site's most frequent visitors besides school children during the day.

Because this project conferred with the town planner, I developed three programmatic concepts to show him. We discussed qualities of each of them that he liked or disliked. I also was able to learn more details about how the site is used on a daily basis.

All concepts had consistent elements like a central lawn, a multi-modal pathway, a variation of recreational playing fields, outdoor classrooms and a play area for each elementary school, and a meadow that introduces some of the plant communities found in the Montague Plains. Another consistent feature was a berm along Davis Street and manipulating topography to break up the vast flat open space of lawn that exists today. The final design incorporates some of these features but does not include all elements designed in the conceptual phase.

Concept 1 - Figure Eight

The first concept, titled 'Figure Eight' offered a walking loop in a loose number eight shape. A sunken lawn provides a higher vantage for teachers when watching larger groups of children. A berm of meadow plantings along Davis Street descends to the central lawn. Finally, a multi-purpose recreation field and increased forested tree canopy to supplement the existing clusters is included as well.



Concept 1

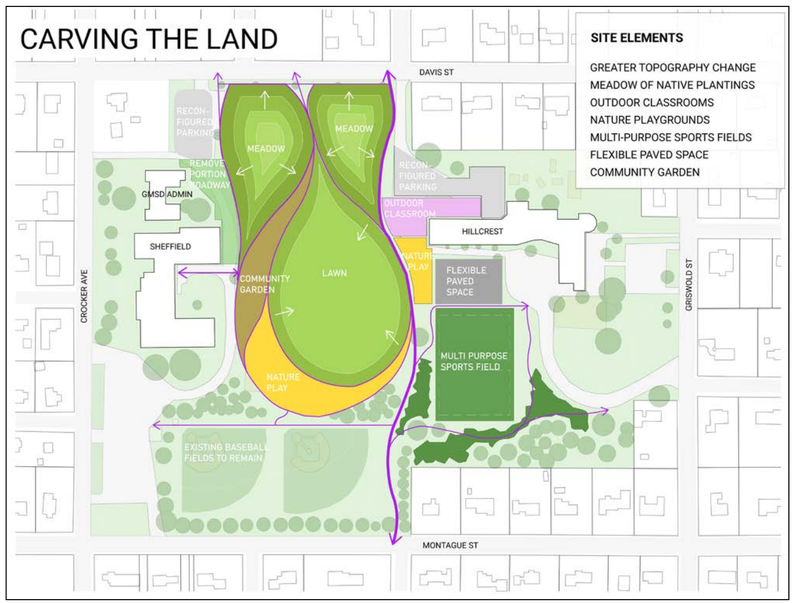
Conceptual Design

Concept 2 - Carving the Land
The second concept manipulates topography even greater creating undulating small hills with pathways cutting through them. A large community garden area highlights this space as a community space. A large flexible asphalt area was included to accommodate for play in the winter months and for larger gathering areas throughout the year.

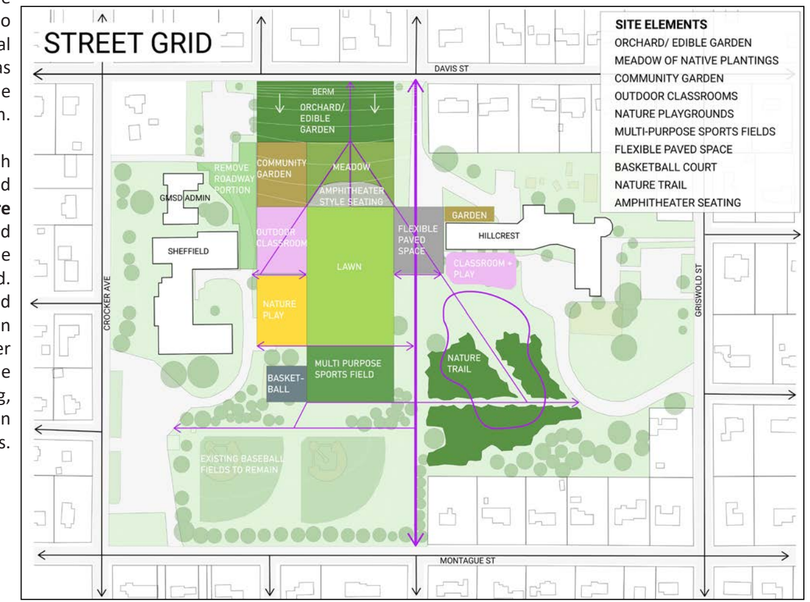
Concept 3 - Street Grid
The third concept titled, Street Grid, continues the orderly grid system that exists in the neighborhood. The orthogonal design keeps most of the same features like a lawn, outdoor classrooms and nature play areas, community garden space, and meadow plantings. Smaller playing fields allow for a large wooded nature trail.

Discussion
Discussing the different design concepts and ideas with the town planner, Walter Ramsey, was helpful because I was able to learn which site elements worked or needed adjustment. Having a multi-modal pathway connecting Davis Street and Montague Street was viewed favorably as well providing asphalt near each of the schools for recess and other events during the winter. I learned that parking was a challenge, particularly at the Hillcrest Elementary School. The faculty parking lot behind the school could not be made smaller because space was already an issue. Being able to easily make connections from one school to another and creating sidewalks along Davis Street were necessary features that the town planner also noted. While the conceptual design phase did not specifically design features within the play and outdoor classroom areas, the town planner did communicate that for funding purposes, the play areas would require an ADA accessible surface. This was an important takeaway from the discussion as much of my research on nature playgrounds specifically, incorporate soft natural surfacing like wood chips, sand, or gravel. Creating play areas that would be able to balance and incorporate both ADA compliant surfacing and natural elements was going to be a key objective while designing each of those areas. I also learned that having at least one recreational playing field was something the town was interested in having on the site, besides the existing baseball fields which were to remain.

The end of the discussion concluded with the town planner indicating a preferred design concept. This was **Concept 1, 'Figure Eight.'** A design which was curvilinear and contrasted with the orderly street grid that the neighborhood currently has was appreciated. Next, I had to decide which features would be modified, expanded upon, or removed in order to include the elements that Walter indicated were important. Fine tuning the design required decisions on play surfacing, planting palettes, and pedestrian circulation as well as several other considerations.



Concept 2



Concept 3

Design Overview

The proposed design to reinvigorate "The Hill" incorporates distinct elements of research on nature play, outdoor experiential learning, and the local ecology of the Montague Plains to create a unique neighborhood asset. Although the entire property is approximately 29-acres, the focus area of the project was about 19-acres. As evident, changes were made from the original 'Figure 8' concept, but the general form of the design is left in tact. The primary goals for this project included the following:

- Revitalize an underutilized space into a neighborhood asset;
- Improve elementary school campus reinforcing a positive learning environment;
- Increase biodiversity on site that connects to local ecologies

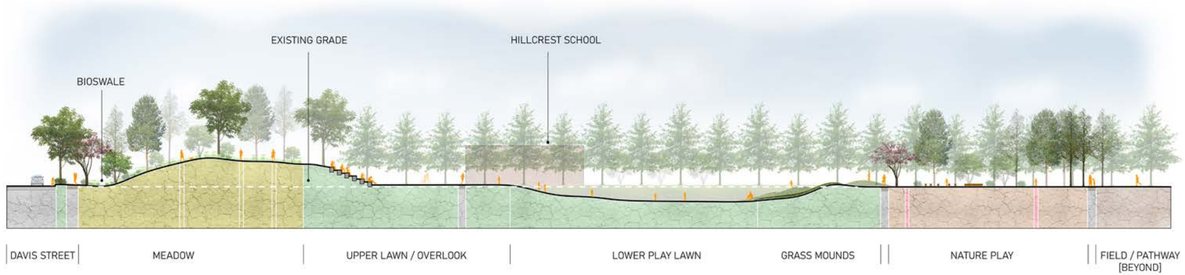
Mutli-Modal Path
Breaking from the linear street grid of the neighborhood, this design is fluid as different amenities are offered along the meandering multi-modal pathway. At 10 feet wide, this connector it is meant to easily accommodate bicyclists and pedestrians. Lined with Pin Oaks, this curvilinear path provides much needed shade and a perfect spot to rest. Addressing safety concerns, the multi-modal pathway would be closed to the public during the school day and signage would be posted.

Courts/Field
A soccer or multi use field replaces the location of a former softball field. A tennis or pickle ball court and basketball court are also sited in this design because athletic courts are something residents want to see, according to the town's open space and recreation plan. The organized recreation area is intentionally located together to create a zone for sports activity.

Play
The play area will be covered in more detail. This project focused on the play area for the Hillcrest Elementary School, but something similar would also exist for the Sheffield School.

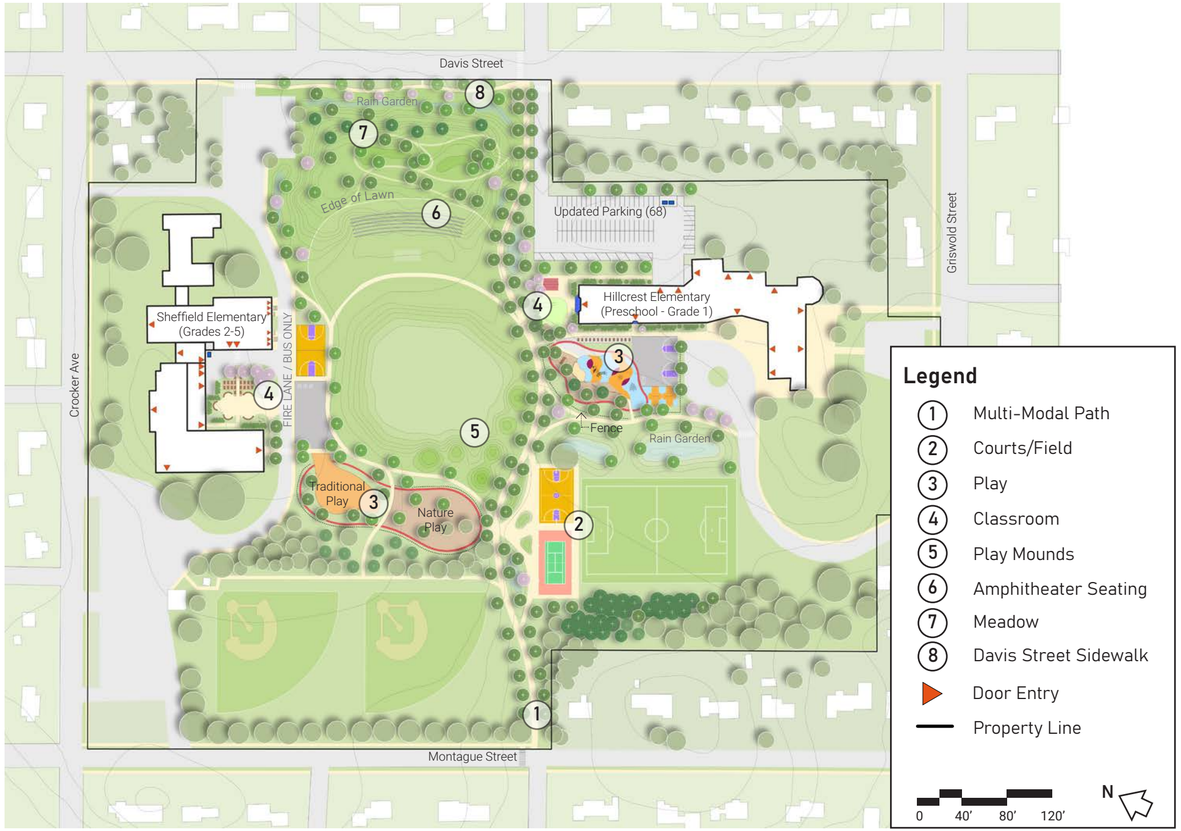
Outdoor Classroom
Each school also has its own outdoor classroom area. These spaces relate to the research on the benefits of being outside and experiencing nature. These also will be covered in more detail.

Play Mounds
On the south side of the sunken lower lawn, these play mounds are designed to encourage active play and imagination. The mounds also create a dynamic and interesting



Section cutting through the center of the proposed design starting from Davis Street.

Site Plan



Design Overview

feature to the existing flat nature of the site.

Amphitheater Seating
Located on the descending lawn, the lawn overlook with amphitheater seating provides views of the sunset in the evening and all of the activity of the site during the day. Performance space or movie night could be offered in front of the seating for a community night out.

Meadow
The meadow is on a significant berm which buffers views from Davis Street. This meadow is intended to reflect the landscape of the Montague Plains with scattered trees, understory shrubs, like Amelanchier nantucketensis and Ceonothus americanus and perennials, and grasses like Lupinus perennis. These native plantings are intended to attract some of the rare species found in the Montague Plains like the Barren buckmoth or other bird species which are declining in population.

Davis Street Sidewalk
No sidewalks exist along Davis street today which was something Walter mentioned was a necessity. Rather than a linear sidewalk running parallel to the street, the slight meandering nature of the design creates a larger buffer from the street for a more generous planting strip. Seating also makes this space seem more like an opportunity to rest than just a connection. This is a space that could be enjoyed in even if school was in session as the large berm separates you from the school. A rain garden with stones next to the sidewalk collects runoff from the hill of meadow plantings.

Other Elements
Circulation for vehicles remains the same as before with the exception of the Hillcrest faculty parking lot. This lot was expanded to accommodate 68 spaces, significantly more than what is offered today. The vehicle lane behind Sheffield would be a fire lane and for bus pick up and drop off exclusively to maximize pedestrian safety. The main intervention of the design involves manipulation of topography which strategically block views in certain areas for student safety and security, while expanding views for faculty to be able to keep a watchful eye of students. The change in topography also forms unique spaces for different purposes whether it be to improve the ecology or promote various physical activities.

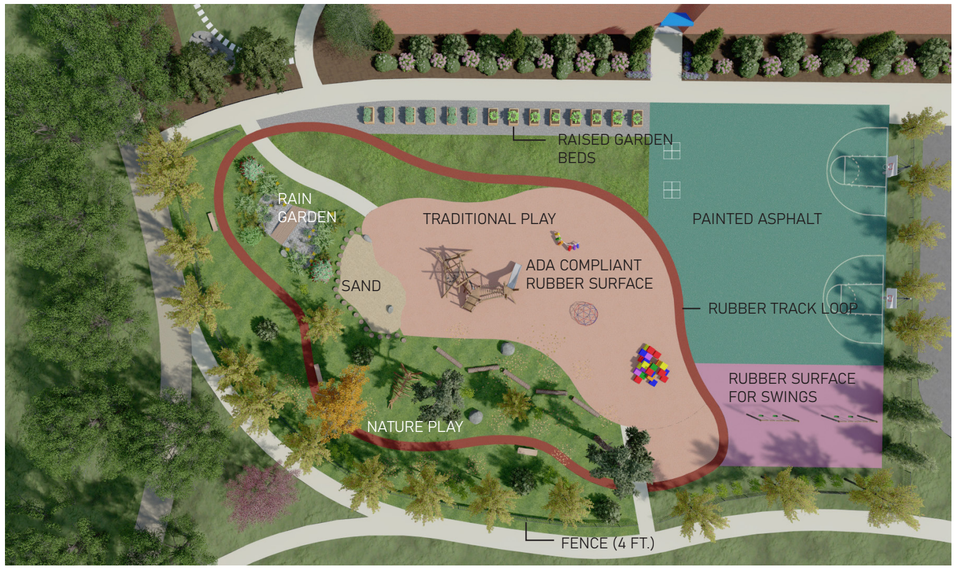
Another significant change is the increased vegetation of canopy cover compared to the mostly lawn condition of today.

View of the proposed sidewalk along Davis Street next to a rain garden and berm of meadow plantings.

Design | Play

Hillcrest Elementary School

This project sites play areas for both elementary schools but details the one for the Hillcrest Elementary School. Providing an ADA compliant rubber surface was a necessary element of the playground for different structures. A rubber track loop goes through both play typologies starting with the more traditional area and then cutting through the nature play area. Because this is a large site and the addition of elements and complexity decreases site lines, a 4 ft perimeter fence would be installed about the playground. Maintaining a paved surface near the school to allow for play during the wintertime was an element that the Town Planner suggested. This also allows for more organized types of play and games for those more interested in sports.



Design | Play

Not every child has access to nature, particularly children living in downtown Turners Falls, making nature an inequitable reality. By incorporating nature in school, children have an opportunity to experience it when they may otherwise not be able. Below is a sand pit, an example of integrating 'loose parts' which allows for tactile play and discovery. The wooden hut in the distance offers alone time and the overall natural materials of logs, tree stumps, and varied plants offer an immersive nature feel.

Design | Play

Nature playgrounds often blend learning and play which creates a more positive educational environment. This rain garden serves as a living laboratory and offers a lesson in hydrology.

Design | Play

Right: Research shows that many children are gravitated towards pathways and loops. The red track loop meanders through the different typologies of the playground. It also is ADA accessible which allows anyone not able to move on the soft landscape to still be part of the nature play area. Additionally, we see the benefits of nature play because it can offer a changing environment. Changing colors and leaves dropping is an example of change that a traditional playground with little nature cannot provide.

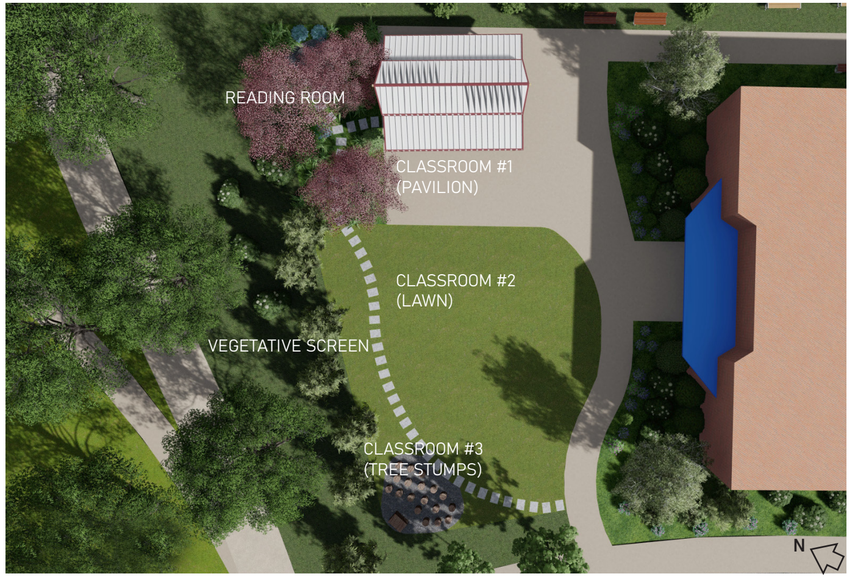
Right: To the right we see the play structure on the soft, rubber ADA compliant surface. The red track loops continues on from the nature play area shown above. A large flexible paved surface in the distance allows for sports activity and gathering spaces throughout the year.

Design | Outdoor Learning

Hillcrest Elementary School

Outdoor classrooms offer alternative ways for children to learn and experience education. This design for the Hillcrest Elementary School features three different spaces for learning opportunities and a reading room meant to feel like an extension of the indoors.

Plant Palette



Design | Outdoor Learning

Hillcrest Elementary School

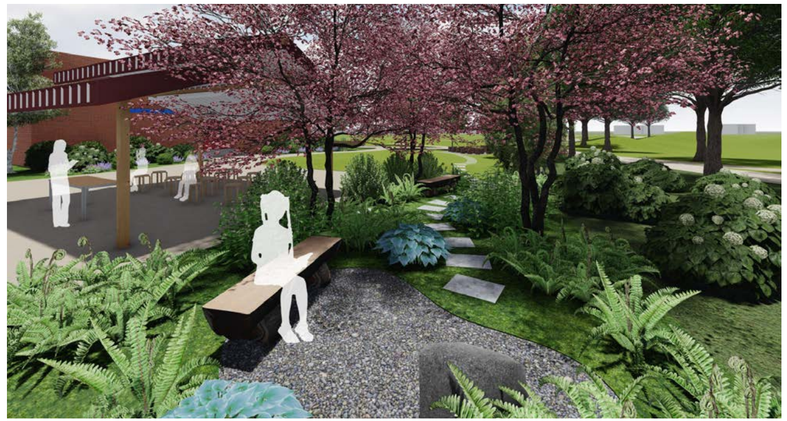
Before, a parking lot was the entrance to this building. The proposed design features a lawn acting as a carpet for story time or picnics. The pavilion offers much needed shade and provides a bit more structure depending on lessons being offered.

Design | Outdoor Learning

Hillcrest Elementary School

Right: Another view shows the vegetated screen in the distance which makes the space feel intimate. A gathering of students sitting on logs in the shade is led by an instructor for a lesson.

Right: Another sharp contrast to the gravel parking lot, this shady reading room acts as a quiet and peaceful zone for students needing alone time to decompress. Low growing understory plantings and flowering dogwoods make for a cozy environment that offers a moment of restoration.



Design | Outdoor Learning

Sheffield Elementary School

Across the lawn is the outdoor classroom area for Sheffield Elementary School in the existing courtyard. The tall building casts a shadow for a large portion of the day. Shade tolerant plants will fill this side of the space while the garden beds receive adequate sunlight. Porous pavers allow for slow absorption of stormwater. Each curvilinear bench feels like its own small cove and can allow for more conversational lessons or individual instruction. The back doors of this old building serve as the primary loading area of the school and maintaining this was a necessary part of the design. A vegetative screen and fruit tree orchard creates a buffer from the driveway.

Plant Palette

Design | Outdoor Learning

Right: The cooler shady side of the courtyard is the perfect opportunity for a lesson outside in June or early fall. The central plaza also allows for more assembly style gathering for students during nice weather.

Right: The raised planting beds give students something to tend to. Hopefully this will inspire positive attitude towards the environment and good stewardship in the future. Butterfly bush attracts pollinators, a common concept taught in elementary school.

Design | Multi-Modal Corridor

During evenings, weekends, or the summer, residents should feel empowered to enjoy this asset in their backyard. Whether to rest, play, or pass through, the wide tree lined corridor should entice a visitor into the site. The multi-modal pathway would be closed to the public during the school day and signage would be posted. Fortunately, this project calls for sidewalks on all four sides of the site so getting around would still be possible and accessible.

Design | Overlook

Just over the meadow, a descending lawn overlooks the new reimagined landscape. In the foreground is the peak of the meadow berm with a lightly mowed path before reaching the lawn edge where it descends. This creates a small buffer for individuals interested in sitting on the amphitheater steps who may not be comfortable being so close to tall grasses or a meadow landscape. In the distance is the sunken lower lawn between the two elementary school buildings.

Conclusion

This project aims to create a vision of possibility for an underutilized neighborhood amenity. Of course, large projects of this scale are costly, especially for smaller communities. It also should include public participation to get feedback. This project did not entail public participation and ideas for this project came from research and site assessment of the neighborhood as well as existing reports from the town's Open Space and Recreation Plan, Montague Pollinator Action Plan, Downtown Livability Report and its 2020 update, in addition to others. The town planner, Walter Ramsey, was an incredible resource for insight into this site as well. A conversation with school administrators and staff could have made this project stronger as they have the most knowledge of how this site is used and what it offers or needs.

The hope is that this project sparks ideas and an interest to invest in this space through funding. If a future opportunity for investment into the site does occur, this project may serve as a framework or a way to generate ideas with the school and town administration as well as the community.

As identified, the Hill neighborhood has an aging population and it includes many low income and working class families that deserve a space to build community. The site is also an active elementary school campus serving hundreds of children each day. The Covid-19 pandemic has put stress on everyone, but particularly children who have experienced dramatic changes in their learning and day to day life during such a pivotal moment of their lives. All children need a space that allows them to be active, to imagine, to play, and to relieve stress. Fresh air and being outdoors has been recognized for its benefits for a long time now, but the pandemic has heightened that awareness exponentially. To be restored by nature, the outdoors requires more than just a lawn. Nature, whether it be from diverse vegetation or from an undulating topography, the project envisions this neighborhood amenity to be dynamic and nature filled.

Investment into this site is a major goal but providing adequate access surrounding it is equally important. Montague has already begun making improvements for pedestrian access in Turners Falls as well as providing bike infrastructure. This site on "the Hill" of Turners Falls is a neighborhood asset, but it also can be an important key to the larger network of open space through the Town of Montague.

The profession of landscape architecture creates beautiful landscapes than can be meaningful spaces in people's everyday lives. The profession also has the responsibility to think broader and make larger ecological connections. This project explores how it can connect to the nearby Montague Wildlife Management Area, a significant and rare local ecology. By introducing some of those native plantings to this site we can make more connections and support more biodiverse ecosystems which need support to be sustainable.

There is an opportunity to take an underutilized space and create a neighborhood asset. Claire Letane, the author of the book, Schools that Heal writes, "Public schools are positioned well to become community centers for health and resilience – a beating heart for the neighborhood….Designing schools as healing, restorative, community-building places can build physical health, mental health, and resilience in the face of the next pandemic, recession, or natural disaster. While some physical improvements can take years, engaging students and the community in reimagining their school can have immediate benefits" (4).

Hopefully this project is seen as more than a playground or an elementary school, but rather, a neighborhood destination that builds community and is part of the social infrastructure needed in suburban and rural communities. The research on the community, nature play and outdoor learning, and local ecology led to the design of a neighborhood asset on "The Hill."

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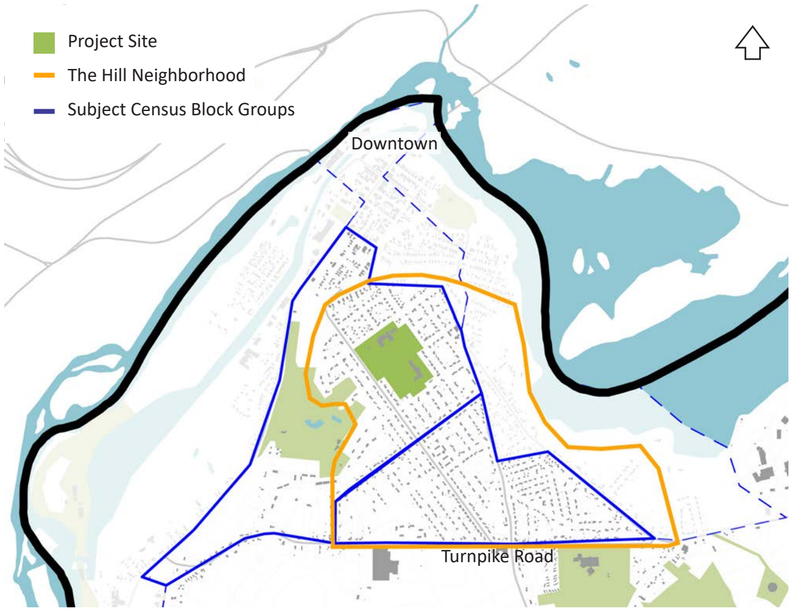
Appendix A

The following map shows the U.S. Census blocks groups that make up Turners Falls. The block groups outlined in solid blue are the two blocks where data was collected from. As evident, the block groups do not perfectly align with the neighborhood boundary outlined in orange. This shows some of the discrepancies of where data was included or excluded from the data profile assessment.



Data provided by MassMapper & U.S. Census Bureau, 2020 Decennial Census