

ABSTRACT

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 ADVANCING SOLDIER

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 Architecture, Planning, and Preservation

The United States is and will likely continue to be in a constant state of military engagement. Our soldiers are deployed to the most dangerous war zones in the world, and they selflessly perform their duties.

Despite a dramatic decrease in battlefield deaths, the number of wounded soldiers remains very high. Many soldiers that would have died in previous wars are now saved as a result of our improved war theater medical interventions, but many are left scarred physically, emotionally, and socially. This is especially true for amputees who face a unique challenge in reengaging in civilian life.

Based on the writings on the topic of Social Capital, this thesis proposes a facility that works toward reintegrating amputees into civilian life with their typical physical rehabilitation activities. The facility will provide opportunities for the effects social capital to sustain the morale and progress of patients both physically and mentally.

ADVANCED TRAINING FOR THE ADVANCING SOLDIER

By

Robert A. Sanz

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University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
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Dedication

For Rolando, Maria, Rolando-Michael, Kris, and last but certainly not least Sara.

Without my support system, I would never have made it this far. You all will never know how much you mean to me.

Acknowledgements

To my committee: Brian, Lora, Garth, and Carl – thank you for encouraging me to push the limits of my comfort zone and for getting me to learn to think outside of the box. You have bestowed on me lessons that I will carry with me throughout my career.

To my friend and colleague, Lin Mao – Thank you for helping me with production and moral support leading up to the public review. I would not have had a complete presentation without your help.

To my fellow thesis classmates – Thank you for making this year, and really the past four years, worth the long nights and hard work. Good luck to all of you in your endeavors.

To my dad, Rolando – Thank you for providing me with your professional opinion throughout my project and for reminding me what is truly important in life.

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Chapter 1: Introduction

The healthcare system provided by the United States government for war veterans is sound. On a national level the doctors are qualified, the facilities are adequate, and the care is acceptable. Patients who need treatment, surgery, and medicine are treated by top doctors with dignity. Families of patients are accommodated whenever possible, and physical recovery is facilitated with cutting-edge technology.

Why, then, is the state of the military healthcare system in question? In reality, the system is not perfect. No system is ever perfect. There are flaws caused by understaffing, lack of education, and lack of funding. This is the reality of the world, though. Not many programs will ever have enough staffing, people never stop learning, and there is never enough money to go around. These are flaws that can and are being dealt with through current legislation as the Iraq war winds down and more wounded veterans come back home to American soil.

The issue that is causing questions about the state of military healthcare to be raised is the result of a patient after he or she has completed their recovery regimen. Sure, the healthcare services themselves are of high quality, but these veterans face more than just physical recovery battles when they return home. They also face emotional and social battles as they strive to return to normalcy after having witnessed and experienced the unthinkable overseas. It is in this area that the government provides little to no support, and it is this overlooked area that is equally as important to the recovery of the veteran as the physical side.

War veteran amputees in particular face a unique challenge in terms of recovery and reintroduction to society, and a special building type has emerged to cater to their specific needs. This thesis proposes not just a rehabilitation center, but rather an advanced training center where patients will be trained physically, mentally, and socially. The theories of social capital state that through human interaction people become inspired and motivated. Based on this theory and evaluation of the shortcomings of the United States government's commitment to a patient's social success post-service, this thesis proposes a war veteran amputee rehabilitation facility strategically placed near an existing community on the Walter Reed Army Medical Center campus in Washington, D.C. The thesis asserts that living in a community provides an ideal setting to establish a sense of belonging for soldiers recovering from traumatic wounds. Integrating patient housing with an established community provides opportunities for the effects social capital to sustain progress and morale of patients both physically and mentally throughout their rehabilitation. Choosing the Walter Reed campus as the site will also bring merit back to a campus rooted in rich history. The choice of this site also seeks to engage the deficiencies of Walter Reed's reputation is currently plagued with reports of poor conditions and poor administrative organization. A new military medical facility would be a tremendous tribute to the spirit and memory of the campus, and it will be a priority of the project to uphold the historical remembrance of the place.

At what point does the government's responsibility to these men and women end? It is the argument of this thesis that the government can and should provide veterans with opportunities for a balanced rehabilitation aimed toward beginning their

new lives after service, and that this can be accomplished through strategic design and programming of post-medical treatment facilities.



Figure 1: Graphic representation of a typical veteran's path of recovery.



Figure 2: Graphic representation of how this thesis aspires to redefine a veteran's path of recovery.

Chapter 2: Social Capital

“... We have sweated and sacrificed so much, but those who did not fight are benefiting and sitting in offices whilst we sit here and suffer. They do not even acknowledge that it is because of our sweat and blood that they are there...”

- Ex-soldier

Tracking the Term

The idea of social capital is not a new one, although the coining of the term is rather recent. The notion of social interaction having merit in the everyday lives of people was written about as early as 1827 by Thomas Greene when speaking at the founding of a community lecture hall in Bedford, Massachusetts:

We come from all the divisions, ranks and classes of society...to teach and to be taught in our turn. While we mingle together in these pursuits, we shall learn to know each other more intimately; we shall remove many of the prejudices which ignorance or partial acquaintance with each other had fostered....In the parties and sects into which we are divided, we sometimes learn to love our brother at the expense of him whom we do not in so many respects regard as a brother....We may return to our homes and firesides with kindlier feelings toward one another, because we have learned to know one another better.¹

These are profound words in a time when such thought was not prevalent, but it shows that even in the 19th century people were cognizant of how human interaction leads to a stronger community and fellowship.

The term was likely first used by L.J. Hanifan in 1916 to argue that a school's success was directly related to the involvement of the community. Throughout the

following decades various authors also used the term in their writings, but it did not reach mainstream literature until Robert Putnam used the term in his book Bowling Alone in 2001.

What is Social Capital?

In its purest sense, according to Robert Putnam, social capital is the idea, "that social networks have value. Just as a screwdriver (physical capital) or a college education (human capital) can increase productivity (both individual and collective), so too social contacts affect the productivity of individuals and groups."² Putnam goes further in saying, "Social capital refers to the collective value of all 'social networks' (who people know) and the inclinations that arise from these networks to do things for each other ('norms of reciprocity')."³ The most eloquent definition of the term, though, was written by L.J Hanifan in 1916:

[Social capital is] those tangible substances [that] count for most in the daily lives of people: namely good will, fellowship, sympathy, and social intercourse among the individuals and families who make up a social unit....The individual is helpless socially, if left to himself....If he comes into contact with his neighbor, and they with other neighbors, there will be an accumulation of social capital, which may immediately satisfy his social needs and which may bear a social potentiality sufficient to the substantial improvement of living conditions in the whole community. The community as a whole will benefit by the cooperation of all its parts, while the individual will find in his associations the advantages of the help, the sympathy, and the fellowship of his neighbors.⁴

Social capital is thought of as coming in two forms: bonding and bridging. Bonding capital refers to people associating with others who share their loyalties and outlooks, while bridging capital refers to people associating with others who come from different background and offer differing opinions. Both are important to a thriving society, and both will be at the forefront of consideration during the design process.⁵

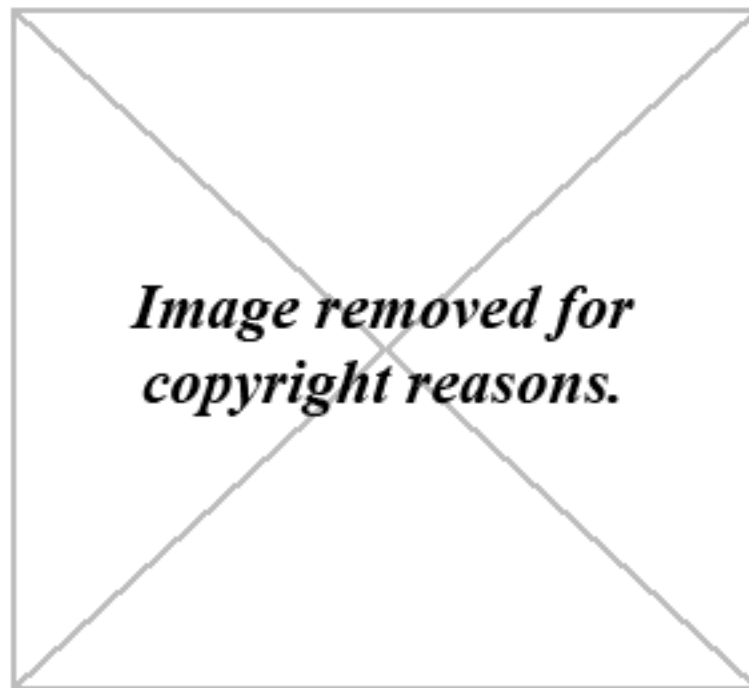


Figure 3: Graphic representation of the flow of resources through social capital.

Why is it important to a veteran's rehabilitation?

It is safe to argue based on the definitions offered above that social capital works to the advantage of a recovering war amputee. This thesis maintains that socialization is a pivotal step in the recovery process that is currently being overlooked by the United States government in their promise to fully rehabilitate combat-injured soldiers to pre-war normalcy. Not only does human interaction

bolster morale during what is most likely one of the most difficult hurdles that these men and women have ever had to conquer, but it positions them favorably for life after rehabilitation through social networking for employment opportunities, friendships, and reintegration into society after a trying departure from it while in combat.

It is important for war amputees to be exposed to both bonding and bridging capital during their recoveries. By interacting with other amputee patients, they can share stories, encourage one another to persevere, and assure one another that they are not alone. They can then use the strength gained by this bonding interaction to go out and interact with neighbors and friends from the community to bolster their morale and develop a sense of belonging to the community. Putnam expressed this idea of the importance of both forms of social capital when he said, “bonding social capital constitutes a kind of sociological superglue, whereas bridging social capital provides a sociological WD-40.”⁶ It is the interaction with other amputee patients that keeps these men and women strong, and it is the community interaction that encourages these men and women to press onward. This is the facet of the rehabilitation process that is lacking in most government-operated rehabilitation facilities. There is no venue that encourages the patients to interact with people outside of their small community. It is all bonding capital with limited bridging. By siting this project within an existing community, the avenues for bridging social capital are opened.

Chapter 3: Walter Reed Site Analysis

History

The roots of the Walter Reed Army Medical Center (hereafter referred to as WRAMC) can be traced back to Fort Lesley J. McNair located on the shoreline of Virginia at the convergence of the Anacostia and Potomac Rivers. Here, the medical clinic operated as the facility that oversaw the health needs of top officials who resided there. It is believed that Walter Reed was stationed as a surgeon there from 1881 to 1882.

The clinic became the General Hospital at the Washington Barracks (as it was called before being designated as Fort McNair), and was established there as a fifty-bed unit from 1898 to 1909. After fulfilling other assignments, Walter Reed was assigned to return to the hospital at the Washington Barracks as Professor of Medicine and curator of the Army Medical Museum. During his second stint at the base, Reed led the worldwide study of the epidemic yellow fever and proved that the disease was transmitted primarily by mosquitoes. This was a major breakthrough that led to the containment of the disease and eventual invention of a vaccine. Reed developed appendicitis in 1902, underwent surgery, and would eventually die of complications from the surgery.

As the hospital matured, it grew to be used as a center where physicians and nurses were trained in military healthcare. In 1901, the hospital became an entirely separate military command and was relocated to the current day site on Georgia Avenue in 1909. The move upgraded the fifty-bed facility on the Fort McNair site to

a 65-bed facility on the Walter Reed site, which is today known as Building 1. The old hospital continued normal operations until 1911 when it was reverted to a clinic. The move was made possible by Congressional legislation that authorized the construction of the Walter Reed General Hospital (Building 1). The first patients were admitted on May 1st, 1909. In 1923, the site was officially designated as the Army Medical Center through an order signed by General John J. Pershing, which relocated the Army Medical School from 604 Louisiana Avenue to the present day Building 40. It was not until 1951 that the hospital and medical school campuses were officially combined to form the Walter Reed Army Medical Campus. Other major milestones in the history of the campus include: 1955, Building 54 occupied by the Armed Forces Institute of Pathology; 1964, birth of the Walter Reed Institute of Nursing; and 1972, construction of Building 2 (the massive new hospital building that supplanted the historic original Building 1 hospital).

In the present day, the WRAMC is the location of all medical care administered to the President, Vice President, Senators, and House Representatives and is a part of the Walter Reed Healthcare System. The campus is scheduled to be closed in 2011 with all patients and treatment being moved to the new Walter Reed National Military Medical center located on the grounds of the National Naval Medical Center in Bethesda, Maryland.

Historically Significant Buildings

The National Register of Historic Places is currently in the process of officially recognizing the WRAMC campus. Although nothing is official as of yet, there are

conjectural diagrams showing what has been accepted to be the historic district of the site:

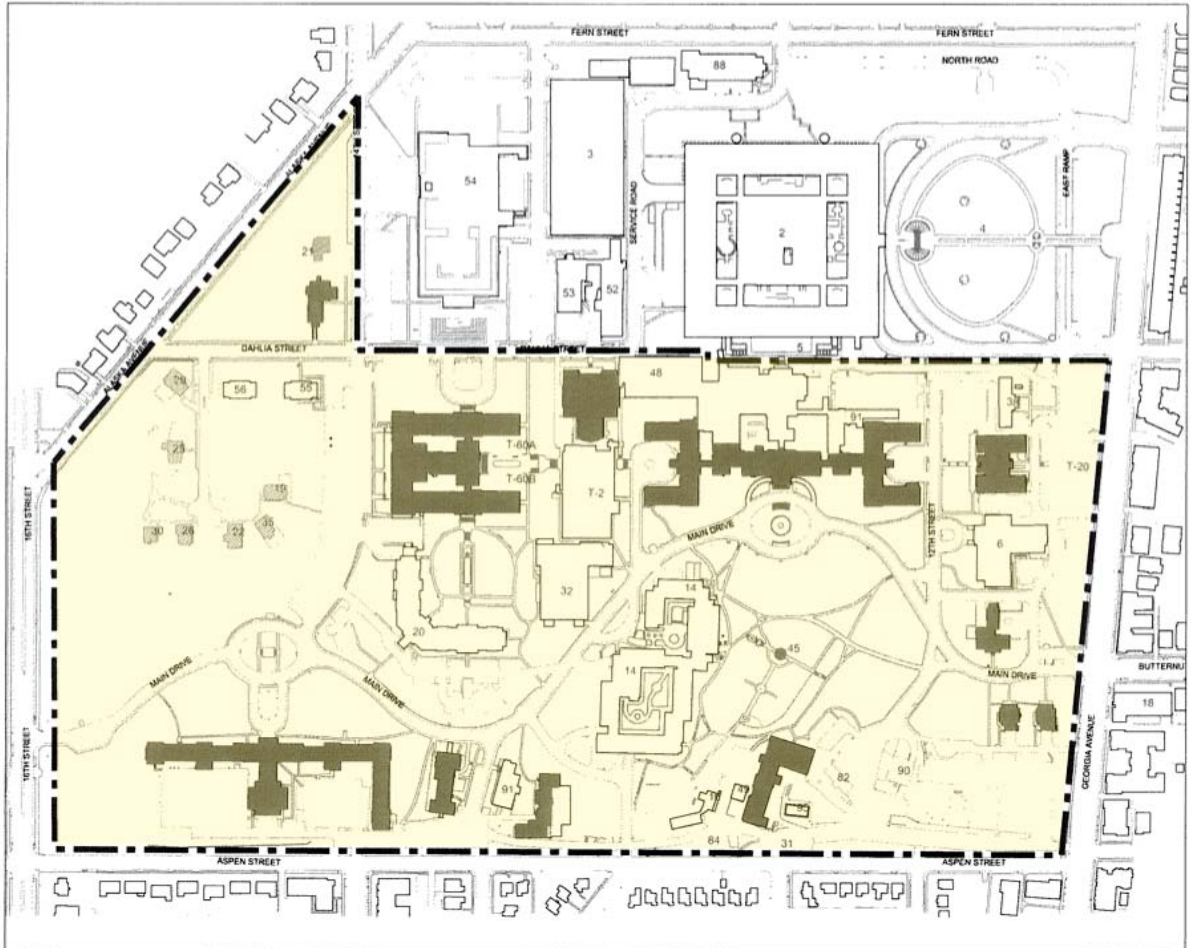


Figure 4: The yellow denotes the proposed historic district. The darker buildings are those that have a strong case for being recognized by the National Register.

Currently, the following buildings are believed to be a contributing resource to the historic district on the Nation Register:

Building Number	Description
1	Old General Hospital
7	Medical Administration
8	Family Housing
9	Family Housing
11	Delano Hall
12	Provost Marshall/MP Station
15	Heat Plant
16	DPW Warehouse
17	Guest House
19	Family Housing
21	Family Housing
22	Family Housing
25	Family Housing
26	Family Housing
29	Family Housing
30	Family Housing
31	Warehouse
35	Family Housing
38	Outpatient Clinic
40	Walter Reed Army Institute of Research
41	Old Red Cross building
57	Chapel
82	Auto Crafts Center
83	Directorate of Information Management
90	Fire Station

Figure 5: Historically significant buildings and descriptions.

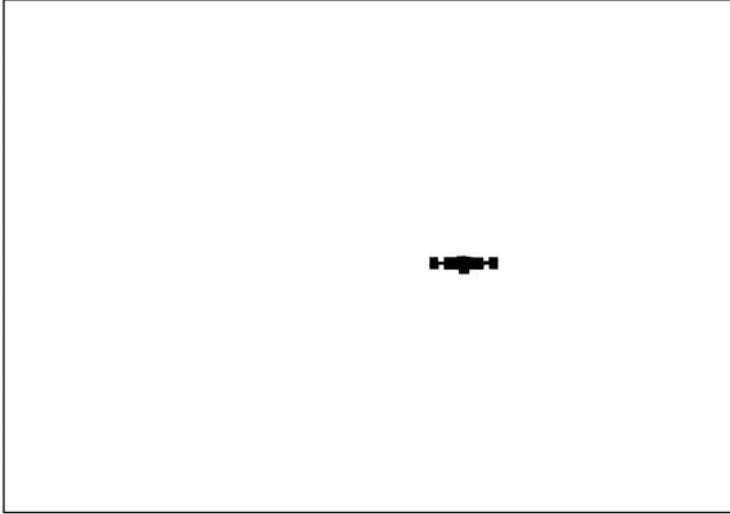


Figure 6: Building number diagram.

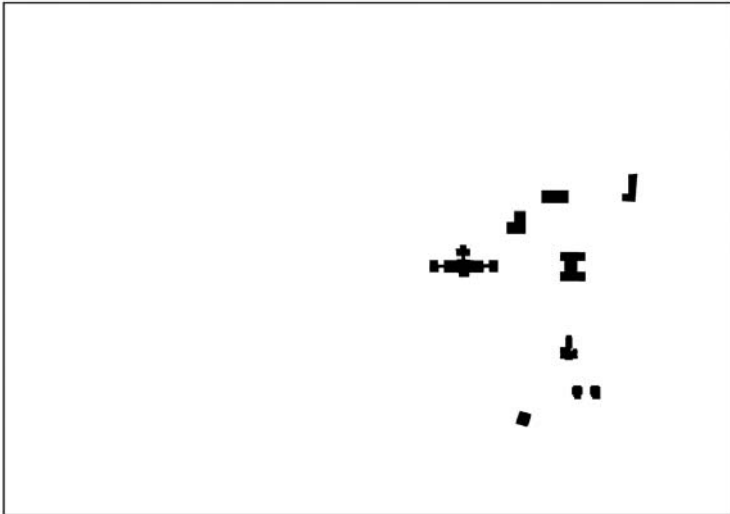


Figure 7: Diagram that shows the national register candidate buildings. Red/historic, Green/nonessential.

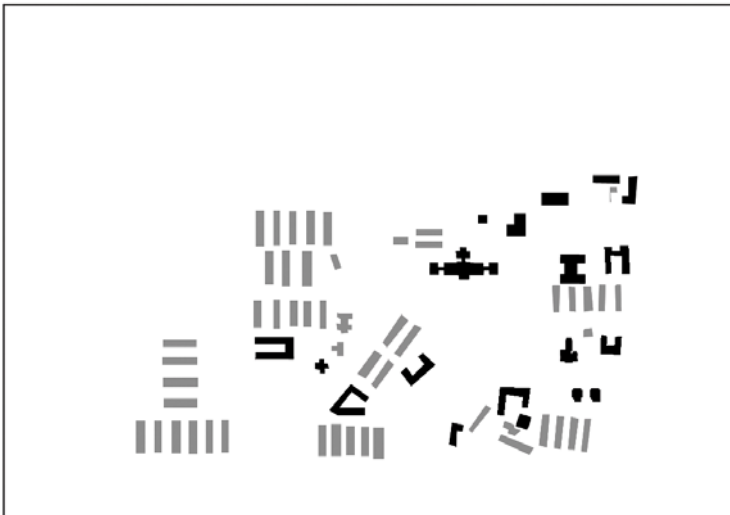
It is a goal of this project to preserve those buildings on the campus that are significant to the history of Walter Reed, but some of the more minor buildings on the list, such as warehouses and storage structures, will be replaced in order to achieve the greater urban goal of reknitting the community onto the site. By looking at a series of plan diagrams discussing the growth of the Walter Reed campus, the reason for including these buildings on the National Register is evident.



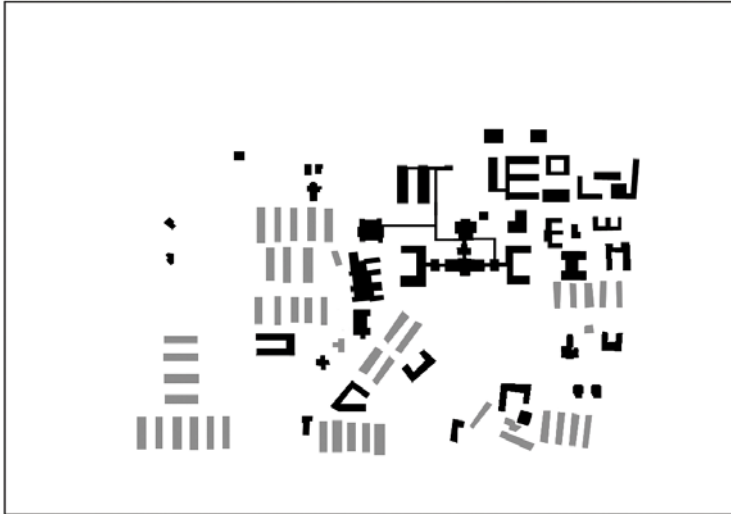
1907



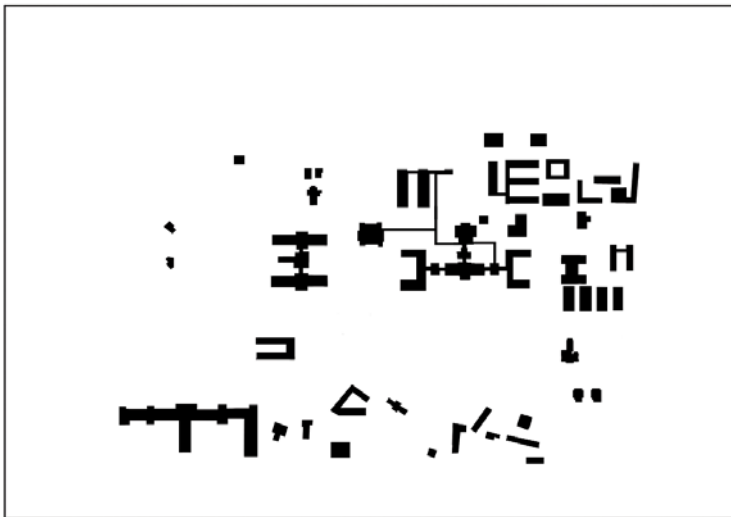
1915



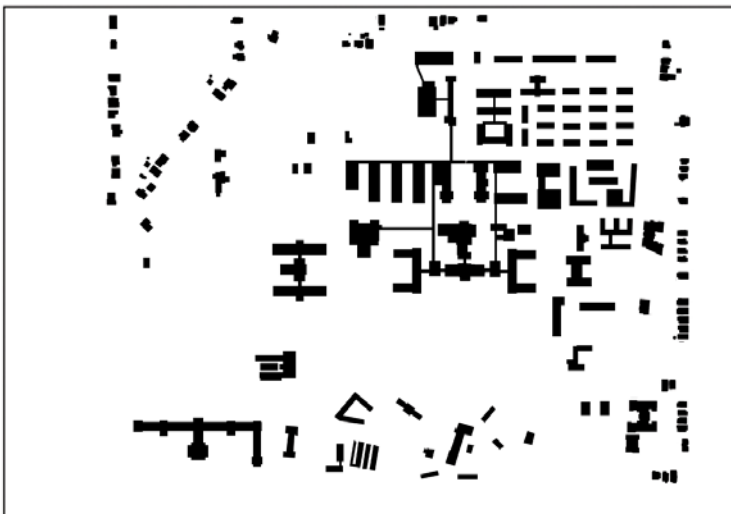
1918



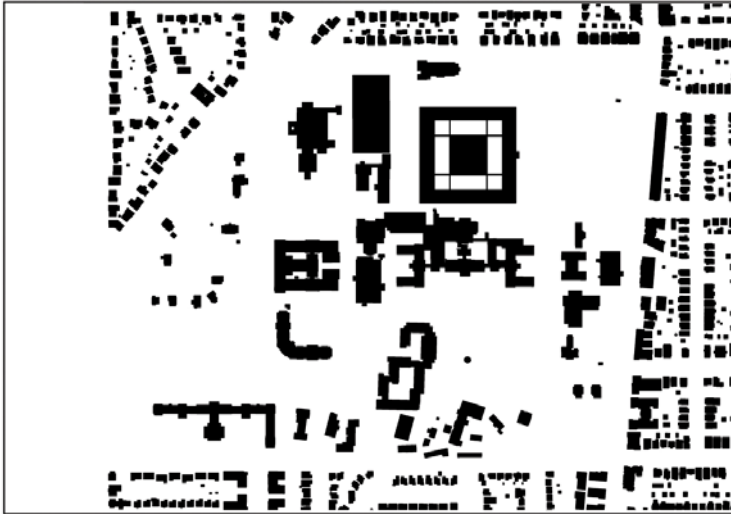
1927



1939



1949



1970

Figure 8: Diagram showing the growth of the campus over time.

Reasons for Site Selection

The Walter Reed campus is an ideal site for the proposed program for many reasons. The juxtaposition of an historical military medical campus and an established existing community provides limitless opportunities to both preserve the memory of the WRAMC and achieve the specific social goals of the program.

With the WRAMC campus closing in 2011 and the medical programs currently housed there being relocated to Bethesda, a major historical site in Washington, D.C. is at risk of losing its historic value within the community. It is not known what will become of the historically significant buildings on the site, but with all of the programs moving off-site, the saga of the Walter Reed campus would surely come to an end. By locating the proposed program on the Walter Reed campus, the new facility will act as a continuation of the site's tradition and as a relic of what once

was, that is, over 100 years of military medicine and the stories of countless American war heroes passing through.

In addition to preserving the history and spirit of the site, locating the program here is ideal for its social capital-based goals. By placing rehabilitation patients in an existing community, the opportunity for social capital to take its course is inherent to the place. The patients will be incorporated into a long-standing community setting and will immediately become a neighbor. With brand new development undoubtedly come problems. What if the infrastructure is faulty? What if the multitudes of new inhabitants do not get along? What if the multitudes of new inhabitants are all from the same social class and background? These potentially community-damaging issues are instantly avoided by strategically placing the proposed program in an established, diverse community. The soldiers will meet and interact with the very people for whom they fought overseas. In addition, the veterans will have the opportunity to both be revered by the community for their services and to educate the community about their struggles. By simply interacting with members of the community, the veterans can dispel false psychological preconceptions of war veterans and work towards acceptance of the veterans as human beings despite their disfigurements and disabilities.

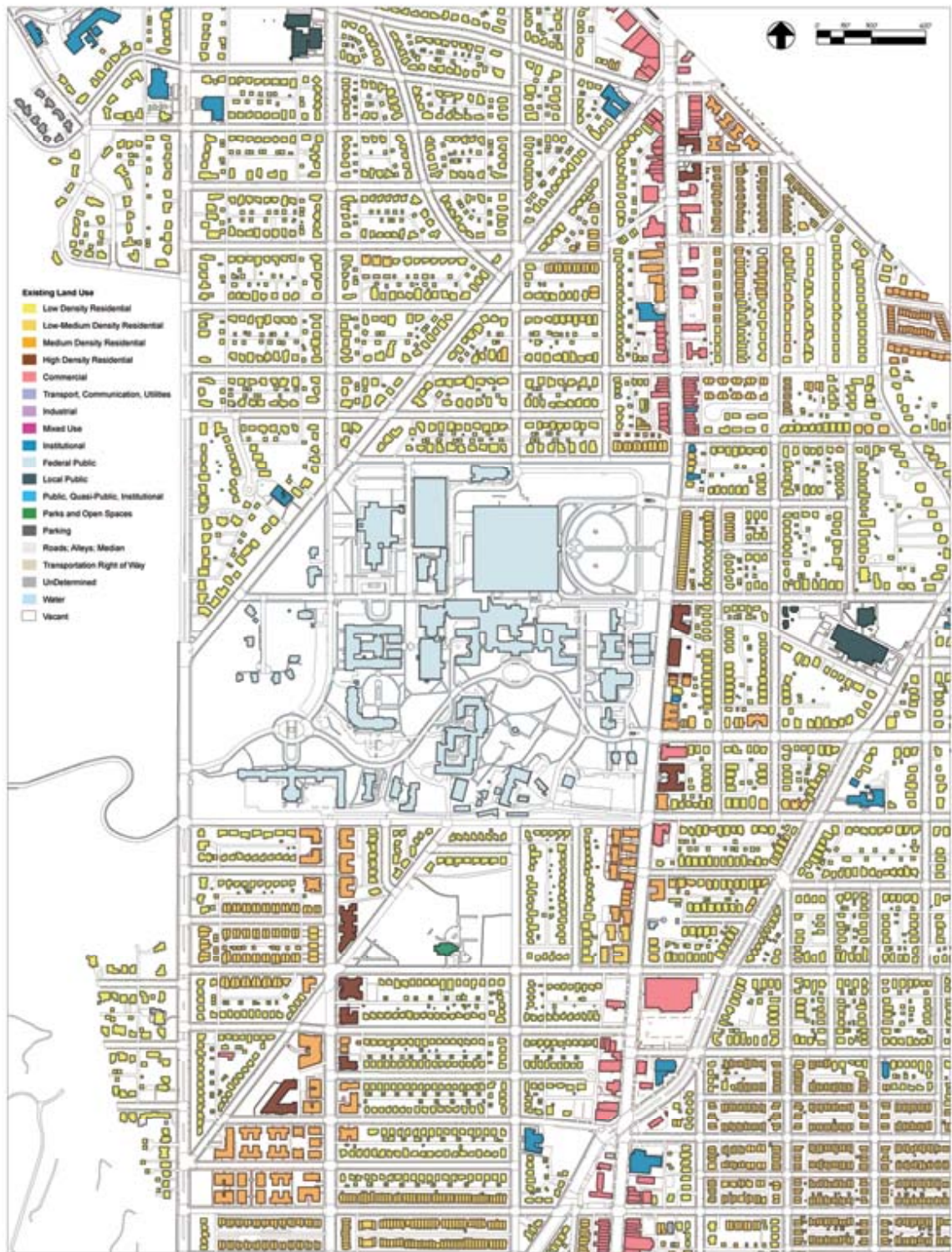
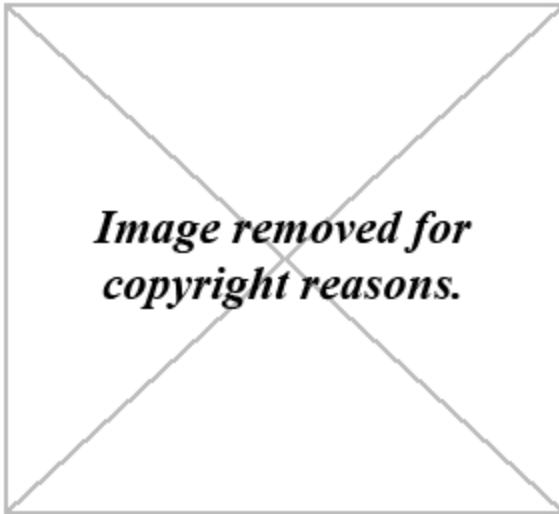


Figure 9: Land-use site plan. Red-Commercial; Yellow/Orange/Brown-Housing; Blue-Institutional

Existing Master Plan



The Washington D.C. Planning Office has a proposed master plan for the Walter Reed site upon its closing in 2011. Their proposed intervention is concentrated along Georgia Avenue and leaves the rest of the site as government property. The master plan creates an edge to the community in an attempt to knit together the

neighborhoods to the north, east, and south of the WRAMC site.

The plan entails: a public green on the northeast corner, a 3-story parking garage fronted with retail, a civic building to be used as a community center and gathering place for outdoor events, and the relocation of D.C. Fire Department Engine Company #22 on the southeast corner.

The master plan has redeeming values, such as providing security for the government site immediately behind it with inhabitable program that will reinvigorate the site's Georgia Avenue face instead having security rely on the existing fences, gates, security kiosks, and barricades. The plan also bolsters neighborhood safety by relocating the fire station to a more serviceable location. However, there is a missed opportunity in limiting the redevelopment to just the Georgia Avenue face. Many of the buildings on the Walter Reed campus (due to their rather suburban placement and relative historic insignificance) are expendable in order to achieve more appropriate

urban development goals. It is in the best interest of the community to consider redeveloping a more sizeable piece of the WRAMC campus in an attempt to reconnect the surrounding urban fabric that has been interrupted by the campus's security measures and sparse development.

Local Amenities

The WRAMC campus is close to several local amenities. The site is in reasonable proximity to the Takoma Metro station, which is about a ten-minute walk to the east (located on Carroll Street NW). To the southwest, Rock Creek Gold Course and the Legg Mason tennis complex sit within the bounds of Rock Creek Park (across 16th Street). In addition to the expansive Rock Creek Park itself, there are several small public parks that are open to the community. These smaller parks include Fort Stevens Recreation Center to the immediate south, Jeque Park to the northeast, and Jessup Blair Park also to the northeast. All of these amenities lie within the boundary of three major avenues in 16th Street NW, Georgia Avenue NW, and Military Road NW.

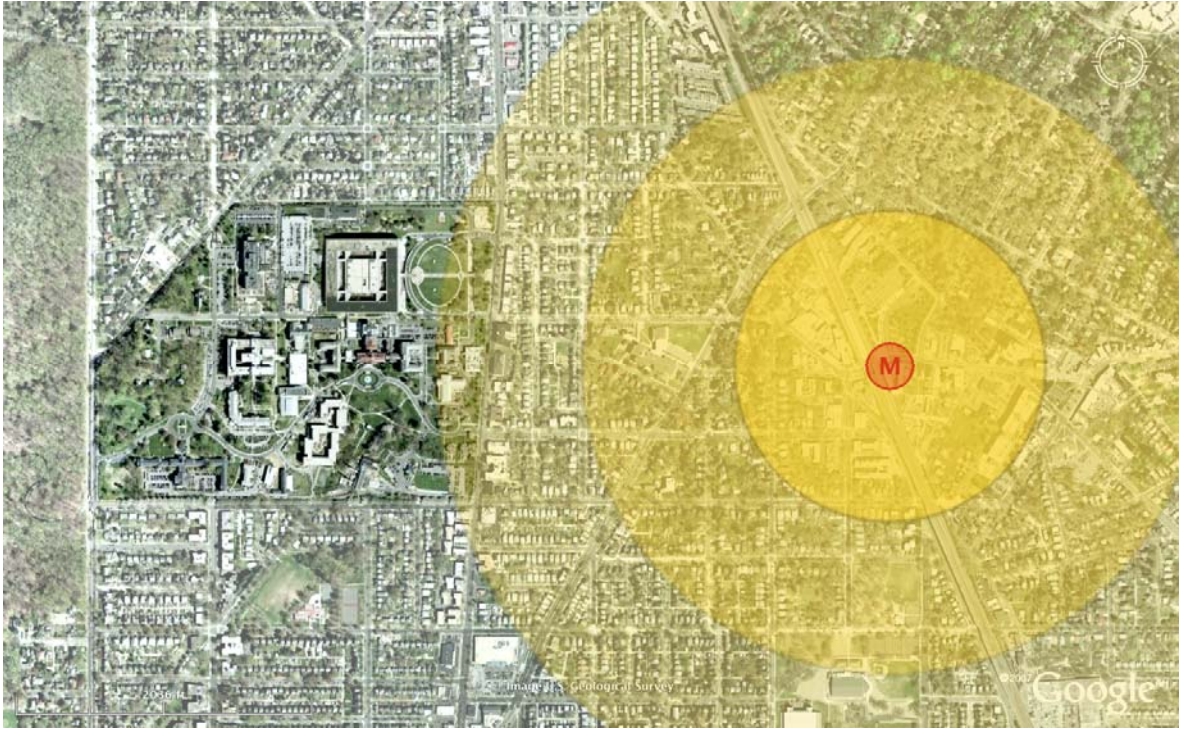


Figure 11: Proximity to Metro with 5, 10, and 15-minute walking radii.

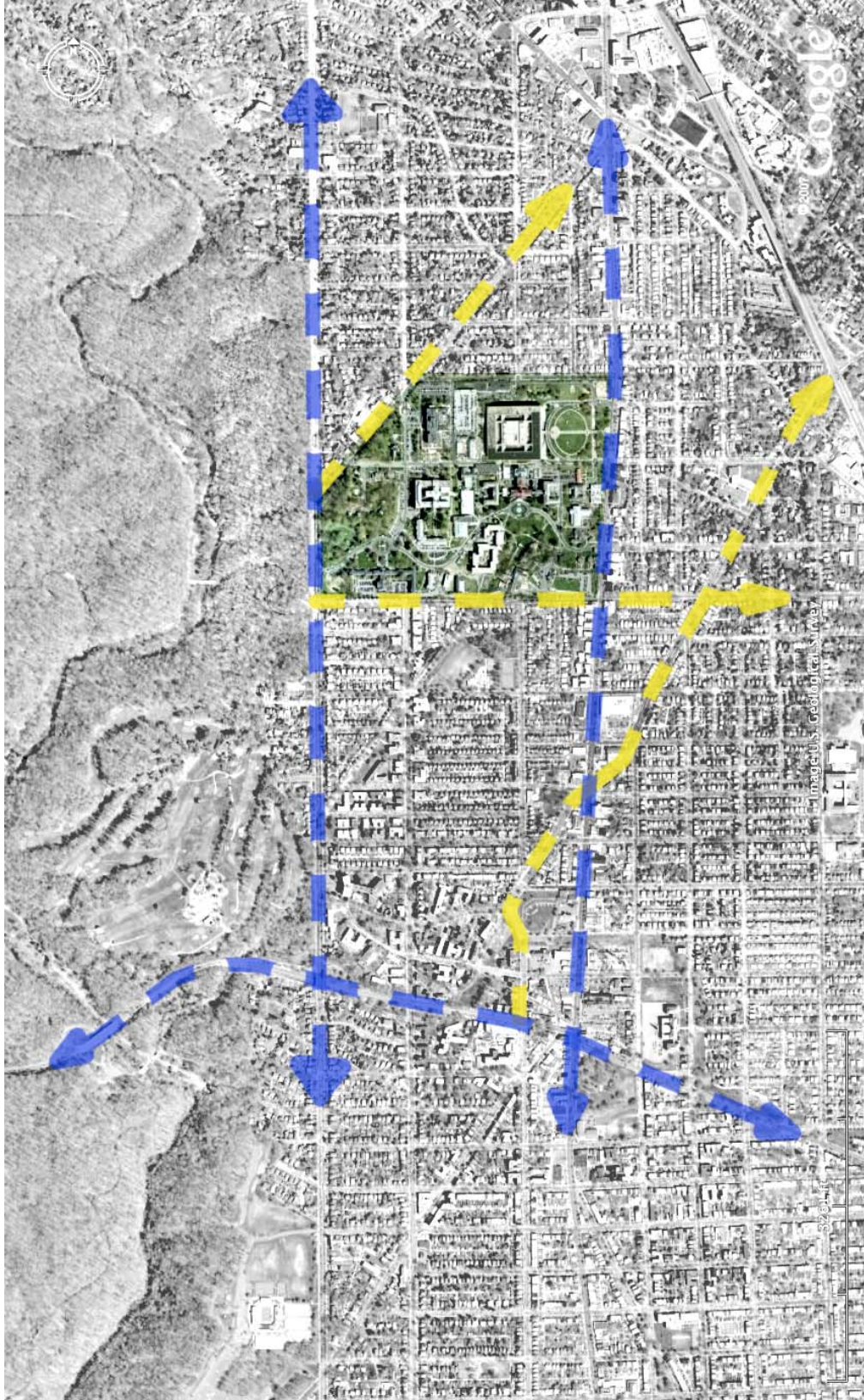


Figure 12: Diagram showing major streets: 16th St., Georgia Ave., Military Rd (blue); Aspen St., Piney Branch Rd., Alaska Ave. (yellow).

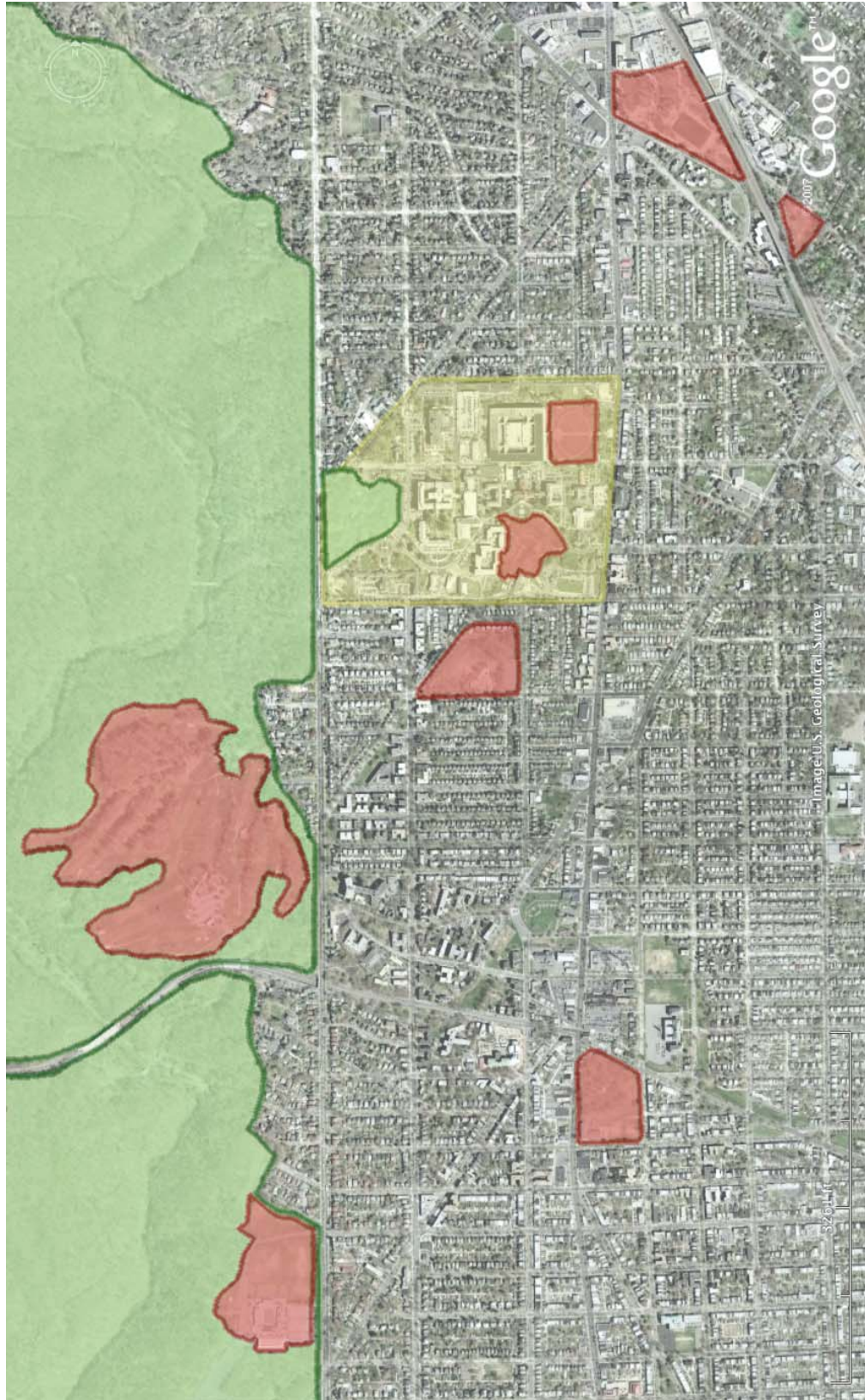


Figure 13: Diagram showing green spaces. Red/accessible, Green/nature preserve, Yellow/WRAMC boundary.

Proposed Building Sites

There are several possible building sites on the Walter Reed campus each offering different amenities both to the patients of the facility and to the community.

The diagram below shows all of the site possibilities on the campus:

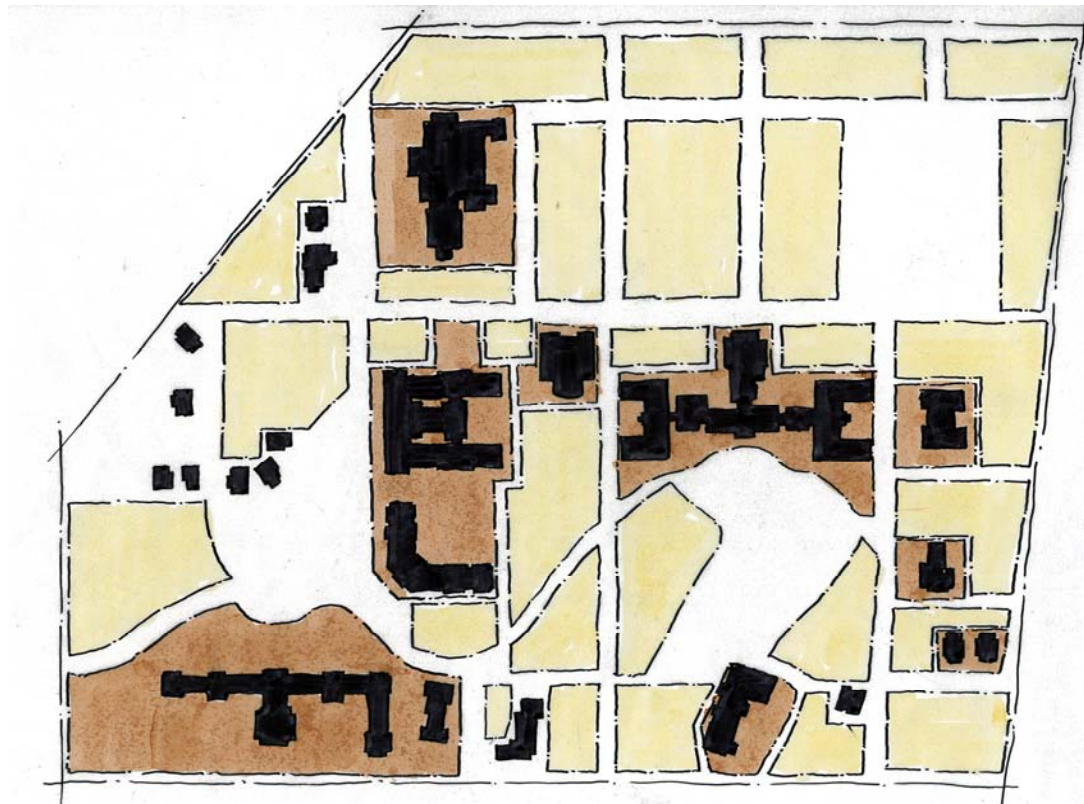


Figure 14: Soft sites diagram. The lighter shade shows areas ripe for redevelopment. The dark buildings are national register candidates.

The sites in the northeast quadrant of the campus share the existing green fronting Georgia Avenue. These sites raise the question of whether or not the new building should have a street presence on Georgia Avenue or whether it should be nestled back into the new residential fabric. A Georgia Avenue frontage site, as opposed to a site pulled back from the street, will have a significant impact on the building's massing and expression. All of the site possibilities in the northeast

quadrant share one goal in common: giving back to the community the Walter Reed main hospital green and the parking structure that exists underneath it. For over 40 years the Walter Reed campus has been closed off from the community, and there is no better way to celebrate its opening than by giving one of the campus' beautiful green spaces back to the community. The risk of placing the building in one of these sites is the relative detachment from the historic Walter Reed district. This might cause the project's goal of honoring the Walter Reed campus' memory to be weakened or lost.

There are also several site opportunities with frontages along 16th Street to the west. 16th Street a busier thoroughfare than Georgia Avenue that is composed mostly of through traffic. While siting the building along Georgia Avenue would garner exposure within the surrounding communities, siting the building along 16th Street would garner exposure to a broader spectrum of travelers as they pass through every day. Another benefit placing the building along 16th Street is the wonderful existing amenity of Rock Creek Park that lies just across the street. While the terrain of the park is not exactly accessible, there is a tremendous opportunity to design the facility up to the ideals of "healing design" motifs and strategies. Vistas across the lush forestry of Rock Creek are difficult to deny. However, the existing topography of the west half of the campus could pose some problems to new large-scale construction.

Yet another opportunity for building placement lies within the historic district itself. This siting shares the strongest ties to the memory of the Walter Reed campus. By placing the new facility amongst the historic buildings, there will already be language and massing precedents in the immediate vicinity. It would be a great

tribute to the history of the campus to design the new facility within the vernacular of the historic Walter Reed buildings. The drawback of this building placement is the possibility of community detachment from the facility. Community members may not feel like the new facility is meant for their use should it be placed among the more official historic Walter Reed buildings, and memories of the gated, inaccessible campus may be conjured up.

Still another site opportunity, a hybrid of some of those already mentioned, lies within the campus historic district on the Georgia Avenue edge. Selection of this site would have strong ties to the history of the campus as well as to the adjacent community who has previously been gated out of the Walter Reed property. Placing the facility on one of these available sites would also begin to lay the groundwork for future new development along the Georgia Avenue edge. The facility could set the standard for holding the street edge, as well as begin to inform the architectural language for future new development.

All of these site “types” have unique opportunities and challenges, and programmatic priorities had to be set in order to make the best site choice. Is the tribute to the history of the campus more important than community interaction? Is exposure to through traffic along 16th Street worth the extra cost of regarding the land on the western side of the site? How much monumental should the new facility be among the more subdued architecture of the new residential development? All of these questions need to be answered prior to making a final site selection. These and other important issues were considered in creating a weighted matrix to scientifically prove which site was the most advantageous for the goals of the facility.

A design/massing proposal was made for each of the six major site opportunities that were discussed with the thesis committee and were graded based on nine categories deemed of pivotal importance to the success of the project (see fig. 23 for the final grading of each site):

Site A1

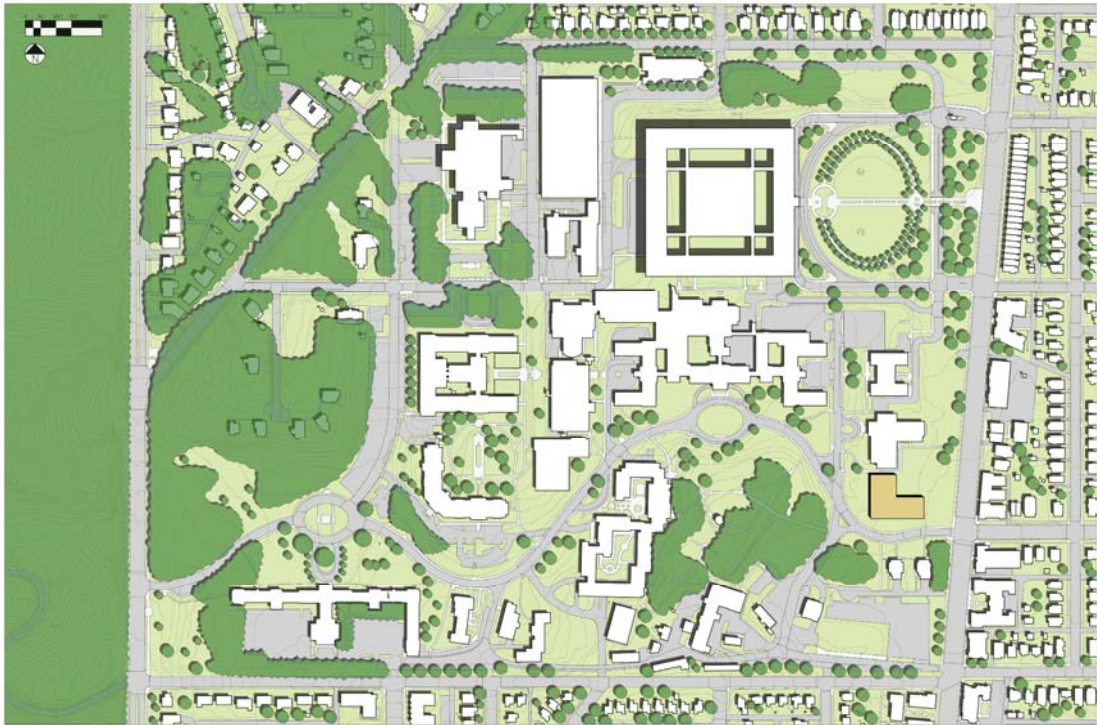


Figure 15: Site A1 plan. Proposed building in orange.

Scheme 1A looked at the site on the corner of Georgia Avenue and Main Drive. Key benefits for this site were numerous. There was ample opportunity for the accumulation bridging social capital due to the site's proximity to Georgia Avenue and the surrounding communities. Bonding social capital was accessible thanks to the site also being within the historic district with enough real estate on the site to pull away from Georgia Avenue for the more private, clinical goings on called

for by the program. Also, there is enough real estate to incorporate a private landscape for bonding among the veterans to take place in a less-clinical atmosphere. The topography on this site would be accessible for those who rely on wheelchairs, and in general for those for whom walking is not easy. Finally, there is a unique opportunity on this site to engage an existing campus building to, quite literally, have the facility latch on to the campus as a prosthetic that would help enable veterans to have confidence once they are ready to reenter society away from the facility.

Site A2

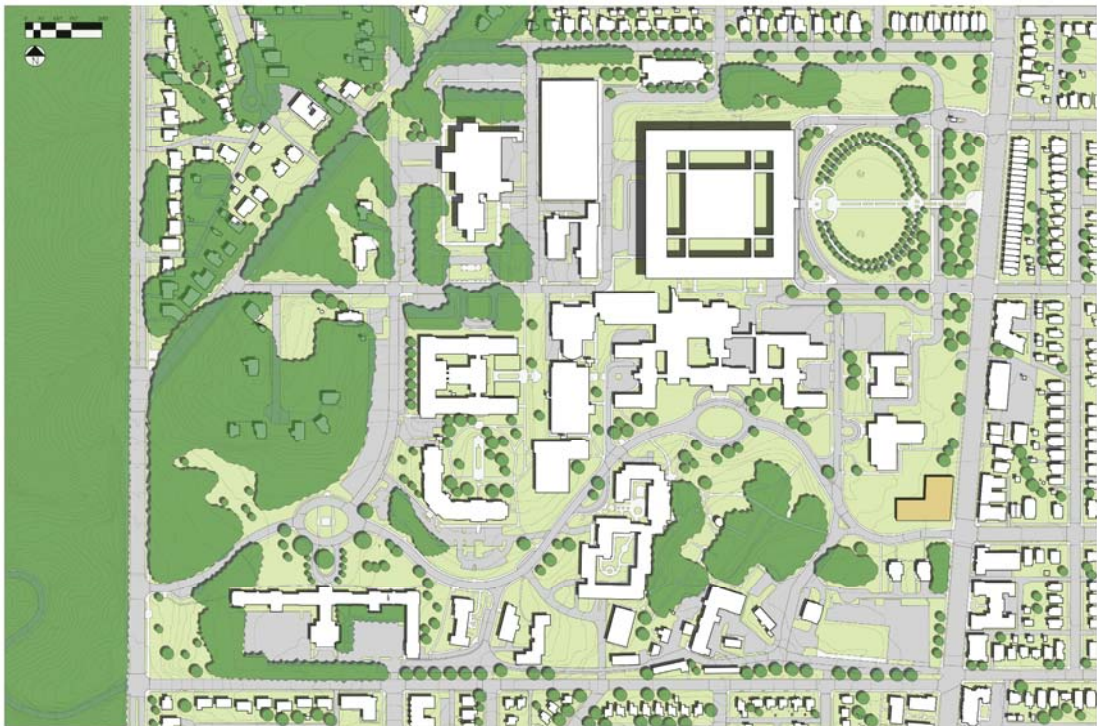


Figure 16: Site A2 plan. Proposed building in orange.

Site A2 is very similar to A1 with the difference being that the building directly engages Georgia Avenue rather than pulling away from it. It is believed that this would allow for more community interaction, and would be more successful at

inviting the community in to use the facility as an amenity. For this reason, the configuration of the site scored higher than Site 1A in the Bridging category. It is believed that this site gains opportunities for bridging without sacrificing any opportunities for bonding and for engagement of the historic campus.

Site B

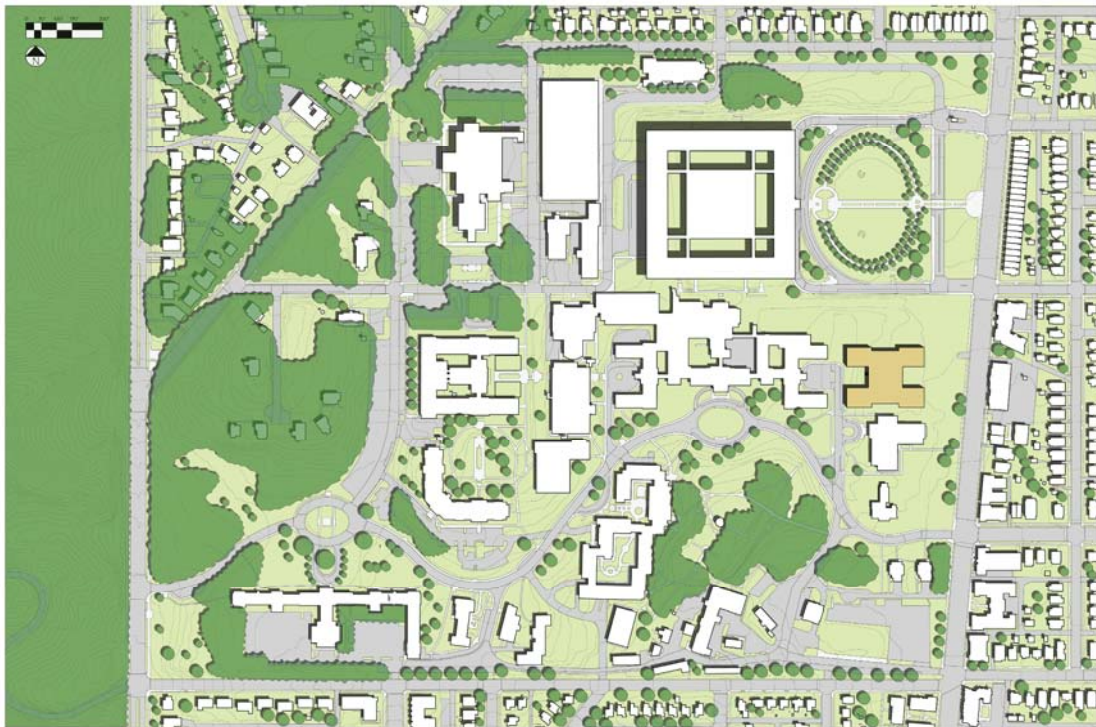


Figure 17: Site 2 plan. Proposed building in orange.

Utilizing Site B would call for replacing one of the historic buildings on the campus for the benefit of directly engaging the most important historic building on the site: the original hospital building. This, though, would be at the expense of bridging opportunities. By pulling away from Georgia Avenue and engaging an official campus building, the community may be hesitant to use the building as an amenity. This arrangement may, however, have a positive influence on the bonding

of the veterans using the facility. It may feel like a more official setting and therefore the veterans may feel like they are in a more privileged situation when using the facility. There is worry that if the facility is made too public that the veterans may feel intimidated or unable to make full use of the facility as they would in a private clinical setting.

Site C1

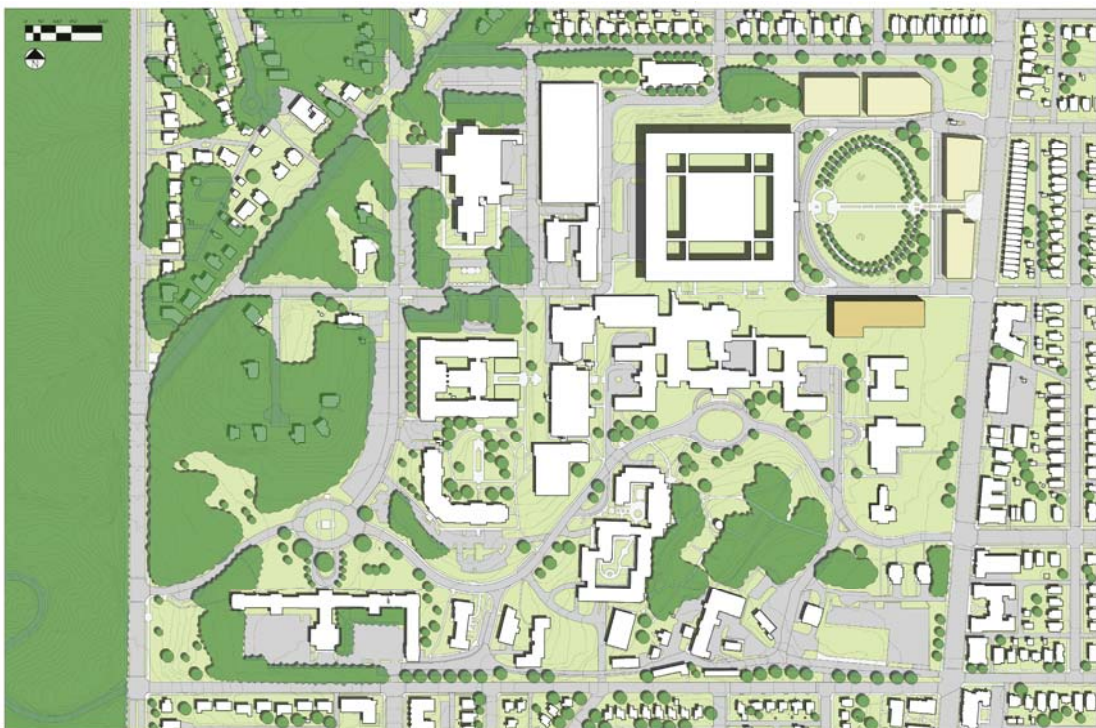


Figure 18: Site C1 plan. Proposed building in orange.
Future development opportunity in yellow.

This site configuration begins to ponder the idea of placing the facility on a major public space. Could the current main hospital forecourt become a downtown retail district for the surrounding communities? Would this type of atmosphere be suitable for the program that this thesis calls for? There are benefits and detriments that this line of thinking presents. It may be beneficial because placing the thesis

building on such a public venue will more likely invite community guests into the building to use it. However, the hustle and bustle of a typical retail square may be too stimulating for a veteran to needs to be eased back into social situations. At the very least, the community using the building would be exposed to the idea of cohabiting and sharing space with amputees which in reality is half the battle of introducing socialization as a part of a veterans rehabilitation regimen. In order for the social rehabilitation to be successful, both parties must be comfortable with the situation.

This particular site arrangement attempts to alleviate the potential over stimulation of the veterans by pulling away from Georgia Avenue and only engaging the retail square. The facility could be designed in such a way that the public recreation center program would front the square while the more private clinical program may occur on the back end of the building facing the campus. It will be important to make sure that social interaction with community members will be a residual effect of the building's every day use and to make sure that the veterans do not feel quarantined in the bowels of the building while the public takes over the "front" of the building. It is important that the community knows that they are the guests in the building, not the owners, and that they are invited in to partake in the veterans' rehabilitation and not hinder it.

Site C2

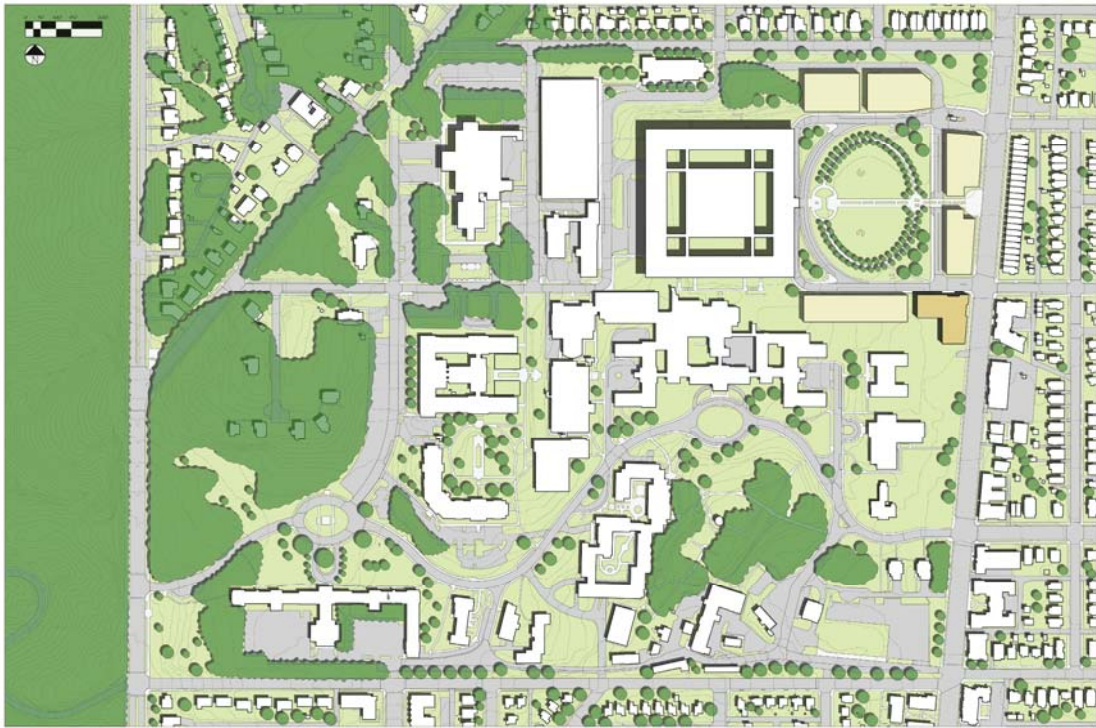


Figure 19: Site C2 plan. Proposed building in orange. Future development in yellow.

This site configuration is similar to C1 in that it engages the proposed public square. This arrangement, though, engages Georgia Avenue more than the square. With a lesser engagement of the square, it may be more plausible to control the public entry from the square and make it less of a presence on the square. This arrangement allows the thesis building to front Georgia Avenue and reach out the community instead of being inwardly focused like the C1 configuration.

Site D

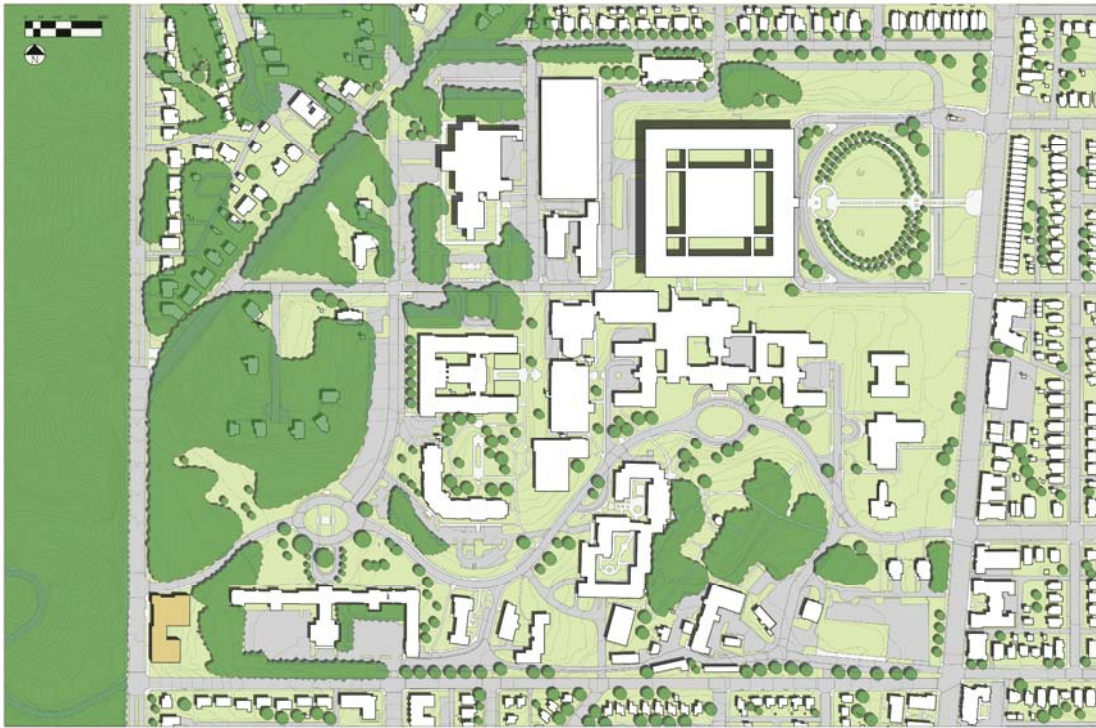


Figure 20: Site D plan. Proposed building in orange.

This site is on the west side of the campus. This site provides opportunities completely different from the previous sites. This configuration questions the idea of such upfront public infiltration of the rehabilitation facility and instead makes it more of a destination for the community and a retreat for the veterans. The community would have to walk a little further to make use of the public portion of the program, but it would still be open to the community. On this side of the site, there is more potential to engage Rock Creek Park across 16th Ave. lending the site opportunities to explore issues within the realm of Healing Design and connection to nature. In the end, this site proved to work against the initial goals of the project and it was decided that it was too disconnected from the community to be a viable site selection for the thesis building.

After all of these investigations were completed, the benefits of site A2, fronting Georgia Avenue, far outweighed the benefits of the other site opportunities on the campus, but questions still remained about whether the program and its requirements would work on this chosen site.









								
BRIDGING OPPORTUNITIES (0-5)	4	5	2	3	3	2	3	1
BONDING OPPORTUNITIES (0-5)	3	3	2	3	3	2	2	3
TOPOGRAPHIC ACCESSIBILITY (0-5)	3	3	3	3	3	2	3	0
PRIVATE LANDSCAPE POTENTIAL (0-5)	2	3	1	0	2	2	3	3
PUBLIC LANDSCAPE POTENTIAL (0-2)	2	2	1	2	2	2	2	0
POTENTIAL NEW HOUSING (0-2)	2	2	1	2	2	2	2	0
EXISTING HOUSING PROXIMITY (0-2)	1	2	1	1	2	1	2	2
HISTORIC ENGAGEMENT (0-2)	3	2	3	3	3	1	1	2
PARKING PROXIMITY (0-1)	0	0	0	1	1	1	1	1
TOTAL SCORE (MAX: 25)	20	22	14	17	18	12	12	12

Figure 21: Site selection matrix.

Chapter 5: Program Analysis

Precedent

The Smith Group has done an exemplary facility in San Antonio, Texas called the Center for the Intrepid that has become the model for a successful modern veteran rehabilitation facility. The Center for the Intrepid facility treats both veteran amputees and burn victims, and stands at four stories and 65,000 square feet. Much like the proposed thesis project, this facility is located on the periphery of an existing army medical campus: the Brooke Army Medical Center. The difference is that the Brooks campus is isolated from civilian residences whereas the Walter Reed campus provides a fantastic opportunity to engage the adjacent communities to achieve the goals of the thesis, that is, to introduce social reintegration to the veterans' typical physical rehabilitation regimen.



Figure 22: Aerial rendering of Smith Group's Center for the Intrepid.



Figure 23: Center for the Intrepid site on edge of Brooks campus.
Notice lack of residential development surrounding the site.

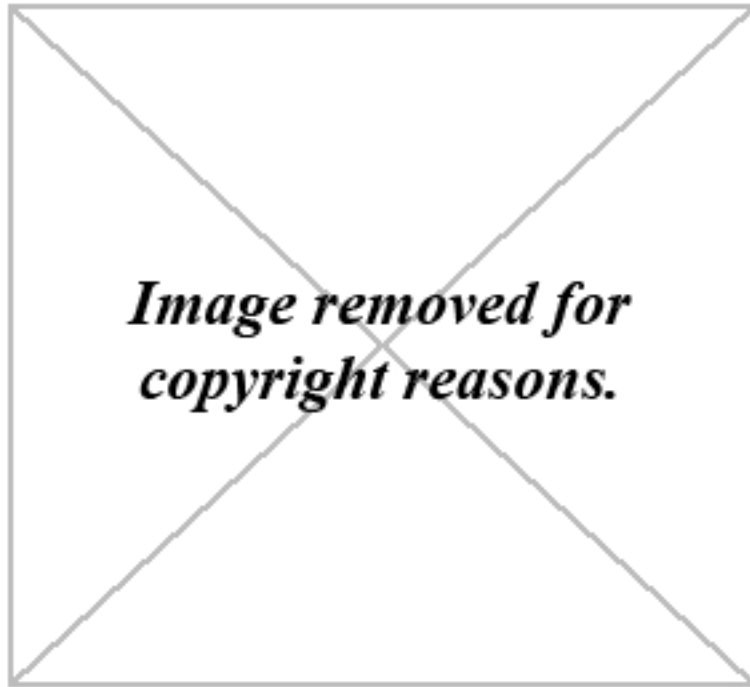


Figure 12: Intrepid site plan.



Figure 25: Intrepid floor plans.

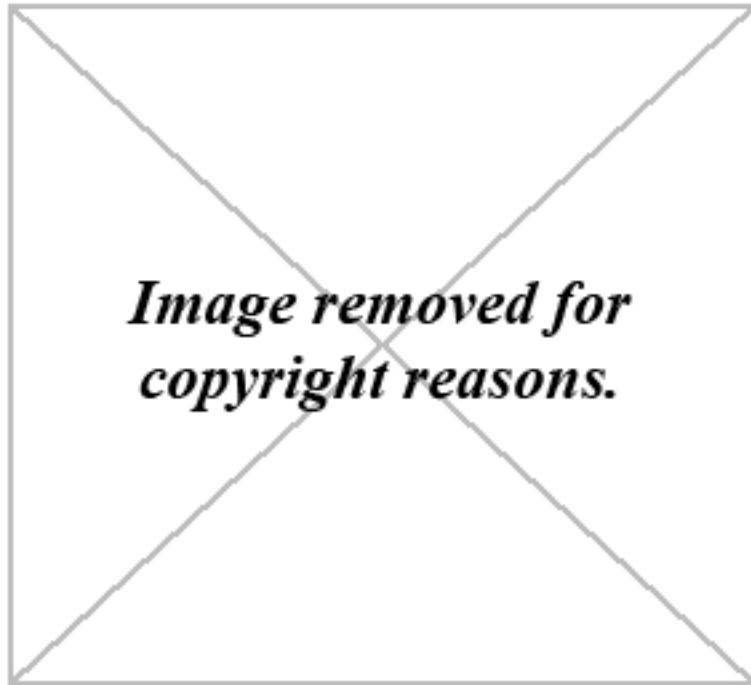


Figure 26: Rehabilitation area with elevated track.



Figure 27: Close-up of track and rock wall in therapy area.

This project acted as a model during the design process for all of the clinical rehabilitation program adjacencies. Analyzing the plan proved to be a useful tool for blocking out sufficient square footages in the schematic stages of the design. Sizing out these square footages also began to generate the massing and form of the building. Because of the nature of several of the programmatic spaces, such as the lap pool, basketball courts, and exercise track and their inability to drastically change shapes due to maintaining specific dimensions, several of the square footages were non-malleable and quite literally informed the massing of the building.

Community-Based Program Interventions

The program for this project will take lessons from existing successful rehabilitation facilities. However, it is a goal of this project to not simply design another rehabilitation facility. The community-oriented objectives of the program will call for a hybrid program that will use appropriate parts of a rehabilitation facility's program in flexible ways.

Perhaps the most obvious hybridization of programs is the gym/aquatics facilities doubling as a community recreation center. The gym/aquatic facility is a flexible program element that lends itself to be easily closed when the space is needed for rehabilitation scheduling. During off hours, the gym and aquatics facilities provide a wonderful opportunity for community members of all ages to go there at interact with each other as well as veterans who use the building daily. Socialization of veterans will result, friendships will be built, and mentor/mentee relationships could result. All that is needed for social capital to crystallize is a venue, and a community recreation center is the perfect avenue.

Education is another objective of the project. Without education, people form preconceptions and make assumptions. The preconceptions formed about war veterans are sordid. Psychological instability, aloofness, and general disdain for human interaction are just a few of the misconceptions that are commonly found among those who are uneducated about the recovery process after a war injury. Yes, situations do arise where veterans feel disconnected from society and are therefore irritable and cold. Veterans yearn for belonging, for feeling normal. If community

members were educated as to the needs of these veterans and as a result changed their approach to interacting with them, both parties would benefit. It is this expectation that validates the need for an educational public gallery within the program that will educate anyone who enters the facility as to the nature of a veteran amputee's injury and recovery process as well as the cutting-edge prosthesis technology available to them. The ideal location for this program piece is at the entrance of the community recreation center. In this case, everyone who enters will be exposed to the realities of an amputee's recovery and will be encouraged to take it upon themselves to learn.

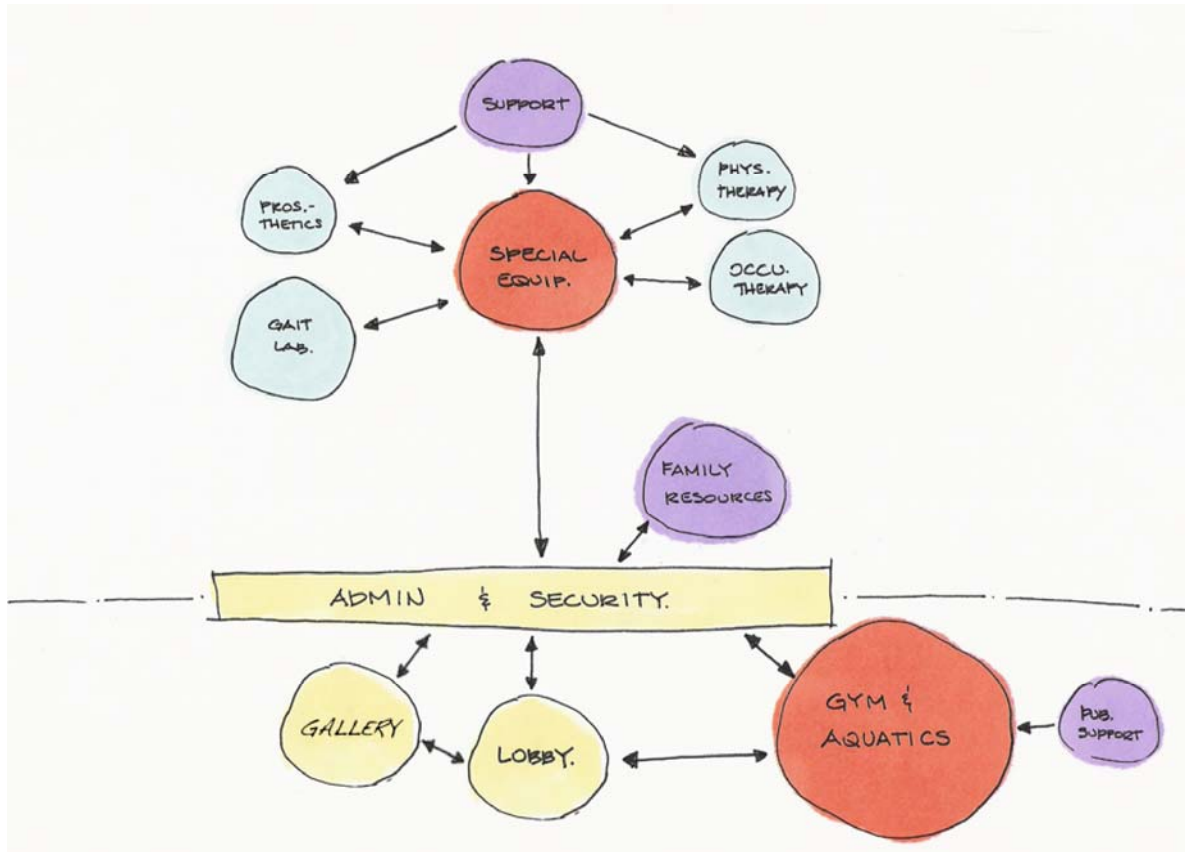


Figure 28: Preliminary program flow diagram.

Chapter 6: Design Solution

Preliminary Schematics

The design process began by blocking out program elements to study adjacencies and site response. At this point, a site was not yet selected. The proposed development accompanying the facility designs in the drawings below are conjectural and do not necessarily show final development configurations. As a common goal among all of the schemes, there will no longer be any gates, fences, or barricades that have isolated the campus from the surrounding community for so long. All of the schemes also present the idea of a green space creating a node from which to reknit the surrounding communities together.

Option A.1

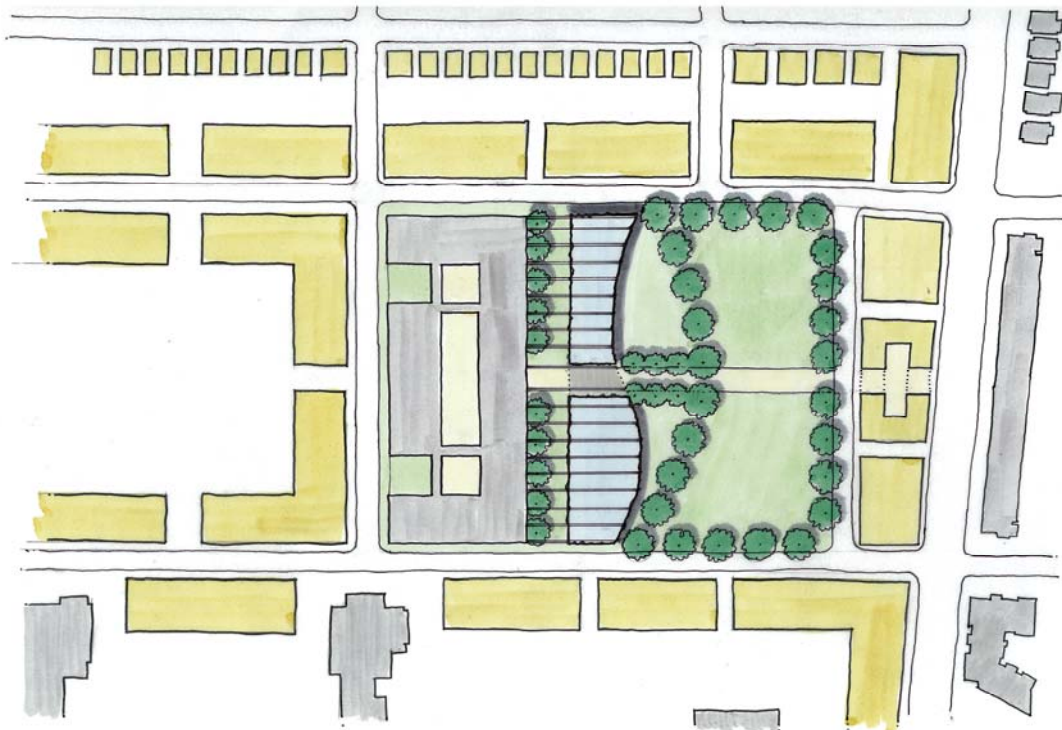


Figure 29: Schematic plan, Option A.1. Yellow/new development, Gray/existing historic building.

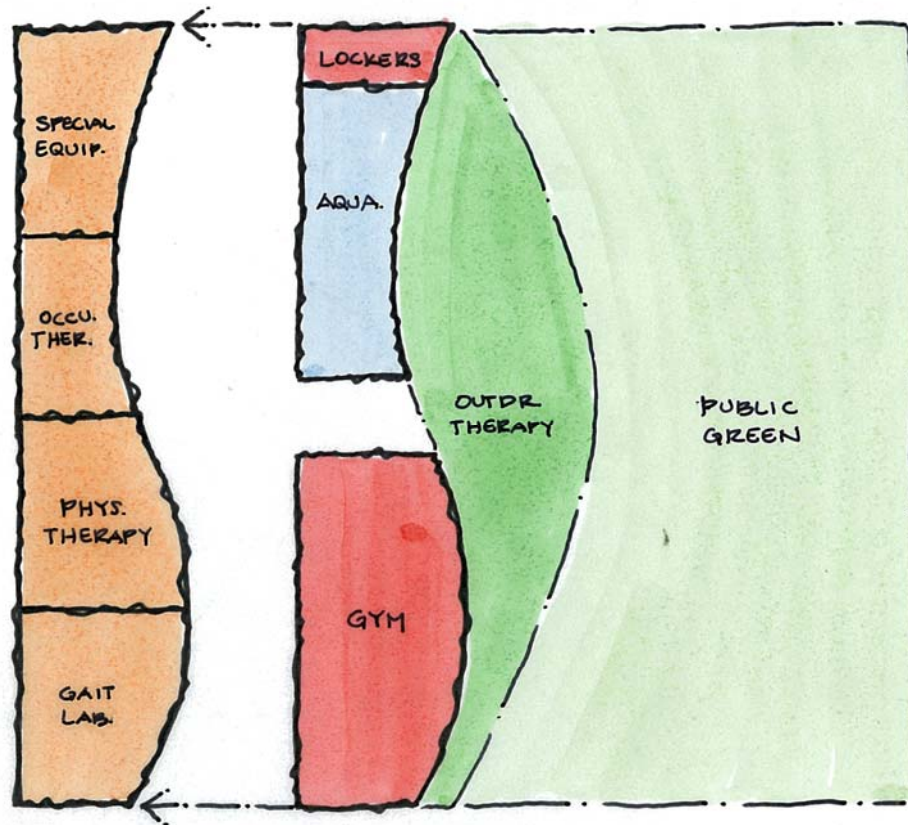


Figure 30: Program configuration for option A1.

Option A1 is centered on the preservation of the Heaton Pavillion. In this scheme, it is assumed that the Heaton Pavillion will be adaptively reused either as a medical building serving another hospital system after the Army medical system vacates the property or for another unrelated program. There are several options for preserving the main hospital building. One options is to preserve and reuse the entire 202,500 square foot footprint of the building. Another option, and perhaps a more viable one, is to partially demolish the western half of the building to allow for some new high density residential development but at the same time keep history of the place intact. The reason that this is a more viable option is because the existing

building is simply too large to be reused as anything but a hospital. Through anecdotal conversations held with prominent healthcare architects who are familiar with the healthcare systems, it is illogical to believe that any healthcare system would occupy the building after the Army medical system vacates it in 2011. By decreasing the size of the building, it is possible to both preserve the history of it and make it more reasonable to reuse the building for another program.

The premise of the facility design is to provide a new face to the overbearing façade of the existing hospital building. The existing hospital forecourt would be given back to the community and used as a public green with high-density mixed-use residential development surrounding it. The idea is to provide a “downtown” of sorts for the community; a place where community members and visitors alike can come to enjoy restaurants, shopping, and community activities that might be scheduled to take place in the space. The new development immediately to the east of the green would act as a formal gateway into the public space and a buffer from the noisy atmosphere of Georgia Avenue.

There are several benefits to this arrangement. Firstly, the building placement offers ample views from within the building out to the lush public landscape, and this keeps with one of the major ideals of healing design. However, this arrangement does not only provide views of the green, but also provides views of everyday passers-by and community members that would offer patients a constant reminder of their membership to the community. This reminder will instill in them motivation based on the principles of Social Capital. In addition to these benefits, the building is prominently placed, occupying an entire side of the green and will serve as a constant

reminder to passers-by of those within the building who are training to become a meaningful part of society after their sacrifices overseas. Exposure is the first step toward educating the community on the valor of the patients and would ideally remind them that these soldiers are people just like anyone else and deserve their admiration. Finally, the new design would ideally provide relief from the colossal hospital façade that currently faces the green. As it stands now, it would be difficult to successfully blend the hospital's façade into a more subdued residential context.

Another benefit of this arrangement is the apparent metaphor to the world of prosthesis. Attaching and essentially replacing the face of the existing building with a sleek modern design can draw a parallel to replacing a no longer functioning appendage with a feat of modern technology. Though there may be opportunities for such metaphors on other options through the use of clever architectural expression, this site in particular has this inherent benefit that none of the other proposed sites share.

Some problems arise from this arrangement, however. Although providing a new face to the existing hospital works in theory, the fact remains that the new facility will still sit at over 400 feet long. Without sensitive intervention, it is very possible that the new design placed here will fall victim to the same problems as what it is aiming to solve, namely colossal scale compared to immediate residential fabric. Designing a 450-foot long façade to blend into typical residential context might prove quite challenging.

Option A.2

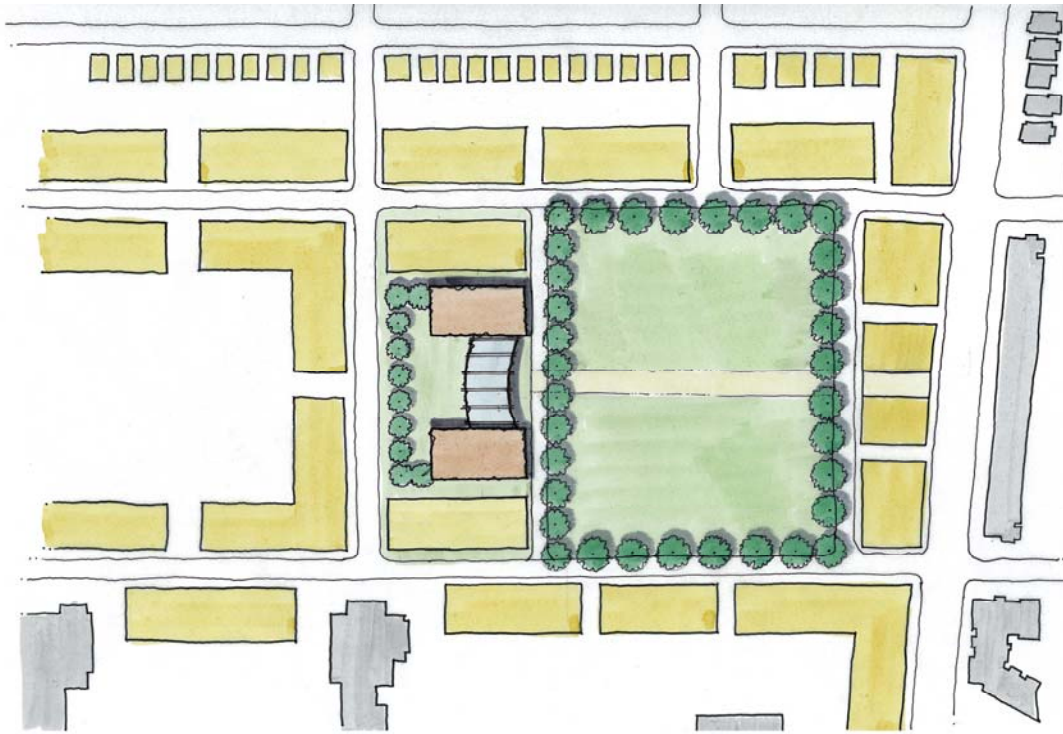


Figure 31: Schematic plan, Option A.2. Yellow/new development, Gray/existing historic building.

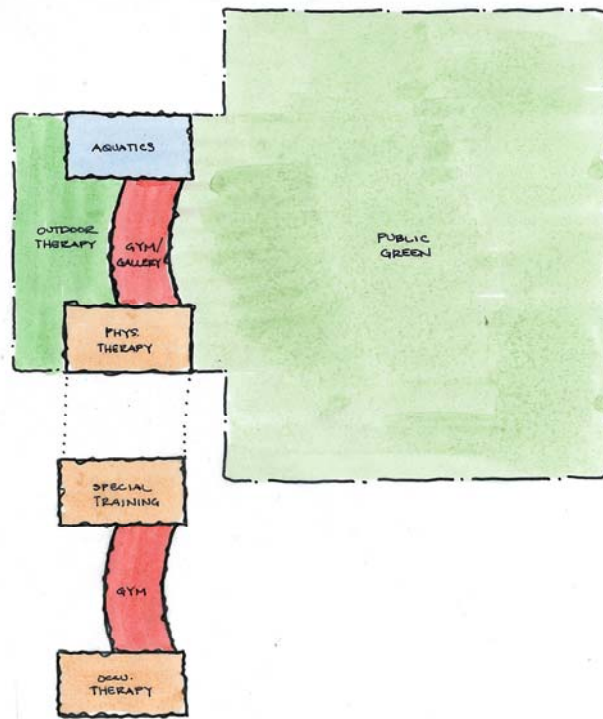


Figure 32: Program configuration for option A.2.

This option considers the possibility of completely demolishing the Heaton Pavillion building. If it were believed that the land occupied by the Building 2 is more valuable than the building itself, then this option would be more viable than Option A.1.

The premise of the facility design for this option is very similar to that of Option A.1 as it shares many of the same characteristics, including building placement and relationship to the new public green. An added benefit to this option is a larger green, which result from real estate gained by demolishing Building 2. The facility in this design option also has a double frontage of sorts. In addition to the obvious frontage on the public green, the building will also front a new residential street that runs north/south through the entirety of the campus. On this frontage, it is proposed to place the outdoor therapy piece of the program and use it as a hybrid space where both patients and the public can inhabit it at any time. This sort of program element would really begin to blur the lines between patient and visitor to make everyone feel like they belong in the community.

The question of whether the facility will need to have a stronger frontage on the new through street will become clearer as the development design crystallizes. Also, does the physical therapy garden necessarily have to be separate from the public green? Can the two not meet without causing traffic and ambiance problems? Could physical training be going on while someone is enjoying a business lunch just across the lawn? Issues involving these very questions would need to be addressed.

Option B



Figure 33: Schematic plan, Option B. Yellow/new development, Gray/existing historic building.

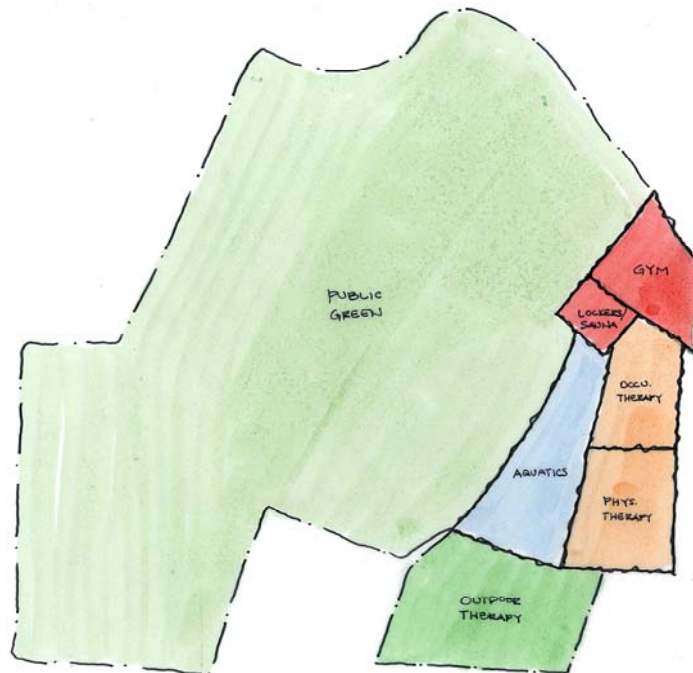


Figure 34: Program configuration for Option B.

Option B uses the more natural, romantic green on the campus as its generator. The main idea is to provide views out into a more natural green setting while paying homage to the original hospital building. The facility in this scheme is placed at the heart of the national register WRAMC historic district and as a result is flanked by the original hospital building to the north and by the historic coal plant and firehouse to the south. The building has frontage along a new street that connects from 13th Place NW to the new street around the periphery of the main green. This scheme assumes that the main green will be completely surrounded on all four sides with new mixed-use development.

Would it work in the patients' favor to place the facility a bit farther away from the daily hustle and bustle of the "downtown" development? This scheme does that very thing. Until more research is done that questions the comfort level of patients, all of the options discussed thus far have merit. This scheme is separate from the center of new development, but not so far as to be completely amputated from it. Doing so provides a calmer, quieter setting for the facility. Just across the green to the west is a proposed garden apartment building that would be an ideal living situation for the patients, as well as row houses providing another living option along the new street just a bit further west. This scheme also allows for the patients' outdoor training facility to be more private from the public by nestling it within the existing historic buildings to the south, yet still feel like it has a connection to the public green. Finally, the new building would be at the heart of the historic district, creating a much more apparent connection to the history of the place working towards one of the projects' original goals.

The problems in this option arise when discussing the new building's character or architectural language. Being within the historic district may force the project to be designed in such a way that it would have a dialogue with the existing Georgian style of the historic buildings immediately surrounding it. Do the benefits of this arrangement outweigh this possible limiting factor? Do the patients even want to be separated, even if only slightly, from the downtown atmosphere? Would separating the patients from the downtown activity work against the project's goals of Social Capital?

Option C



Figure 35: Schematic plan, Option C. Yellow/new development, Gray/existing historic building.



Figure 36: Program configuration for Option C.

Option C places the facility along the western edge of the WRAMC campus. By doing so, the facility is placed on the furthest possible site from the proposed downtown activity on the northeast corner. 16th Street is a busier road than Georgia Avenue and is mostly comprised of through traffic with motorists on their way to downtown Washington, D.C. Placing the new facility with frontage on 16th St. would provide exposure, which would help bring awareness to the patients and their struggles, to a wider spectrum of people as they pass by every day in their vehicles.

Although this building site is removed from the more active northeast corner, it is still within the historic district of Walter Reed. Historic houses intermingled with

new low-density residential development sit on the hilltop to the north of the proposed building site. To the south sits Delano Hall, one of the structures built during a major developmental checkpoint in the history of the campus (fig. 8). Although the architectural style Delano Hall is distinct, the site situation of the new building along 16th Street provides merit for a more stylistically modern rehabilitation facility in order to catch motorists' attention.

On the spectrum of natural views from the new building (from structured green to romantic landscape proposed in the previous schemes), Option C provides the most lush of them all. Across 16th Street lies Rock Creek Park, a natural oasis that winds throughout the city of Washington, D.C. Views to the forestry and wildlife of Rock Creek Park can provide the soothing atmosphere that would be beneficial to a healing environment. The juxtaposition of the heavy traffic of 16th Street with the serene nature of Rock Creek Park reminds those who see it of the character of this section of Washington, D.C. and of their connection to a larger city that expands to the south. It would remind them of the realities that lie beyond their small community centered around Walter Reed and prompt within them the notion that they are a part of a larger society of Americans in the United States.

The seclusion that this site provides may be counterproductive to the goals of Social Capital, however. Social Capital calls for social interaction, and if a patient were to live a block away from the facility, the inherent interaction that a patient would have on his commute to and from the facility may be too minimal for the phenomenon of Social Capital to run its course. This is a major issue that could be addressed by providing some sort of programmatic space that considers social

interaction on one of the other WRAMC soft sites nearby. A study of where the patients might live and their pedestrian commute to and from the facility would need to be executed.

Restoring the Campus

A goal of the project since its inception was to rehabilitate the historic district of the Walter Reed campus. As it stands today, it is a clutter of temporary buildings, wasteland pavement collections, and meandering dead-end streets.

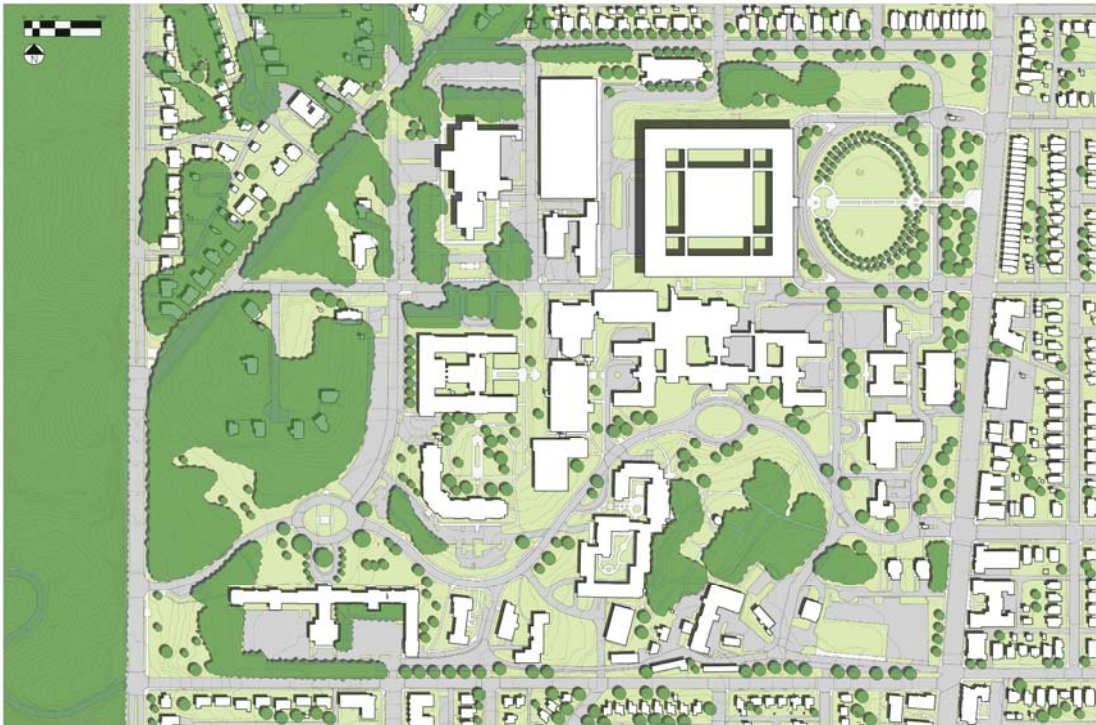


Figure 37: Existing Walter Reed campus plan. Notice the indistinct nature of the historic district of the campus and the clutter of pavement.

In concert with initial program adjacency studies, my efforts worked toward tidying up the Walter Reed campus with a focus on the historic district. Extending the existing grid of the surrounding city grid was used as a generator for cleaning up the

cluttered streets of the existing campus. By extending the existing grid through the campus, new blocks were created as opportunities for redeveloping the campus.

The redevelopment of the campus was a goal of the project at the beginning of the process, but slowly fell by the wayside, as the design for the facility itself became the focus of progress. It was still important to reinvigorate the campus' organization, though, because in order for the new facility to identify with the historic campus, there had to be an identifiable historic campus from which the new facility's design could draw inspiration. Along with extending the grid, temporary and historically insignificant buildings were removed along with the excess pavements that served them. What is left is a clear historic campus organized on the city grid with an organic, winding main road that leads those who follow it to Rock Creek Park.

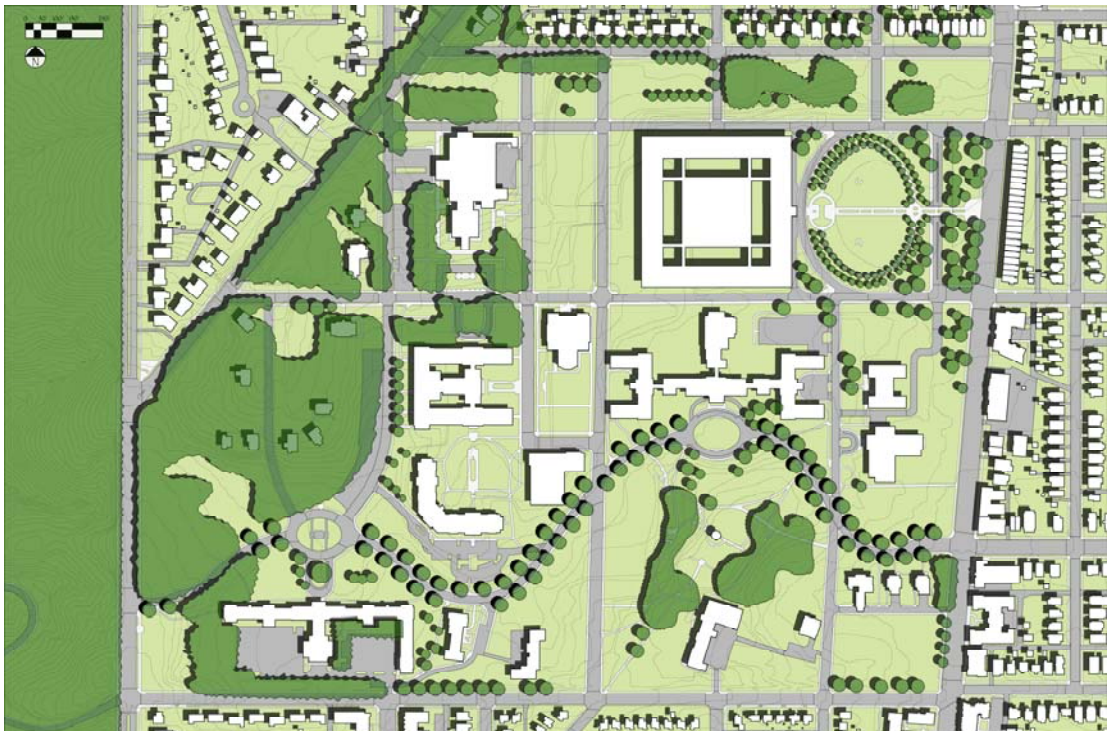


Figure 38: The new proposed campus plan. Notice that only historically significant buildings remain in the historic district.

Design Solution

The parti for the rehabilitation facility has, since the beginning, been a tripartite scheme. After choosing the site at the corner of Georgia Avenue and Main Drive as being the site with the best opportunities to achieve the goals of the project, it was almost immediately decided that the public recreational program would be placed on the Georgia Avenue front with the clinical wing (including the Occupational Therapy, Gait Laboratory, and Prosthetic Fabrication Laboratory) on the campus side away from the hustle and bustle of the public wing of the building. In order to separate the two, an interstitial mass was conceived of as a suitable buffer between the two masses.

The parti garnered inspiration from the idea of a prosthetic limb. What is a prosthetic limb? In essence, a prosthetic is a device that is used not to replace a lost limb, but as a means to enable and empower the amputee to live a normal life without their natural limb. Prosthetics have evolved quite a bit since they were first used dating as far back as ancient times. At first, prosthetics were simply a stump of wood or metal that replaced the amputee's lost limb. There was no function to the prosthetic besides perhaps keeping balance and fill the void of the lost limb. As prosthetic progressed, some function was introduced with the inclusion of working joints where one's knee and ankle would normally be found. Yet, the prosthetic still lacked all of the mobility and functions of a natural limb and still were a bit hindering of the amputee's true potential to return to a normal life.

Modern prosthetics have taken this criticism to heart and have begun to introduce prosthetics that enable amputees not only to engage in normal activities, but

excel in them and enable them to go above and beyond the limits of natural limbs. Take, for example, the Cheetah prosthetic attachment used by numerous amputee athletes. The cheetah limb, with its unique shape and physics, allows the athlete to run faster than perhaps a normal man with natural legs would be able to.



Figure 39: Amputee running on cheetah prosthetics.

A direct parallel can be drawn between a prosthetic limb enabling an amputee to excel physically and the proposed new type of rehabilitation facility acting as a prosthetic in order to enable the amputee to overcome their social hurdles during their rehabilitation process. In addition to this analogy, an analogy can be drawn to the fabrication of a prosthetic. The idea of a prosthetic is to resemble the natural limb that it is supplanting, both in function and loosely in image. The building could follow this model. The skin of the building could be designed to resemble and belong

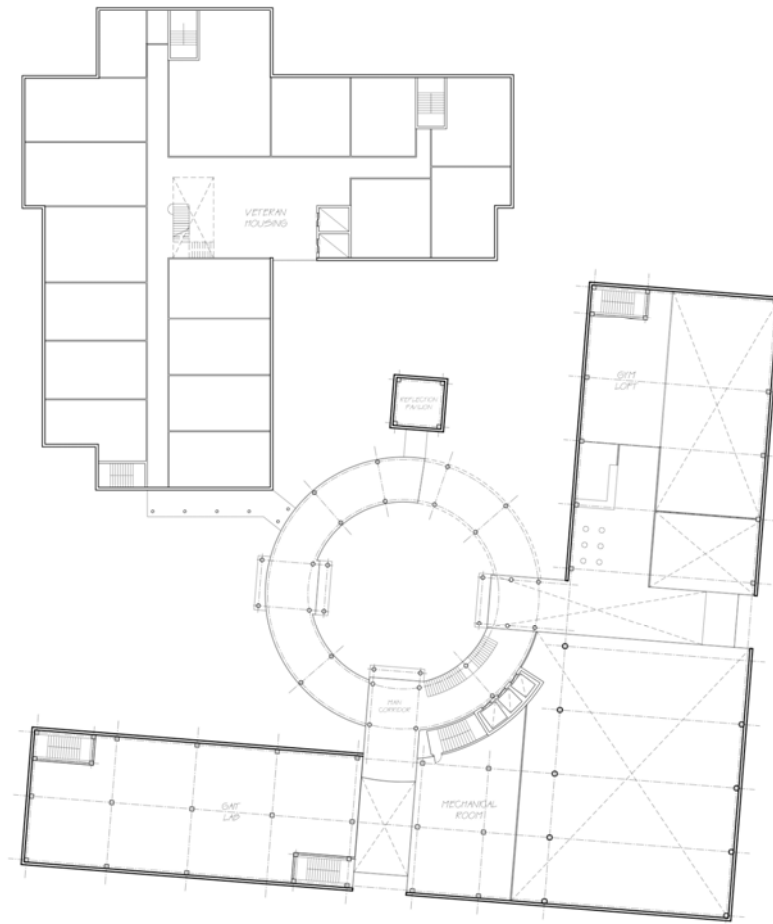
to the language of the campus, but at the center of the building could be a node with a modern machinery motif that acts as the joint or hub for the building that buffers and connects the very different wings of the building together. It could also be used as an opportunity to quite directly engage the existing campus building on the site that will be renovated and used as the amputee veterans' housing during their stay at the facility. Even early building schemes investigated this idea.



Figure 40: Elevations investigating a modern building that integrates with the existing language of the campus.



Figure 41: Elevation options that experiment with brick and glazing ratios.

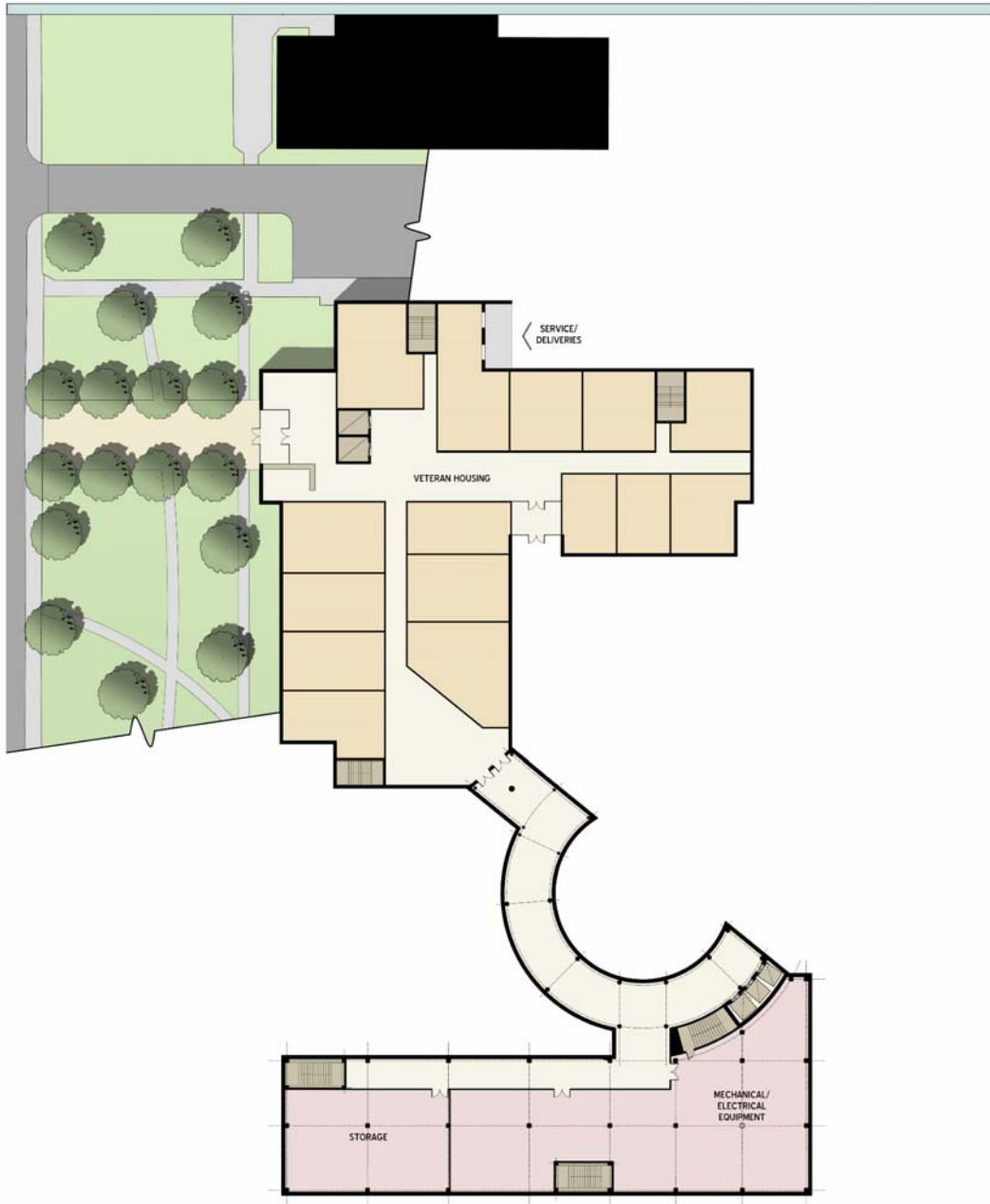


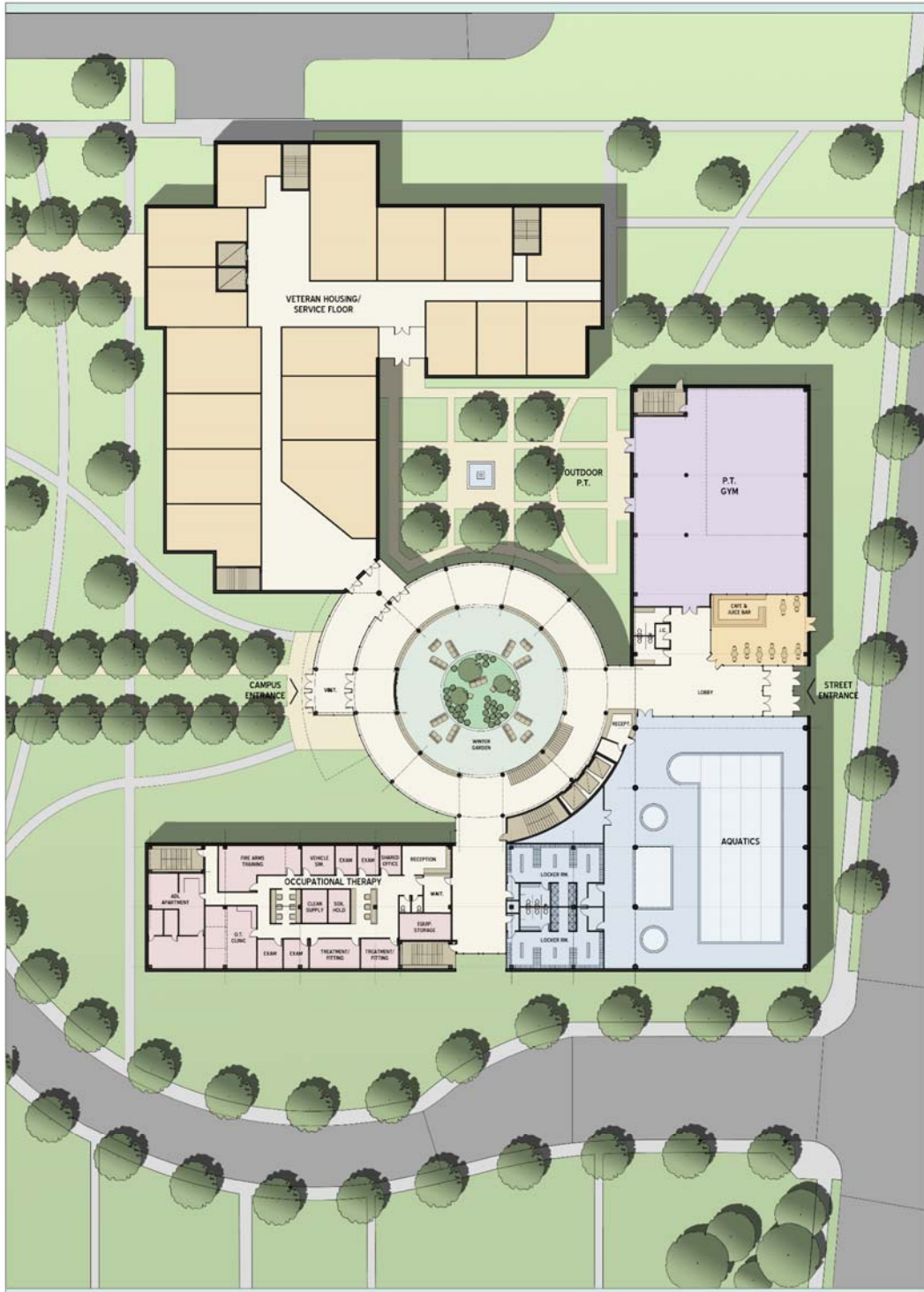
2ND FLOOR PLAN

Figure 42: A checkpoint plan of the mature scheme that incorporates the idea of the building as a prosthetic. Notice the modern node at the center and the renovated existing campus building to the northwest of the main facility plan.

As the final scheme crystallized, the “drum” as it was lovingly named became the focal point of the design. The two wings of the building were sized appropriately and massed in such a way as to compliment the existing historic campus buildings as well as to comfortably fit all of the require program elements called for in an aputee rehabilitation facility. The drum was planned to have a contrasting, modern design so as to call attention to the “prosthetic” node at the center of the building. The modern machinery in prosthetics is what makes the device work. Likewise, all of the artifacts that make a building functional, namely the vertical and horizontal circulation, are situated in the drum between the two wings. In essence, the modern prosthetic drum enables the building to achieve its purpose of bridging the gap between a veteran’s physical rehabilitation and social reintegration.

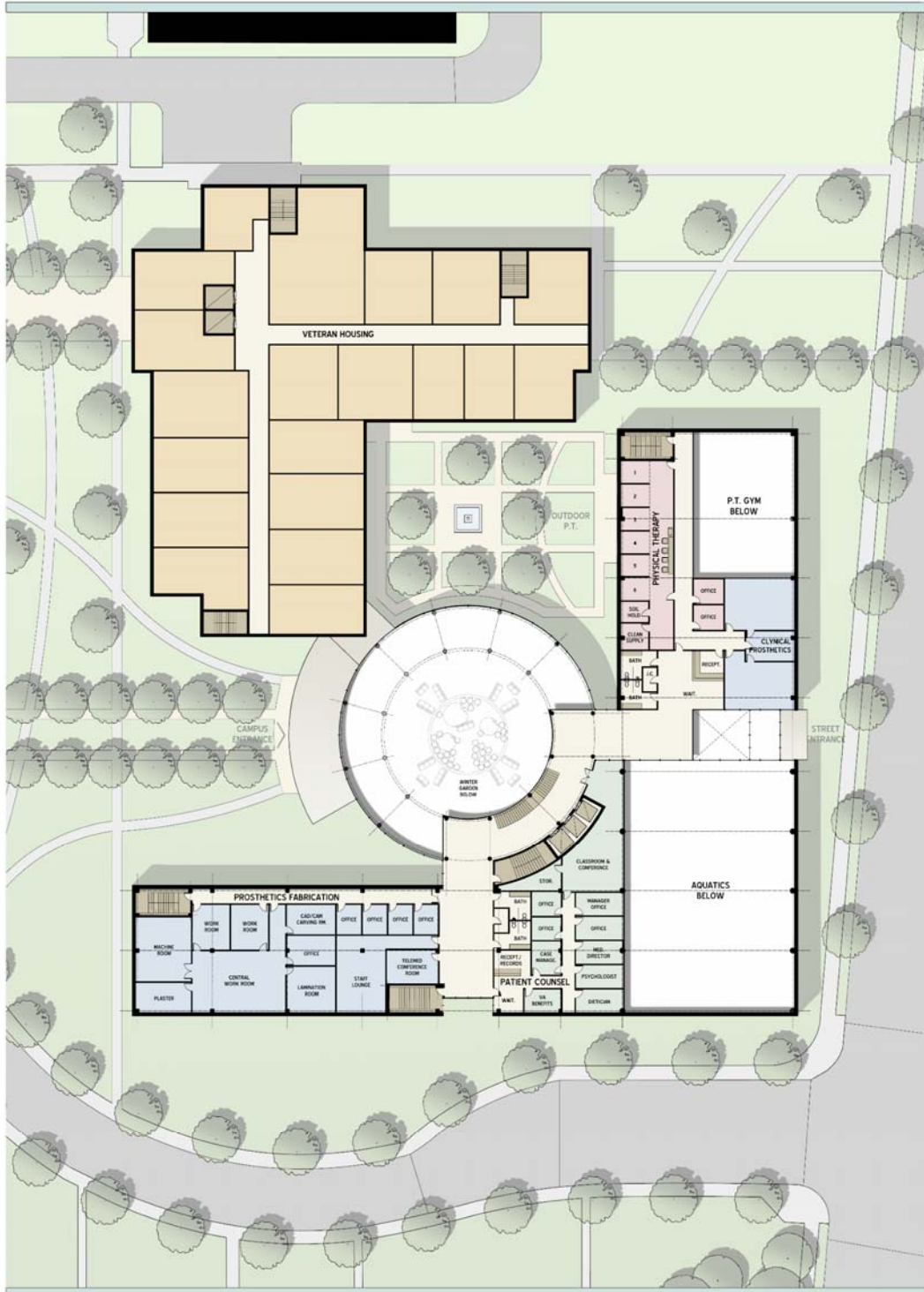
The drum also provided a unique opportunity to introduce the community to the training and physical hardships that these veterans endure after defending our country’s freedom. Exposure is the first step in educating the public about the sacrifices that these men and women have made. Exposure would also work wonders for both the veterans and the community in terms of becoming comfortable with sharing a common space. Even without direct contact, the phenomenon of bridging will take place. The series of plans below depicts all of these design goals:





TRAINING
ADVANCED TRAINING FOR
THE
ADVANCING SOLDIER

PLAN - 1ST FLOOR



ADVANCED TRAINING FOR THE ADVANCING SOLDIER

PLAN - 2ND FLOOR

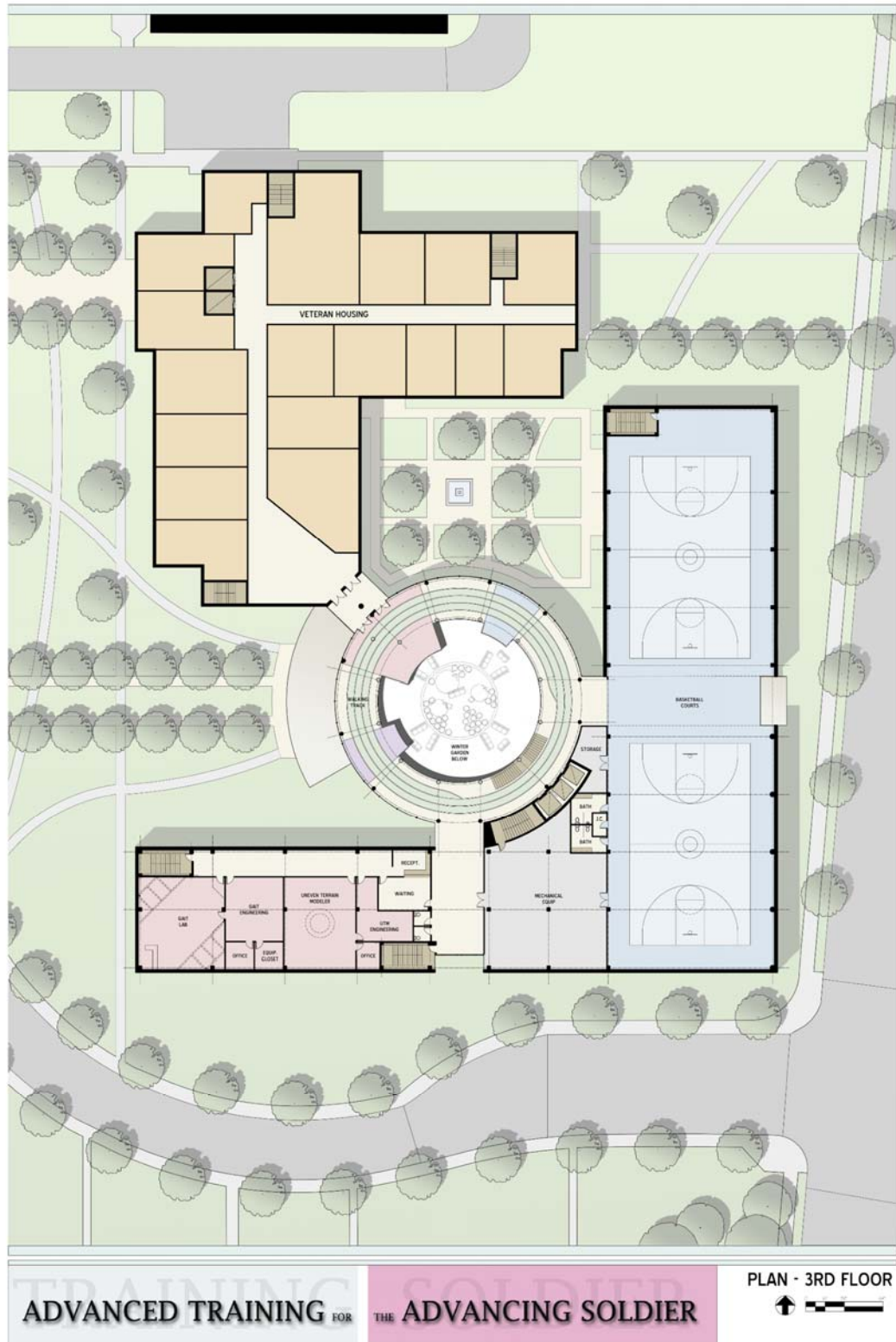


Figure 43: Series of plans for the scheme presented at the public review.

On the west wing, nearer to the campus, reside the Occupational Therapy, Prosthetics Laboratory, and Gait Laboratory stacked on top of one another. On the east wing is the hybrid public program including the Aquatics area, Physical Therapy gym, and the basketball courts. This program is considered hybrid because it is a blend of clinical rehabilitation and public recreation. The idea is for the community to come in and use the recreation areas while they are not in use for programmed rehabilitation activities. The sense of sharing the same space as the veterans can be a powerful tool to enlighten the community as to the sensitivity as to the importance of what goes on in the building.

The third floor houses the basketball courts and the Gait Laboratory in their respective wings, but more importantly houses the walking track. As briefly discussed in a previous section, the upper floor of the drum was seen as a remarkable opportunity for the public to begin to see the kinds of rehabilitation activities going on in the very building that they are invited into every day. It was imperative to make sure that the veterans never feel like they are caged animals at a zoo on display for passers-by. By placing one of the less-private rehabilitation activities in a place where it can be seen by all yet keeping the atmosphere open, the veterans might not feel like they are on display, but rather that they are sharing the space while they are focusing on the task at hand. Below, the ground floor is equipped with a winter garden to invite both the public and the veterans to get away from the hustle and bustle of the building's programs and to act as an area of respite.

The training track was designed with cantilevers that extend out over the winter garden below as places to rest, recuperate, invigorate, hydrate, and bond with

fellow amputees during taxing training and rehabilitation sessions. This area would be used when amputees are learning how to use a new prosthetic, to strengthen the new muscles that they will need to learn how to use in order to compensate for their new prosthetics, and simply to walk for cardiovascular conditioning. Some of the most critical moments in an amputee's rehabilitation will take place here, and it was critical to make this an inspiring atmosphere by making this space open to the garden below and to nature outside through generous window openings.



Figure 44: The training track in the drum's mezzanine.



Figure 45: Winter garden on the ground floor of the drum, looking up at the training track on the mezzanine.



Figure 46: A view of the basketball courts area of the east wing. It is intended to be used by both the community and the veterans as another opportunity for bridging to take place.

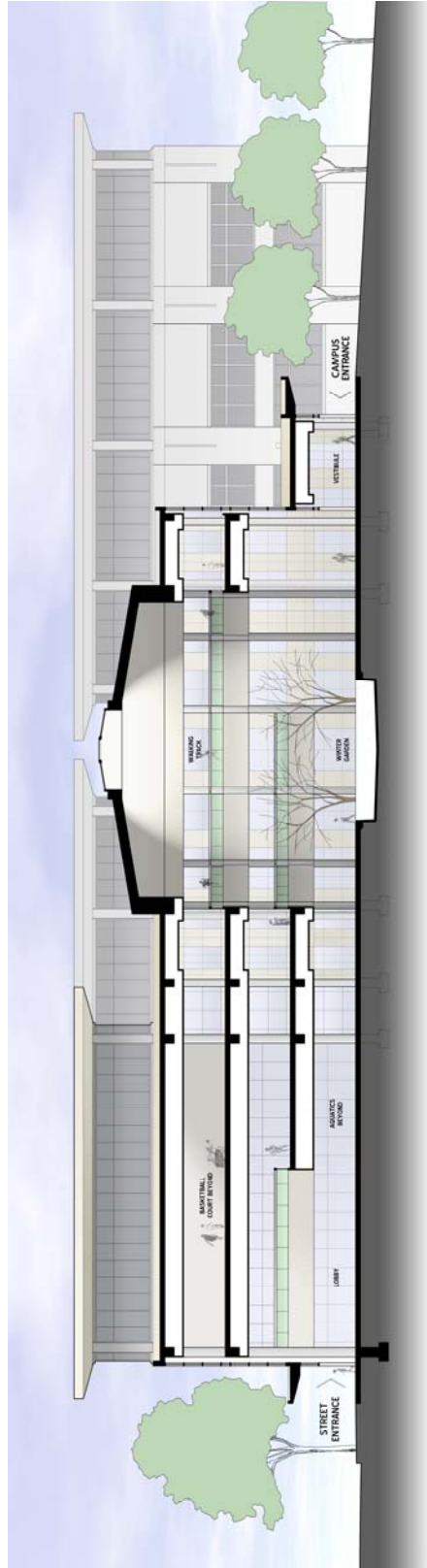


Figure 47: Longitudinal section cutting through the drum atrium.



Figure 48: Cross section of the public wing. Basketball courts above with entrance lobby below.

The exterior of the building was an interesting question. The exterior needed to be sympathetic to the historic buildings that are to be placed on the national register, but at the same time have a modern flair that could bridge the gap between the Georgian style of the campus and the modern style of a state-of-the-art medical facility. The vertical surface design solution of the public and clinical wings presented for the public review took cues from the existing buildings in terms of glazing scale and style. Larger openings to allow in plenty of natural light were of utmost importance to providing a healthy and motivational environment inside.

The drum was conceived as the prosthetic piece that holds the building and the functions within it together. It was designed with a modern flair using materials glass and metal to contrast the heaviness of the more Georgian brick and concrete. It is the center of the place that enables and empowers the inhabitants to break out of their comfort zone in order to be prepared for entering society with their new worldviews.



Figure 49: East elevation, fronting Georgia Avenue.



Figure 50: South elevation, fronting Main Drive.



Figure 51: West elevation, facing the campus green.



Figure 52: Schematic view from the campus. Notice the distinct character of the prosthetic drum linking the two campus-type buildings. The existing campus building is on the left and the new proposed clinical wing is on the right.



Figure 53: The entrance to the prosthetic drum on the campus side.

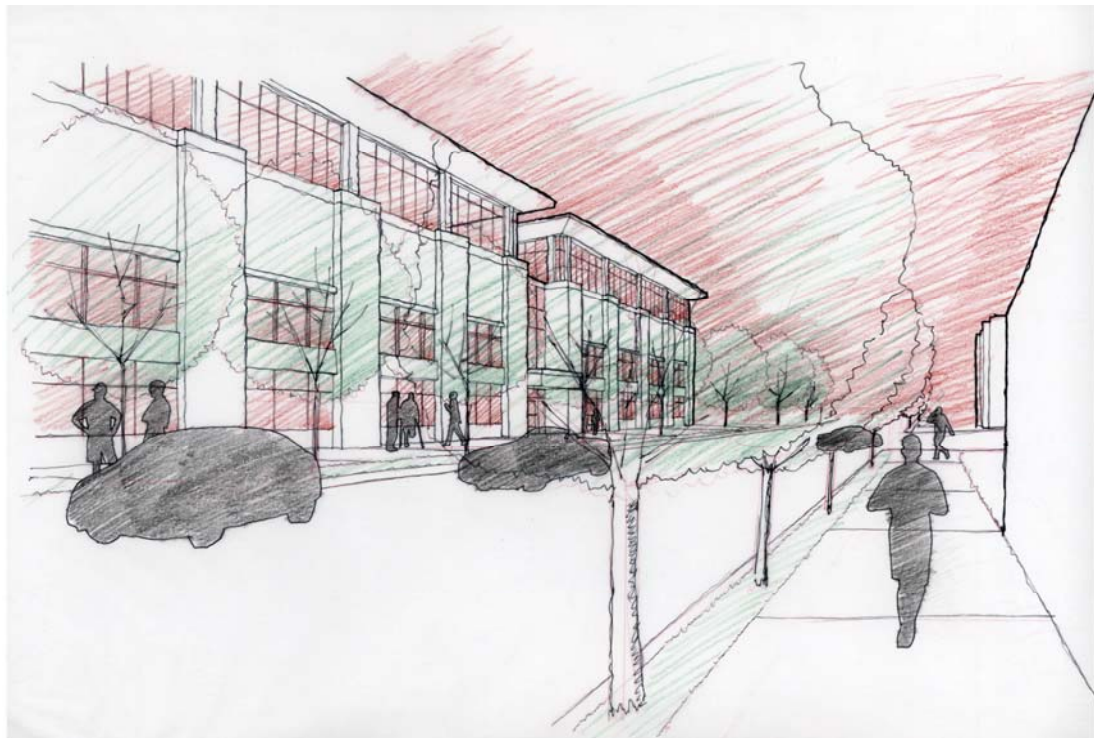


Figure 54: Schematic view studying the character of the Georgia Avenue front of the building.

The landscaping surrounding the building was not an afterthought. All throughout the design process, the landscape was in a constant state of transformation and iteration. Beyond the vertical surfaces, engaging the campus was achieved through the landscape. The promenade from the campus to the drum entrance was designed so that any visitor would know that this building is tied to the history of military medicine that the campus has hosted for over a century. The vertical expression of the building can relate to the context, but it is the landscape that in the end pulls the ensemble together and really makes the building feel like a part of the campus.

Between the new building and the existing renovated veteran's housing, a private courtyard was designed to serve the veteran's housing as well as using it as an outdoor extension of the Physical Therapy gym on the ground floor of the public wing. To the north, future mixed-use development would inhabit the real estate to reinforce the street edge as well as invite the community back onto the campus.

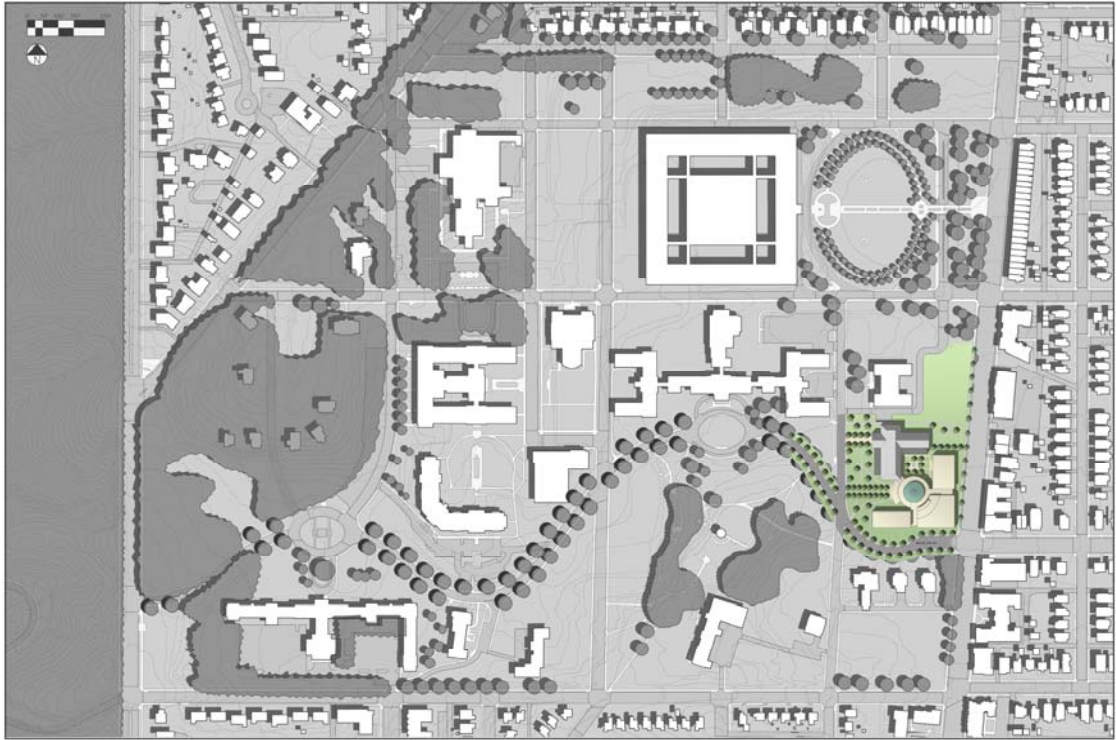


Figure 55: Campus plan with proposed building inserted.

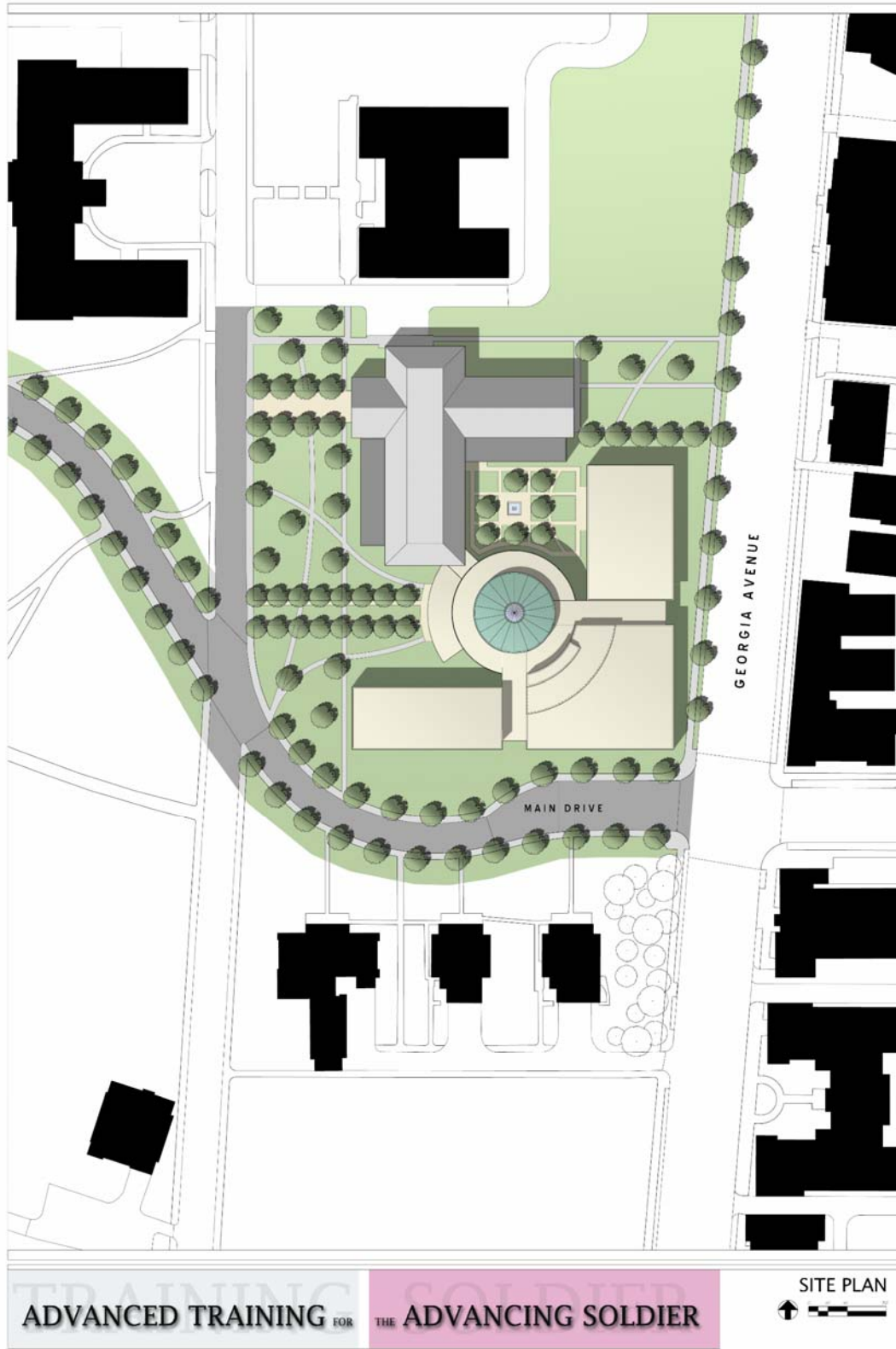


Figure 56: Site plan showing formal promenade on campus side and private courtyard between the two buildings.

Chapter 7: Conclusion

Taking on such an important topic, especially now when the United States is attempting to wrap up the Iraq War, was a difficult task. It was a task that required thoughtful intervention and exploration. Returning veterans can be a fragile issue. Many suffer from Post-Traumatic Stress Disorder (PTSD) and need special facilities and a certain kind of caretaker to make their transition to their new post-duty life successful.

Throughout the thesis process, there have been questions about whether or not the proposed program would be suitable for returning veterans. Would they be ready to face the public so soon after their medical treatments? Even if they were psychologically ready, would they be willing? These questions strongly guided the design. The questions forced me as the designer to consider not forcing the veterans to interact with the community, but to design spaces that provided the opportunity for the accumulation of social capital to take place. Progress is not made by forcing the veterans to partake in activities that they are not prepared for, but by giving them the choice to engage the very communities that they sacrificed so much to protect.

Other questions were also raised about how the community might fit into this type of a building. Would they really be willing to come in and use the recreational facilities despite rehabilitation of amputees that occurred within? There were a few missed opportunities on this front that would have made the project stronger had they been addressed. One such issue was that of arrival, or foyer. The entrances, both on the campus side and, more importantly, on the Georgia Avenue side, were very undercooked. Assuming that the community will use the facility just because it is

there is naïve. Designing the entrances in such a way as to welcome the community into the building and let them know that they are always welcome in this place is an issue that should have been addressed, and were I to continue with the project, would be one of the issues of highest priority.

There were some very insightful suggestions on how the designer might accomplish this goal at the public review. One suggestion was to revisit the vertical surface and make it less sterile and lifeless. It was offered that elevations as they were presented at the public review were extremely generic and gave no indication of what occurred inside of the building. This might be confusing to both community members and passers-by alike. What was this huge new building that was built on a site that the community was previously barred from entering? Perhaps the exterior expression was the first place to address the issue of welcoming.

Another idea was that the building might engage the corner at Georgia Avenue and Main Drive. As it was presented for the public review, the proposal did not address the corner, but simply had the building wrap around the corner to fulfill program requirements. Perhaps the lesson learned here was that the tail may have been wagging the dog during the design process, that is, the program square footage requirements may have been playing too large of a role in the development of the building's shape and expression. A more fluid conversation between program requirements and conceptual design would have been a more productive design model to follow, and the issue brought up may have been addressed during the design.

On the other hand, what is a building if it does not fulfill its functional purposes? If a building is just a shell that looks great but does not fulfill the programmatic requirements called for by the goals of the building, why bother? I did let the tail wag the dog a bit during the process, but no decisions were made completely independent of their consequences. The program was at the forefront of this thesis' concerns, and expression was important, but secondary. The goals of the project were addressed, and many agree successfully.

Now that the most important issues have been addressed, if not resolved, the secondary elements such as expression and theme/metaphor can be further developed to a level as resolved as the program. The project, given its goals at the start, was a success.

Footnotes

¹ Putnam, Bowling Alone p.23

² Putnam, Bowling p.19

³ Putnam, Social Capital Primer

⁴ Putnam, Bowling p.19

⁵ Putnam, Bowling p.23

⁶ Putnam, Bowling p.23

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