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ARCHITECTURAL PROGRAMMING FOR A SOCIAL SERVICES FACILITY

An Interactive Qualifying Project Report

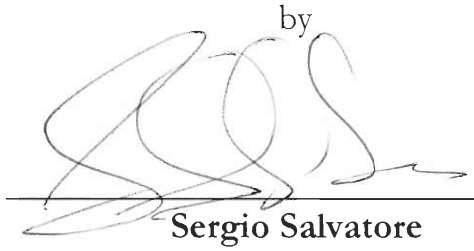
submitted to the Faculty of

WORCESTER POLYTECHNIC INSTITUTE

in partial fulfillment of the requirements for the

Degree of Bachelor of Science

by



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Abstract

This document describes the architectural programming process of a social services facility in Worcester, Massachusetts, known as Friendly House. Information regarding space conditions and requirements was obtained through extensive personal interviews with Friendly House staff and industry professionals. It is anticipated that the findings of this study will assist the architect in the design of a new building for Friendly House, therefore providing a valuable service to a charitable organization.

Acknowledgements

I would like to express my thanks and gratitude to the following people for their support and assistance. Without them, this project would not have been possible.

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Mr. John Wadsworth – Wadsworth & Associates

All the dedicated staff members at Friendly House

Mr. Alberto Salvatore, Mr. John Downes, and Ms. Erika Goss

– TRO/The Ritchie Organization

My Family

My Friends

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1 Introduction

Friendly House is a non-profit social services facility located in the Grafton Hill section of Worcester, Massachusetts. The current facility is roughly forty years old and in desperate need of renovation. Through the years, the building has undergone intense use and is grossly undersized for the services that Friendly House aims to provide. In order solve current problems and increase the quality of service, Friendly House has been taking part in a lengthy development process of a new facility with lead architect John Wadsworth, Wadsworth & Associates, Worcester, Massachusetts. A significant component of the development process is defined as "architectural programming." More specifically, this term (also referred to simply as "programming") pertains to the allocation of space for a given function and its relationship to other spaces, called the "spatial relationship." In other words, Friendly House needs to insure that the new facility has an adequate amount of space allocated for each service provided and that this space is arranged in such a way that provides optimal operations throughout the building. The primary objective of this project is to assist the architect in the programming process by analyzing the current building as well as the preliminary proposed plans.

First, this document describes the history and lineage of Friendly House from its roots in the 1900s and continues with its mission statement and a list of services that are currently offered. Sections 1.4 and 1.5 itemize the problems with the existing building and describe the need for a new building.

Chapter 2 deals with the methodology of this project, including an overview of architectural programming. It also includes a description of the interview and analysis

processes. Additionally, the systems that were designed and implemented to facilitate the collection of data will be discussed.

Chapter 3 describes the various background research that was conducted as a result of this project. Many of the objectives required significant study which was achieved by reading various documents and conducting numerous interviews with Friendly House personnel and other industry professionals.

Chapter 4 introduces the existing building with a narrative "walk through." It also discusses the spatial analysis of the building, important terms used throughout this document, and issues related to the existing building. Comments received through interviews with various focus groups regarding the existing conditions area also described.

The following chapter follows a similar structure for the description and analysis of the proposed plans. A narrative description is followed by floor plans and a summary of the plans by department. Section 5.3 compares the existing building to the proposed plans by comparing the amount of area allocated to each department. Chapter 5 concludes with the various focus groups' reactions to the proposed plans.

As this project represents the first of its kind, directions and suggestions for future research are discussed in chapter 6. Topic suggestions include a discussion of storage logistics, resource allocation, fundraising and cost analysis, and a sample survey to further qualify the findings of this study. Chapter 7 summarizes the findings of this study and includes a personal statement by the author.

1.1 The History of Friendly House

The world has come a great distance from the early days of discovery, colonization, and monarchical rule. The Age of Industrialization, beginning in Europe, changed the world

forever with the prospect of being able to provide mass quantities of products at reduced prices. Although many prospered, many also lived in poverty. In the early 20th century, the United States saw a large wave of immigrants arriving from Europe, in search of a better live in the "land of opportunity." These arriving families settled in cities and towns where there were relatives or the promise of work. According to Friendly House documentation (Friendly House, 1999), Worcester, a then-thriving industrial city of Massachusetts, was the destination for many arriving from Europe and the Middle East. As a result, there was a need for services to further the interests of Worcester's new population. Immigrants needed to be introduced to new customs and traditions while learning how to become a part of civic life. Therefore, based on the settlement house model formulated in Britain, the Worcester Civic League opened the doors of a three-room building on Norfolk Street in 1920, dubbing it "Friendly House."

Initial services at Friendly House ranged from classes in dressmaking to dental care, and later nursery services. Recognizing the need for more space, Friendly House moved to a larger location on Norfolk street before moving to 38 Wall Street in 1928. Coinciding with the move, the Worcester Junior League assumed responsibility for Friendly House which was now recognized as an independent, non-profit organization, complete with a Board of Directors. As the 1930s and the Great Depression approached, the services provided at Friendly House were in even greater need as families tried to make ends meet. Friendly House now was providing services that emphasized children's education as well as space for social, educational, and recreational activities. In 1937, Friendly House acquired a community-based board was now no longer a Junior League project..

Although the 1940s would see the coming of the Second World War and a restored United States Economy, Friendly House was faced with stifling staff shortages. Men and

boys joined the armed forces while women opted for higher paying defense positions. Nevertheless, programs continued, often under the direction young teenagers.

Throughout the 1950s and 1960s, Friendly House was presented with many challenges including increased poverty in the local neighborhoods and the Civil Rights Movement. In 1966, Friendly House received its first major federal grant to provide social services to 2,000 seniors, teenagers, and needy families. At this time, they would being to redefine the term "multi-service center."

In 1972, Friendly House expanded yet again by relocating to a larger building at 36 Wall Street. Again, the organization would see growth in the numbers participating in their programs and establish new services as the need presented itself.

Expansion and adaptation have been the keys to the success of Friendly House. Still, its core philosophy remains the same:

> "Friendly House helps people to help themselves, generate self-reliance and increase their quality of life. The strengthening of the finest family standards and the highest American ideals is the underlying educational purpose of Friendly House. Friendly House provides opportunities for individuals to realize his or her potential for a full life through self-direction and growth."

1.2 Friendly House Mission Statement

According to Friendly House documentation (Friendly House, 1999):

> Friendly House was founded "for the education, social, and family betterment of residents of the City of Worcester." The agency first began operations in 1920 under the aegis of the Worcester Civic League. Friendly House became the freestanding not-for-profit incorporated organization in 1928. Friendly House/Settlement House (multi-service center) works with entire families both nuclear and extended, as an integrating force for the families and the neighborhood(s) it serves. Friendly House provides a continuum of comprehensive coordinated neighborhood basic services to inner-city families.
>
> The agency is committed to neighborhoods and does not view its clientele as a particular population group or problem group, but as the neighborhood. The agency is wellness focused. Although many of our participants come for solutions to their

problems, they also have something to offer. The programs are multi-generational and are not focused upon one group. Friendly house has been characterized by its sensitivity to the culture of the groups it serves.

1.3 Services Presently Provided

The services presently provided by Friendly House include, but are not limited to:

- emergency food
- clothing
- emergency shelter
- rental assistance
- utility assistance
- moving truck rental assistance
- crisis intervention including but not limited to violence, suicide, rape, and substance abuse.
- forms preparation (medical, benefits, housing, court papers)
- translation
- notary services
- emergency travel arrangements/transportation
- prescription assistance
- advocacy
- job uniform assistance
- immigration legal services
- resume assistance
- funeral services

Friendly House operates an after school drop-in program which works with 400+ children on a daily basis. Food services are provided by a dedicated kitchen staff which distribute upwards of 1,500 meals per day during the summer and 600 meals per day otherwise. They are also active in the surrounding neighborhood, organizing events that deal with important issues in the community such as political forums and other general assemblies in addition to Alcoholics Anonymous meetings. The Friendly House Gymnasium redefines the term "multi-use" by serving as a place for athletics, education, and community meetings.

1.4 Problems With Existing Conditions

A tour of the Friendly House building easily describes the difficulties with its current building. The mere 16,000 square foot area of the building simply can not compare to the variety and magnitude of the services it provides. As a result, services that are presently provided and can be easily thought of in a modular sense are literally scattered throughout the building. Possibly the best example of this is the kitchen which has refrigerators located on opposite ends of the building. Worse than that, Friendly House is not able to provide all the services it would like due to space constraints.

Additionally, wear-and-tear has taken its toll on the building over the years. It is constantly in need of plumbing, electrical, and construction work. One can imagine that several hundred children passing through the building per day can increase the rate of deterioration.

1.5 The Need For A New Building

Friendly House has to account for growth and address the needs of its clientele while increasing efficiency. In order to continue to provide existing services effectively and additionally instituting new programs, it has been proposed to construct a new 52,000 square foot building (over 3 times the size of the current building) on the same lot. To increase efficiency, a careful analysis must be performed to determine the current and future needs of Friendly House and how to adequately provide for them.

2 Methodology

One of the first tasks associated with this project, was becoming familiarized with the nature and goals of Friendly House. This was achieved through various discussions with Gordon Hargrove, the Executive Director of Friendly House, and numerous tours of the building. Mr. Wadsworth, the lead architect, was mostly interested in receiving assistance in the programming process. Preliminary plans had already been designed and revised several times. However, the programming process is continual, therefore requiring further analysis of the existing conditions and the latest proposed plans.

2.1 Architectural Programming

The first step in the programming process is to examine the existing building by developing a description of each space including its dimensions and functions. During this process, the original blueprints of the facility were redrawn in a more schematic representation using a computer. Through this examination, a list of categories was developed that represents the various spaces within the building. Each space was then categorized by functional area. To accomplish this collection and manipulation of data, a relational database system was designed and created, using FileMaker Inc.'s FileMaker Pro software, that is capable of automating many of the calculations.

A relational database is a powerful tool for this type of analysis and manipulation. Designing such a system involves determining the relationship between the various types of data that will be gathered. For Friendly House, the relevant data points include the dimensions of the room, its functional classification, and a list of the activities that took

place in the given room. In this case, each room within Friendly House had a different set of activities associated with the room depending on the time of day. This is known as a "one to many" relationship in that there are many activities associated with one room. The previously developed list of categories was used to classify each space and the dimensions were obtained from the architect's original drawings or physical measurement of the space.

Many hours were spent with Friendly House's key staff touring the building and observing each room's functions and cataloging the data using the database system. Additionally, it became necessary to measure other objects including freezers, refrigerators, closets, shelves, etc. in order to find out how much space Friendly House was using for various types of storage. Following the data gathering process, the system was used to classify each space by category. This process was particularly challenging because virtually all of the rooms within the existing building are used for multiple purposes. Often, rooms contain storage for other things that are completely unrelated to the intended purpose of the room. Also, extensive use is made of the corridors which contain cabinets for storage among other things. Quickly, it became evident that an analysis of each room would be less useful. To combat this difficulty, two methods were devised to represent the multiuse nature of the building. The first method (or "inclusive" method) involves recording the amount of space within each room that is used for storage. This method preserves the room as a unit, yet describes the areas used for storage within itself. However, the inclusive method does not allow for multiple classifications of the same physical space, making it difficult to categorize a multiuse room. Through personal interviews with architectural programmers John Downes and Erika Goss of The Ritchie Organization, a leading architectural firm in Newton, MA, a second method was devised. This method involves breaking each room down into its smallest unit by representing each room and storage area

separately, regardless of their location. Although it subdivides the room as a unit, the benefits of this method include being able to total the storage areas separately from the room areas and gives a more accurate picture of the usable space in the room. Then the database system was enhanced to provide detailed and summary reports of the existing building using both of the methods described above. The detailed reports include an hourly account of the activities in each room while the summary reports total all the rooms by functional area or category.

An examination of the proposed plans followed the analysis of the existing building. These plans, which were still in a constant state of development, described a building over 2.5 times the size of the existing building. Using the preliminary drawings provided by the architect, the database system was again used to collect information about each room, including its dimensions and projected function. Then each room was categorized using the same criteria as in the analysis of the existing building. Using the summary reports for both the proposed and existing buildings, a comparison was made between the square footage of each functional area or department to determine the growth factor. After the comparison process, the findings were reported to the architect.

The final task was to meet with various focus groups that were comprised of key staff in each department of Friendly House. Through this structured interview process, further inefficiencies in the existing building were discovered. It was then important to determine whether these inefficiencies were accounted for in the proposed plans.

3 Background Research

In order to properly assist the architect in the programming process, it was necessary to gain some knowledge of the process through a literature review.

3.1 Architectural Programming

According to David Haviland (1987), a member of the American Institute of Architects (AIA), programming is classified as a "pre-design" activity in that it is started before the architect begins to design the building. Although programming is started before the design process, it continues throughout the design process, constantly addressing the needs of the client. Robert Hershberger, also a member of the AIA, mentions that a client requires programming services to "clarify project goals and design issues, provide a rational basis for design decision making, and ensure that the project reflects the client's values" (Hershberger, p 401, 2001).

The primary purpose of architectural programming is to assist the architect in the design of the building with regard to two main factors:

1. space allocation: space allocation deals with the total square footage allotted for a given function.
2. spatial relationship: spatial relationships deal with a space's location within the building as well as the surrounding spaces (adjacencies).

The first step in the programming process is to identify the key decision makers on the project. This is done by working directly with the clients and speaking with directors of various departments. Then, a rough outline of the program is prepared.

The second step is the evaluation and analysis of the present building conditions including an inventory of all spaces and key equipment. Also, an evaluation of the current

building should be obtained from the client along with a list of wants and needs. Following this, a "space requirements outline" is created that includes basic spatial criteria, such as dimensions and proportions as well as services and storage requirements. References should also be made to more detailed requirements for Federal and/or State code compliance. Next, a description of the overall requirements of the building should be developed that includes parking, security, access, degree of privacy, and aesthetic requirements. The role of the building in the surrounding landscape should also be considered in terms of its zoning or environmental impacts, symbolic or aesthetic goals, and pedestrian or vehicular access to the site. The next step involves the definition of the fundamental functional and spatial relationships, including relationships between components or departments and relationships between building components and the outside community. Measures should be identified that allow for growth by recognizing elements that are subject to change over the short and/or long term. Then, a summary of the code, energy, and environmental requirements is prepared to identify what measures can be used for energy conservation and environmental protection during design. Following this, a detailed room and space program is developed that addresses the configuration, access, adjacency, loading, and security requirements. This leads to a summary program that summarizes all these requirements and includes a schedule and budget and discusses the revision and updating process.

The final step involves formally presenting the program to the client. Usually, a multimedia presentation accompanies a written document which is presented to the key decision makers of the project. Following its approval, this document becomes the guideline for developing the design plans and specifications of a new building. This last set of documents is used for construction purposes.

It is important to note that economic considerations often drive the programming process. Even though the program outlines the amount of space needed for the building, the client may not have the budget available to support its construction.

3.2 Focus Group Interview Process

The focus group interviews that took place followed a structured or standardized format. In other words, a set of questions was designed before the interview in order to get reactions to specific concerns. By predetermining the questions, the answers should be comparable and therefore useful in determining an overall reaction. According to the author of *Qualitative Research Methods*, "standardized interviews are designed to elicit information using a set of predetermined questions that are expected to elicit the subjects' thoughts, opinions, and attitudes about study-related issues" (Berg, p 60, 1989).

Before unveiling the new proposed plans, the first question inquired about the inefficiencies of the existing building, in an attempt to reveal department-specific issues. The second question was aimed at determining a list of wants in any proposed building from each department. Finally, the new proposed plans were unveiled and the interviewee was asked to make comments regarding the amount of space allocated to their department and any other concerns that they might have.

Although these interviews with the directors of each department represent an accurate evaluation of the existing conditions and the proposed plans, ideally a survey would be distributed to a wider audience to receive the comments from a larger sample space. Also, surveys do not carry the scheduling burden of a personal interview and can be completed at the subject's leisure. Such a survey would include description of its goals, a freeform area for comments, and a section to rate the importance of various issues using the Likert Scale. The Likert Scale uses a numbered rating system of one to five to rate the relative importance of a given issue that is given by the surveyed population.

4 Description and Analysis of Existing Conditions

Friendly House is located at 36 Wall Street (see Figure 1), on the corner of Wall and Thorne Streets, in the Grafton Hill section of Worcester. The general location and the specific lot are a particularly challenging area for construction. The foundation of the building is embedded in partially excavated shale (a dark fine-grained sedimentary rock composed of layers of compressed clay, silt, or mud) which will require blasting for further excavation. The building occupies the majority of the lot (approximately 70%) which is relatively small, leaving little room for expansion. Limited parking is available behind the building (roughly 20 cars) and across the street (15 cars). The land not occupied by the building has a small lawn and playground area that is rarely used.

Figure 1: Physical Location of Friendly House

The exterior of the building is in a state of disrepair with some areas of the cladding physically detached from the rest of the building. It stands two stories tall with a sparse array of windows and a flat roof.

Upon entering the building via the main entrance on Wall Street, one will immediately notice the collection of donated clothing directly ahead, in a section of the corridor, flanked by two staircases leading to the gymnasium's level. Please see Figure 2 for a floor plan of the existing conditions. To the left are the offices which are shared by the Administration and Social Services Departments (Room 115).

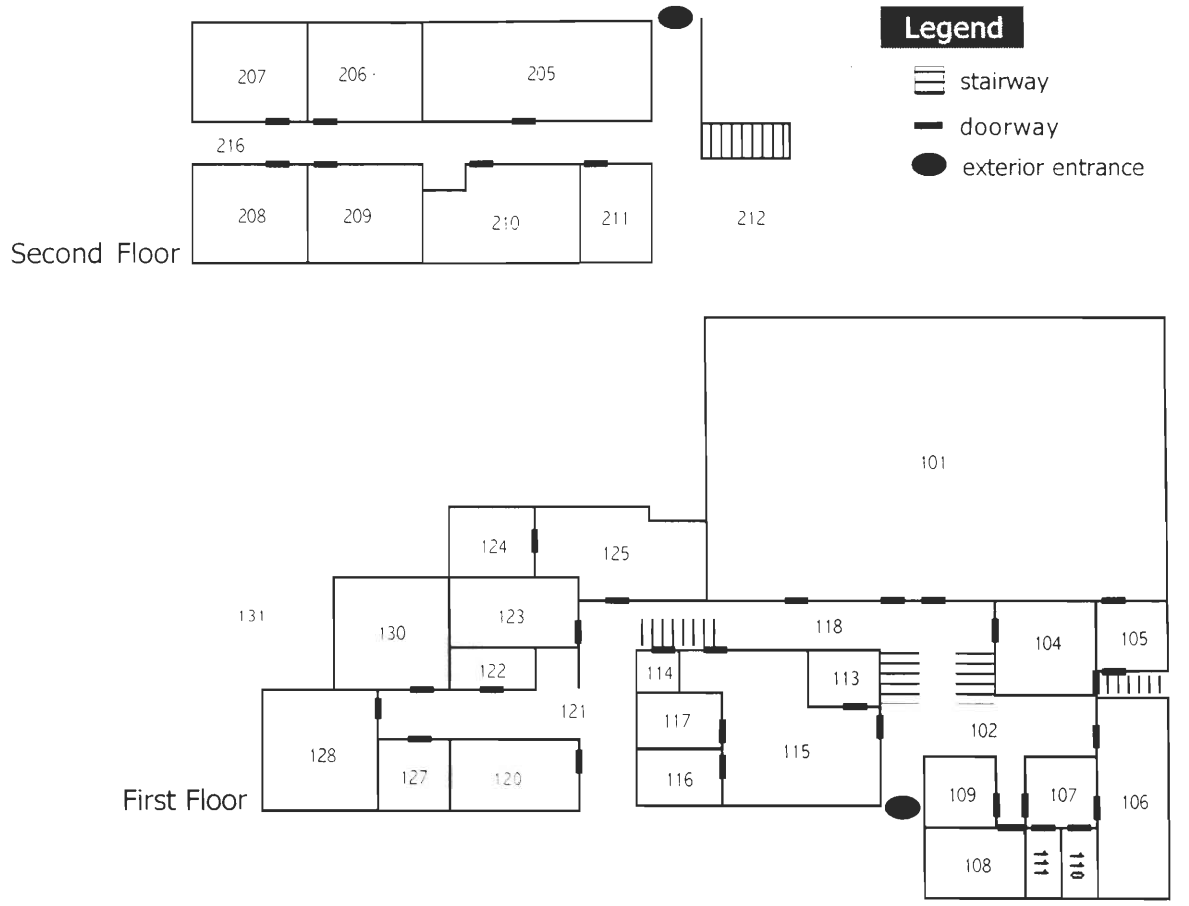

Figure 2: Floor Plan of Existing Conditions

Frequently, a line of people waiting for assistance is formed leading from the offices out into the corridor with no area to sit or even stand out of the way. Further entry into the office area will reveal the small offices for the Executive and Associate Directors (Rooms 116 and 117), which are often shared with others who come to Friendly House to provide various services. Four desks for staff are placed perpendicularly across the wall with windows that face Wall Street. The inside walls are lined with shelves containing food for distribution to those in need.

After existing the Social Services area, one could continue straight past two of the four available bathrooms (Rooms 108 and 109) to the meeting area (Room 106), which also

doubles as a small cafeteria. In fact, during busy seasons, a temporary wall divides the room in half to provide for additional storage. This room also contains two refrigeration units for food storage and a set of shelves for dry goods.

Exiting Room 106 and continuing up the flight of stairs will lead to the kitchen (Room 104). Employees can be frequently found eating in the kitchen because of the lack of a lounge area. Although relatively large for a private home, the kitchen is undersized considering the number of meals prepared per day. During dining hours, staff, with the assistance of children, distribute meals throughout the building because there is no centralized eating location.

While leaving the kitchen, one will almost certainly *hear* the activities in the gymnasium before they *see* its entrance to the right. The gym contains two sets of bleachers for spectators, two basketball hoops, and a curtain that can be drawn to divide the gym in two. In the corner, a chain-link cage sections off an area containing more refrigeration units and additional storage for the kitchen.

Further down the hall and down a flight of stairs, one would pass another bank of refrigeration units on their way to various rooms dedicated to storage. Rooms 124 and 125 are used to store recreational items such as games, balls, and other equipment. Room 123 is the third bathroom available in the building. Rooms 122 and 130 are reserved for short term storage and Room 128 houses the boiler. Room 130 also provides limited access to a large crawlspace, used to store more seasonal items. More storage for the kitchen is provided by Room 127, while Room 130 houses a large walk-in freezer.

Continuing up a flight of stairs to the second level reveals several classrooms. Rooms 207, 208, and 209 provide recreational and educational space for children. Rooms 205 and 206 are partitioned by a retractable curtain and provide more space for children to

play. The last of the four available bathrooms (Room 211) is adjacent to the room used for arts & crafts activities (Room 210).

4.1 Spatial Relationships

Unfortunately, the current building falls victim to several poor spatial relationships. Perhaps the most inconvenient of these is the relationship between the kitchen and the areas used for food storage.

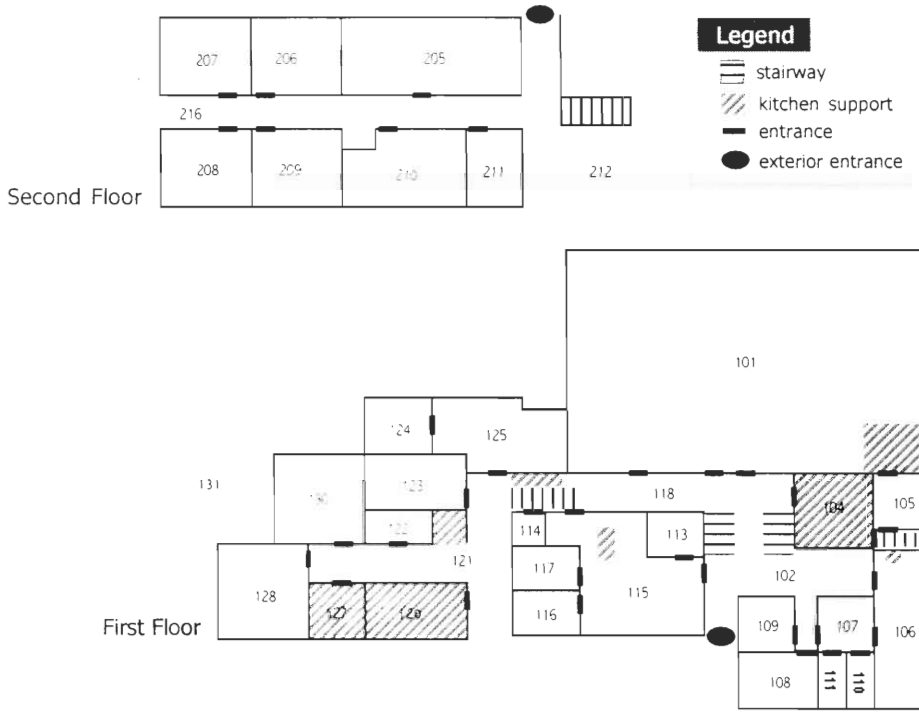

Figure 3: Kitchen Spatial Relationship

As seen in Figure 3, the kitchen's storage areas are located very far away from the kitchen itself. Figure 4 further illustrates the typical walking distances for an employee because of the poor spatial relationship. These distances are particularly staggering when deliveries are made and heavy items need to be carried across the building.

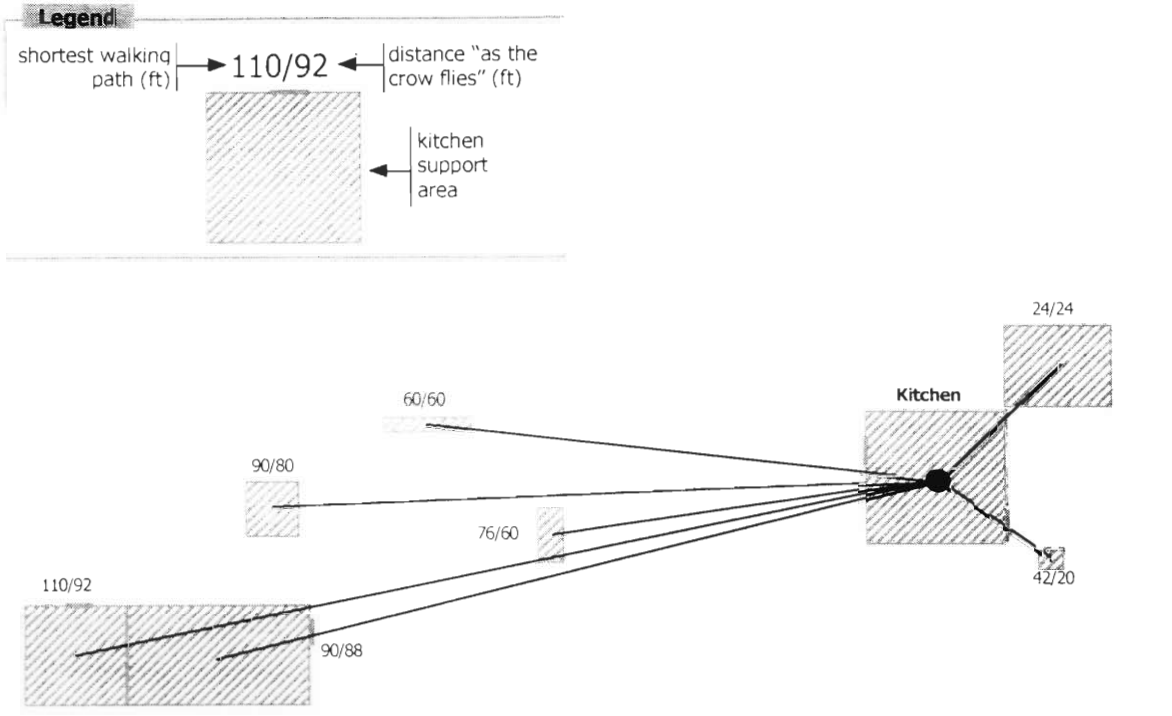

Figure 4: Kitchen Spatial Relationship Analysis

Friendly House is also lacking centralized storage for recreational and other miscellaneous items. As seen in Figure 5, short term storage is scattered throughout the building, making it difficult to locate things and keep track of inventory. Although long term storage is less of a concern, because it is used less frequently, the access to the long term storage areas is quite cumbersome, often having to climb a ladder or pass through a small opening to access the space. Figure 6 shows the long terms storage's spatial relationship.

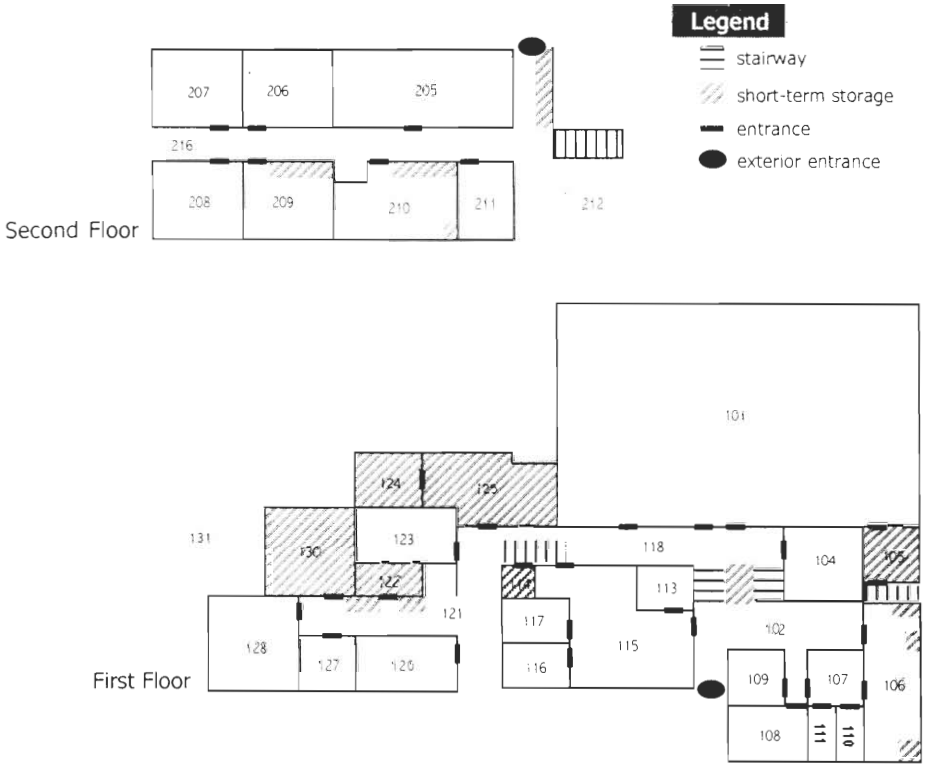

Figure 5: Short Term Storage Spatial Relationship

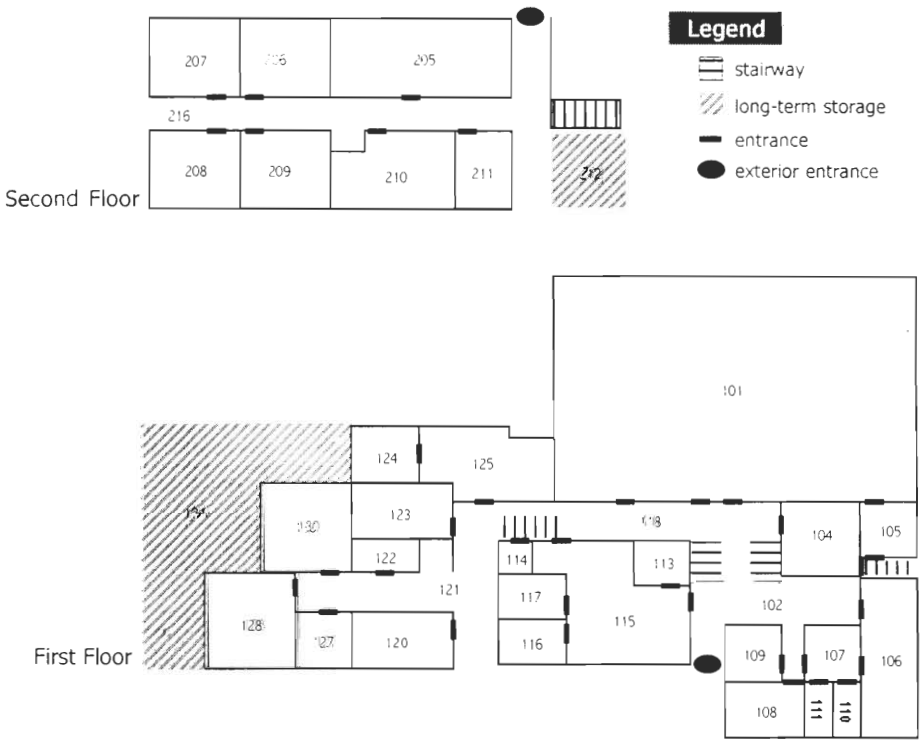

Figure 6: Long Term Storage Spatial Relationship

4.2 Description of Terms

Friendly House's functions can be classified in one of eight categories. Each of these categories, in addition to other terms, is described below in Table 1.

Term	Description
Total Net Area	The Total Net Area is the sum of all the areas of each space excluding the thickness of the wall.
Building Gross	Also known as the "footprint," the building gross is the entire area of the building including the cladding and the walls.
Net to Gross Ratio	The net to gross ratio gives an idea of the buildings efficiency in terms of usable area. Higher percentages are generally better, however each class of building has a specific expected value.
Short Term Storage	Short term storage is defined as an area that is used to store items that are accessed on a daily basis. In this case, these types of items include recreational items (balls, games, etc.) as well as other general storage. It should be noted that this type of storage does *not* include any items relating to the kitchen or kitchen support. Items relating to the kitchen are accounted for in the *Kitchen/Kitchen Support* category.
Long Term Storage	Long term storage is defined as an area that is used to store items that are seasonal in nature and not accessed frequently. These items include seasonal decorations and some rarely used recreational items.
Kitchen/Kitchen Support	The Kitchen/Kitchen Support category is used to represent the kitchen itself and all the spaces that are used to support the kitchen's functions. These spaces include areas for refrigeration and storage of dry goods.
Administration	Areas classified as *Administration* are related to the day-to-day business operations of Friendly House. This category includes offices and conference rooms.
Recreation/Education	Areas classified as *Administration* are related to the day-to-day business operations of Friendly House. This category includes offices and conference rooms.
Building Support	Building Support is defined as an area that houses services that are essential to the operation of the building. These services include heating and air conditioning units (HVAC).
Bathroom	These are the areas used as bathrooms.
Circulation	Circulation is defined as any corridor or pathway that logically connects any space in the building

Table 1: Description of Terms

4.3 A Note Regarding Multiuse Spaces

A significant portion of Friendly House's functional areas are multipurpose and multiuse spaces. In other words, the same room may be used for different activities throughout the same day. Although this arrangement creates a very efficient use of space, it is not very convenient because the same fixed area may not accommodate each activity properly. Multiuse spaces also make it difficult to categorize a room because a single room can be classified in many (and sometimes *all*) categories or departments.

Please see Appendix C for a detailed summary of rooms by department. To properly represent the multiuse nature of the building, all physical rooms are divided into their smallest units. For example: The main office (which would be accounted for in the *Administration* category) has a portion of the area dedicated to store food for the kitchen. This area is not directly related to the administration of the building, yet it occupies space in the *Administration* department. To account for this, the small area used for food storage is given a separate code (room number). The code is constructed using the same room number as the room that the space is physically located in and is appended with a 'K' to signify kitchen support, an 'S' to signify short-term storage, or an 'L' to signify long-term storage. Therefore code '115K' represents the area used for kitchen support *within* the physical space that has the code 115. Naturally, the area associated with the storage is subtracted from the total area of the room to prevent it from being counted twice.

Department	Total Net Area (ft^2)
Administration	1,829.5
Bathroom	620
Building Support	317
Circulation	1,675
Kitchen Support	1,159.5
Long Term Storage	1,951
Recreation/Education	8,863
Short Term Storage	1,171
Total	**17,586**

Table 2: Summary of Areas in Existing Departmnets

Please see Appendix A for a more detailed summary of existing departments.

4.4 Issues With The Existing Building

It is difficult to see, based on the data in the table above, that the current space is currently highly overused. Portions of the corridors and areas within offices and classrooms are used for storage. The classrooms, used for recreational as well as educational purposes, are too small to support the 25 children that routinely occupy them.

Because of space constraints, Friendly House has been forced to discontinue certain succesful programs that are central to their cause. Additionally, the building is operating at its limit, or perhaps even *beyond* its limit, prohibiting growth which is always a factor at Friendly House.

4.5 Focus Group Comments on Existing Conditions

An important part of the programming process is obtaining a sense of the functionality of the existing conditions. Although this was partially achieved by touring the facility numerous times, the best way to understand the functions of the building is to consult with the various employees that occupy the building on a daily basis. To this end, key personnel in each of Friendly House's departments were identified and interviews were subsequently scheduled. One of the goals of the interview was to determine the inefficiencies of the building from the employee's point of view. Each director's comments on this matter are described below.

4.5.1 Diane Mikulski, Director of Food Services

Diane Mikulski, as Director of Food Services, is in charge of managing the kitchen staff and insuring that breakfast, lunch, and dinner run smoothly. Additionally, Mrs. Mikulski is in charge of ordering and managing relationships with various vendors. When asked what she disliked about the existing building, Mrs. Mikulski was quick to point out numerous inefficiencies.

General deliveries of food products to Friendly House occur on a biweekly basis while deliveries of milk occur daily and deliveries of bread occur as needed. On a regular basis, large eighteen-wheeled trucks are forced to navigate the narrow intersection of Wall Street and Thorne Street, where Friendly House is located. The only way for products to be delivered is through the rear entrance to the gymnasium. Therefore, any activities that are going on in the gym need to be suspended while the delivery occurs. All the main storage areas, including refrigerated storage areas, are located downstairs and are a great distance from both the kitchen and the loading entrance.

Additionally, Friendly House has five separate commercial refrigerators, two self-contained freezers, and one large walk-in freezer. To be more efficient, Mrs. Mikulski recommended that the freezers be consolidated into one larger walk-in freezer with an additional walk-in refrigerator add-on. One standalone refrigeration unit is still needed in the kitchen to store frequently accessed items. By consolidating the freezing and refrigeration units, Friendly House would be able to conserve more energy.

Overlapping services is a perpetual challenge at Friendly House. During the Holiday Season, Friendly House stores huge amounts of food for distribution to families in need. This year, the Social Services Department of Friendly House was responsible for distributing 4,000 turkeys over a time period of two months! Because the Social Services Department does not have independent freezing facilities, they are forced to share the facilities that are used for general food storage. Often, hundreds of turkeys need to be moved in order to access items that are behind them. It is not uncommon to see dozens of outdoor coolers filled with ice and turkeys in the halls of Friendly House during the Thanksgiving season.

Diane also mentioned that the current kitchen does not have a dish washing machine. Friendly House uses hundreds of disposable plates and cups on a daily basis. The addition of a dishwasher would cut waste significantly and would be more friendly to the environment and less expensive. Friendly House could also potentially cut costs by switching to gas stoves. Currently, there are no backup generators or other provisions should the building loose electricity. Mrs. Mikulski also explained that Friendly House does not have a washer or dryer, forcing them to use a relatively expensive linen service to wash and dry towels. She goes on to explain that space is the only reason that a washer and dryer have not been purchased.

Because of Friendly House's restricted space, employees often gather in the kitchen to eat and socialize, making it difficult to maintain. The kitchen's staff also does not have a dedicated bathroom or washroom, and Mrs. Mikulski's office is located far away, making it difficult monitor the activities in the kitchen (Mikulski, Personal Interview, 12/4/2001).

4.5.2 Josephina Velez, Director of Social Services

Roughly 80% of the people that enter Friendly House (discounting the children's programs) are seeking social services, clearly making the Social Services Department one of the most popular at Friendly House. Often, people come for emergency food or emergency clothing, and for various types of counseling. Currently, food is stored in a makeshift pantry and donated clothes are stored between two staircases in the lobby of the building.

Ms. Velez notes that there is no dedicated waiting area for people as they enter the building. They are forced to stand or walk throughout the building while waiting for services. The open nature of the offices used for Social Services does not afford much privacy, making it awkward for people to reveal personal affairs in a semi-public space while people wait in close proximity.

Friendly House is also required to keep track of donations and the distribution of food and clothing for emergency purposes. Currently, there is absolutely no security for the food or the clothing, making it virtually impossible to keep accurate records of what items are available. In addition to internal records, Friendly House is required by law to store records of people that received services for five years. Ms. Velez explains that they are stored in large, stacked file cabinets within their main offices, taking up a significant amount of space.

Ms. Velez also notes that there is no area for the staff to eat, nor is there a private staff bathroom (Velez, Personal Interview, 12/4/2001).

4.5.3 Sabrina St. Martin, Director of Child Care Services

The Department of Child Care Services of Massachusetts recently revoked Friendly House's license for state-funded child care because the rooms in the building did not meet code requirements. Therefore, children are forced to go to an alternate site for this program. Friendly House would like to bring the state-funded program back to Friendly House once the new building is built

Ms. St. Martin explains that the current rooms that were used for child care services did not meet the code requirements of 35 square feet per child. Also, children that are taking part in the state-funded program should not be intertwined with other children taking part in other community-based programs. There are number of state and federal regulations that need to be considered in order for the program to return to Friendly House (St. Martin, Personal Interview).

4.5.4 Edwin Rosario, Director of Accounting and Finance

Mr. Rosario explains that at one point or another, every activity that occurs at Friendly House passes through the Accounting Department. The current office space is old, dilapidated, and does not allow for *any* natural light, making it a very unpleasant work atmosphere. Mr. Rosario notes that "our mission is not to have fancy things." However, the addition of a window or two would create a much more pleasant workplace.

The Accounting Department is also required by law to keep payroll records for seven years, although Mr. Rosario mentioned that they try to keep all records for at least seven years, adding to the myriad storage problems of Friendly House. Additionally, state auditors often visit Friendly House, and the cramped offices do not provide enough space for them to work (Rosario, Personal Interview, 12/4/2001).

4.5.5 Jim Williams, Director of Recreation

Mr. Williams is responsible for managing the hundreds of children that pass through Friendly House on a daily basis. Most of the children take part in recreational or educational activities that are organized by Jim. Presently, children use the gymnasium and the classrooms for their activities. Space constraints are a constant problem, as Mr. Williams explained. The 380 square foot classrooms hold 25 children on average which makes it difficult to play games and can cause behavioral problems. A regular class room without dedicated plumbing is currently used as an "Arts & Crafts" room. The lack of sinks and other equipment make it extremely difficult to maintain. Also, additional storage is needed in each classroom for games and other materials that are used.

Dining is also a big concern for Mr. Williams. Presently, children have to be distributed through three or four separate rooms during lunch and dinner times. Then it is the job of the staff and a few selected children to transport the meals from the kitchen to each rooms. Rooms can be located upstairs or on the opposite end of the building. It is for this reason that Mr. Williams requested a large cafeteria where all the children can eat together. That would make it much easier to distribute food, watch the children, and maintain the rooms.

Mr. Williams also mentions the shortage of bathrooms for both the children and the staff, in addition to the lack of space for employees to gather during dining hours. Staff can frequently be seen eating in the conference rooms, classrooms, gymnasium, kitchen, or occasionally at their desks amidst stacks of papers. The addition of a staff lounge and dedicated staff bathrooms would alleviate this problem easily.

Storage is also a primary concern for Mr. Williams. The current building stores recreational items using a disorganized conglomeration of disjoint space. Storage can be

classified as short-term or long-term as many of Friendly House's activities are seasonal in nature. Mr. Williams estimates that approximately 70% of the items stored would be classified as short-term, while the remaining 30% would be long-term storage.

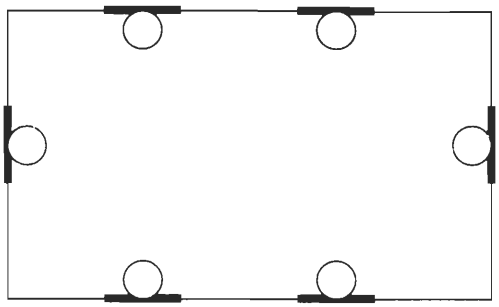

Figure 7: Basketball Hoop Layout

The current gym has two basketball hoops which see almost constant use. Jim suggests a larger gym similar to Worcester Polytechnic Institute's Harrigton gym which supports six hoops as shown in Figure 7. Mr. Williams also mentions that cold Massachusetts winters bring an influx of coats for each of the children. Currently, there is no way to efficiently store children's coats. This creates a need for a method that allows young children to easily store their coats (Williams, Personal Interview, 12/6/2001).

5 Description and Analysis of the Proposed Plans

Once the decision to develop a new facility was made, Friendly House began to consider moving the site to an alternate location. The constraints of the lot were a constant challenge, always adding to the expense and complexity of the project. However, Friendly House began to realize that it had become a permanent fixture in the community and was in close proximity to those needing social services. To that end, the decision was made to keep the existing lot and make the best of its natural constraints.

The proposed plans describe a building over 2.5 times the size of the existing building (see Table 2 for a summary of each area by department). The shear increase in volume will require additional blasting of the foundation bedrock and increases the severity of the parking problems that already exist at Friendly House. Preliminary designs call for an increase in the parking available at the rear of the building by further blasting away the rock that currently restricts the parking to roughly twenty vehicles. The small lot on the opposite side of Wall Street will be renovated to include required handicapped accessible spaces and compensate for the steep slope of the hill. Other possibilities include satellite parking lots within walking distance to the facility. The primary factors in the amount of parking required will be the level of code compliance enforced by the City of Worcester, the granting of a variance, and the cost of excavation for more spaces.

Egress is a major concern for the new facility, especially considering those that are handicapped. Because the new plans make use of more floors, an elevator becomes a necessity. The site itself makes these issues more difficult to solve because of its steep slope and close proximity to the boundaries

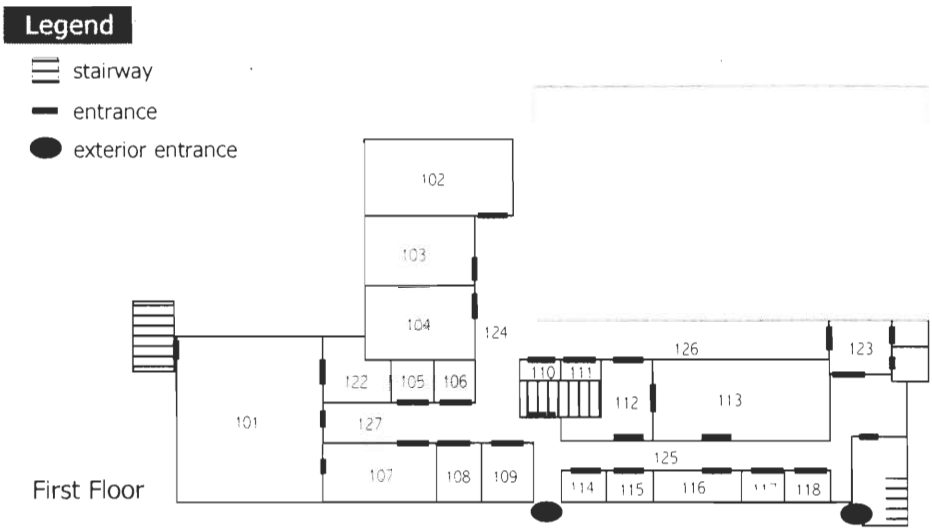

Figure 8: First Floor of Proposed Plans

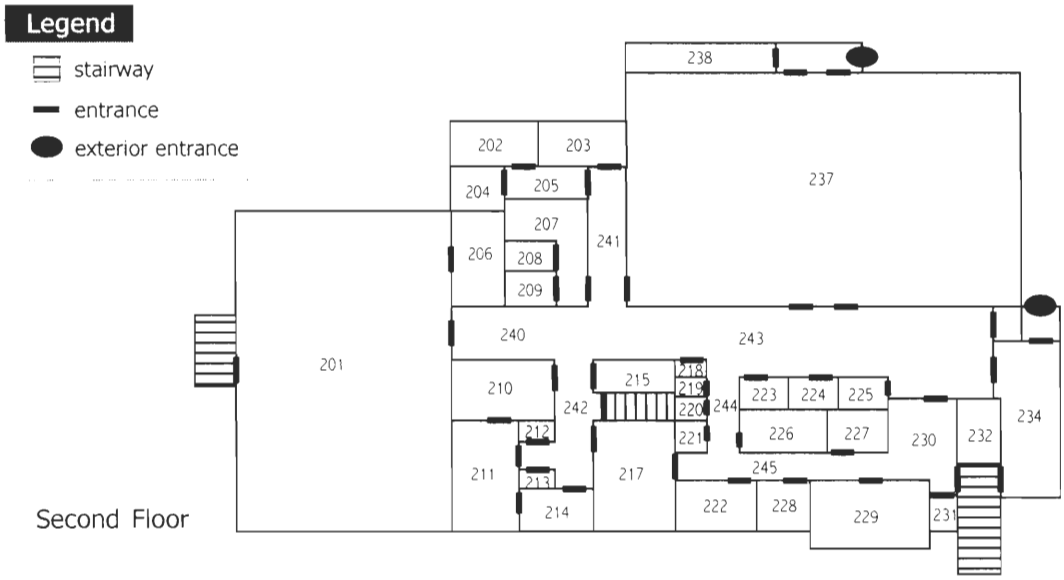

Figure 9: Second Floor of Proposed Plans

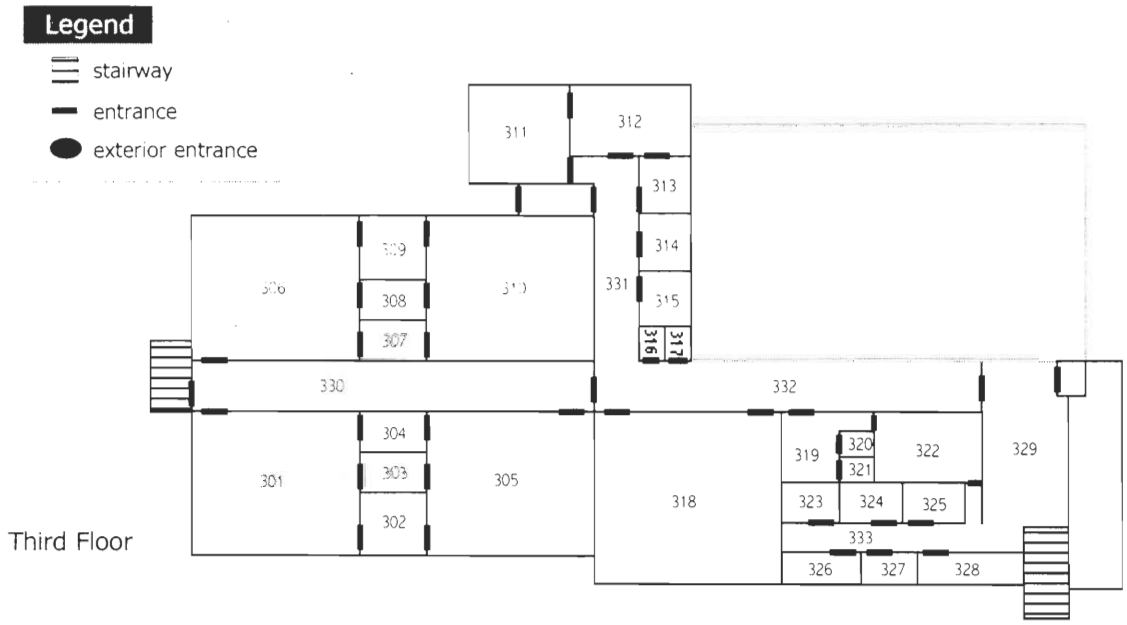

Figure 10: Third Floor of Proposed Plans

Exact details regarding the exterior of the building are not yet finalized at this developmental stage of the project, however it is known that the building will stand three stories tall and offer entrances on both the first and second levels. Please see Figures 8, 9, and 10 for floor plans of the proposed building.

A "zoned approach" was taken in the design of the proposed plans. In other words, the functions of the building were separated into discrete units which were then clustered together physically. By taking this approach, entire areas of the building can be secured when they are not needed. Presumably, each department has a dedicated zone for itself. Please see Figures 8, 9, and 10 for a floor plan.

The Social Services Department will be located on the first floor. Ample office space is provided along with a meeting room for the elderly (Room 101), conference cubicles to insure privacy (Room 113), and separate storage for furniture, clothing, and food (Rooms

102-104). A waiting area also provides space for seating while people wait for consultation. Other welcome additions include dedicated staff bathrooms and lounge areas.

The second floor will house the Administration Department and kitchen. Again, increased office space is provided, along with more bathrooms and staff lounge areas. A centralized meeting room/cafeteria (Room 201) is designed to support 275 people and is located adjacent to the kitchen (Room 211) for easy access. Currently, the proposed plans preserve the location of the gymnasium (Room 237) but add more storage and bathroom/shower facilities. A waiting and reception area is also provided to eliminate lines of standing people and provide checkpoints for entering visitors.

Educational and recreational activities take place on the third floor in any of the four classrooms (Rooms 301, 305, 306, 310), dedicated arts & crafts room (Room 312), recreation room (Room 318), or library (Room 311). More offices are provided in addition to more storage and space dedicated for collocation.

Please see Appendix B for a summary of the rooms in the proposed plans by department.

Department	**Total Net Area** (ft^2)
Administration	5,202
Bathroom Showers Locker Rooms	1,744 373 336
Building Support	0
Circulation	8,754
Kitchen Support	1,577
Short & Long Term Storage	2,951
Recreation/Education	20,914
Total	**41,851**

Table 3: Summary of Areas in Proposed Departments

5.1 Comparison Between Existing and Proposed Buildings

The following tables compare the existing building with the proposed building by examining the areas allocated to each department and their associated growth factor. It is interesting to note that while the overall building size has increased by a factor of 2.39, the circulation growth factor is 5.23. The increased amount of space for circulation is a classic ramification of a larger building.

Description	Total Net Area (ft^2)	Building Gross (ft^2)	Total Net / Gross
Existing	17,490	18,940	92.3%
Proposed	41,851	50,800	82.4%

Table 4: Comparison of Total Net to Building Gross Ratios

Description of Area	Existing (ft^2)	Proposed (ft^2)	Factor	Note
Total Net	17,490	41,851	2.39	
Short & Long Term Storage	3,142	2,951	0.93	The decrease in area available for storage is largely due to the further excavation that will eliminate the crawl space which accounts for 1,696 ft^2 of long term storage.
Kitchen/ Kitchen Support	1,159.5	1,577	1.36	
Administration	1,829.5	5,202	2.84	
Recreation/ Education	8,863	20,914	2.36	
Building Support	317	0	0	Proposed plans do not specify dedicated building support areas. It is likely that rooftop-mounted units will be used to optimize space allocation.
Bathroom Showers Locker Rooms	524 0 0	1,744 373 336	3.32 - -	The current building does not include any shower or locker room facilities (that are used for that purpose).
Circulation	1,675	8,754	5.23	

Table 5: Comparison of Functional Areas by Department

5.2 Issues With The Proposed Plans

Loading is a serious issue with the proposed plans. The main entrance and loading area is located on the opposite side of the building from the kitchen, making it difficult to transport items to and from the kitchen storage areas. Traffic flow is also concern, considering that most people will be seeking social services, which is located on the first floor. Although an entrance is provided on the first floor, it is unclear what its relationship will be to the main entrance on Thorne Street which is located on the second level. This relationship will most likely be driven by the parking conditions which would determine which entrance is closer to the client.

Compliance with fire codes is a major concern. Often, simply complying with regulations is not enough to create a building that is safe from fire. The multiuse nature of the facility creates a more complex issue, in terms of code compliance, because different classifications for spaces have different fire protection and egress requirements. The patterns of egress require analysis to determine the most likely path taken in the event of a fire.

The recent passing of the American's with Disabilities Act (ADA) creates more issues for Friendly House. Perhaps the most difficult issue will be entering the building from the outside parking areas. The highly sloped streets and elevation of the building create obstacles for handicapped access. Inside the building, a single elevator may not be sufficient for the free movement of disabled people, especially considering that the elevator will be used for transporting freight as well.

5.3 Focus Group Comments on Proposed Plans

5.3.1 Diane Mikulski, Director of Food Services

To recap, Mrs. Mikulski is responsible for managing all the meal preparation and distribution that occurs at Friendly House. Through her numerous comments itemized in the *Focus Group Comments on Existing Conditions* section of this document, an overall design and space requirements outline was created for the architect which was used during the design phase.

Although Mrs. Mikulski is satisfied with the area directly allotted to the kitchen, she is concerned with the location of the kitchen within the building and the amount of storage available. Location is an issue because, according to the plans, there does not appear to be an accessible area for loading. It is assumed that deliveries (which occur biweekly) would be carried through the main entrance (located on Thorne Street) across the majority of the width of the building to the kitchen. This process can be especially arduous if a large order is being delivered. Ideally, the kitchen would be located near a loading dock to facilitate quick loading/unloading of materials.

Mrs. Mikulski is also concerned with the amount of storage available. In an effort to consolidate freezer and refrigerator units, she would like to use a walk-in freezer/refrigerator. Space allocated for such a unit would leave little space left over for storage of dry goods and other items. Furthermore, the plans need to be further detailed to determine which areas allotted for storage would be dedicated to the kitchen.

Additionally, space for a dishwasher, washing machine, and dryer has not been allocated. Mrs. Mikulski noted that she would rather have one less bathroom, and a small area for these units instead. A logistical issue was also raised: If the cafeteria was designed to support 275 people, there would most likely have to be a significant area allocated for

storage of tables and chairs in the likely event that the room's configuration is changed. It is unclear from the plans if this situation was accounted for.

5.3.2 Edwin Rosario, Director of Accounting and Finance

Edwin was generally happy with the proposed plans. He noted that there was enough space for he and his staff to work efficiently and to provide space for auditors that frequently require access to records at Friendly House. He also confirms that the area seems to provide a friendlier work atmosphere that allows for natural light and a view of the surrounding area. Otherwise, Edwin was curious as to why space was allocated on the ground floor for the Accounting Department. He mentioned that outside visitors rarely visit his department and that a more suitable location might be on the third floor, therefore freeing more area on the ground floor for other, more frequently accessed services.

5.3.3 Josephina Velez, Director of Social Services

Ms. Velez was generally content with the amount of space allocated for the Social Services Department. However, there was a concern about its location: the first floor, which is partially below ground and not the floor of the main entrance. As was previously mentioned, between 70-80% (discounting children for recreational or educational purposes) of Friendly House's clientele is seeking social services, meaning that the majority of the traffic through the building would have to travel to a different floor by stairs or elevator. It is unclear whether a separate entrance to the Department will be provided and what its relationship to the main entrance (on Thorne Street) will be.

Ms. Velez was happy to see that space was set aside for food, clothing, and furniture storage. Still, she was concerned with the flow of traffic and the logistics of accessing these areas. This topic is one of great importance at Friendly House and needs to be further investigated. There does not seem to be an easy way for items to be donated, nor an easy

way for donations to be accessed by others. The location of these rooms is less of a space allocation issue and more of a spatial relationship and logistical issue.

5.3.4 Jim Williams, Director of Recreation

Mr. Williams was very excited about the new plans. Provisions had been made for larger classrooms and recreational areas, a centralized eating area, and a much needed Arts & Crafts room. One of the current problems is the overuse of the gymnasium, which Jim believes is solved by the addition of these areas.

Jim also mentioned the need for some outdoor areas for children to play during warmer months. Although the landscaping phase of the design process is further in the future, playground areas should be considered for inclusion in the site plan if possible.

5.3.5 Sabrina St. Martin, Director of Child Services

More detailed plans are required in order to determine the viability of the plans for the Child Services Department. There are issues with the sharing of space between children in state-funded daycare programs and those not in such programs. These issues require a review of state regulations and requirements and further discussion on the use of classrooms and other facilities in the new building.

6 Directions for Future Research

This study accomplishes its goal of evaluating and comparing the existing and proposed buildings to assist the architect in the design of the new building. However, this analysis represents only a small portion of the planning that needs to be done to make the new Friendly House a success.

A survey to be distributed to all Friendly House employees and clients is necessary to further qualify the results of this study and reveal other issues that have yet to be considered. A sample survey is offered below in Section 6.1. Logistics are a frequent concern for Friendly House, especially with regard to storage. Prospective topics for future research are discussed in Section 6.2. Because of the seasonal nature of their business, Friendly House's resources undergo a severe strain seasonally. An investigation into optimal resource allocation would be beneficial, and is outlined in Section 6.3. Once the plans are finalized, assistance will certainly be needed in the fields of cost analysis and fundraising which are discussed in Section 6.4.

6.1 Survey

Unfortunately due to time constraints, this study was not able to sample larger focus groups to gain reactions to the existing and proposed buildings. Ideally, a survey would be widely distributed, completed, and analyzed to make the findings of this study (or any other study) more conclusive. A sample is shown in Figure 11 below.

Friendly House Survey

From: Friendly House Building Committee
Regarding: Proposed New Building

The Building Committee is requesting your comments and feedback on the following:

Needs to be addressed

- storage available for food
- storage available for recreational items (balls, games, etc.)
- storage for records and files
- space available in classrooms
- space available for dining
- security concerns
- parking

Please comment on the above and add any additional perceived needs:

_____

_____

_____

_____

_____

_____

_____

Please prioritize the following by circling one number per line:
(5 – critical, 4 – very important, 3 – important, 2 – not very important, 1 – not a concern)

More Parking	5	4	3	2	1
Handicapped Access	5	4	3	2	1
Security Concerns	5	4	3	2	1
Centralized Dining Area	5	4	3	2	1
Staff Lounge Areas	5	4	3	2	1
Amount of Bathrooms	5	4	3	2	1
Dedicated Arts & Crafts Room	5	4	3	2	1
Office Environment	5	4	3	2	1

Please return this form to the Building Committee. Thank you for your time!

Figure 11: Friendly House Survey

6.2 Storage Logistics

One of Friendly House's primary functions is the storage of a wide range of items from food to games and sports equipment to documents. A logistical study that determines an optimal storage method would be valuable to Friendly House. Potentially, a computer system can be used for document archiving that would substantially reduce the space needed for file cabinets. A team would observe where items are stored and analyze the flow of traffic throughout the building to determine the best location for storage. The location includes not only the physical room in which the items are stored, but the location *within* the room. In some instances, it is possible that Friendly House would be able to store some infrequently used documents and/or equipment at an off-site location to alleviate space constraints. This would involve a feasibility study to determine whether such a plan would suit Friendly House's needs as well as be cost effective. Storage logistics also include how each item is accessed. There is often a steady stream of people with donations of food and clothes as well as an equally steady stream of people who need access to those donations. In this instance, a way for people to make donations quickly and easily needs to be devised that allows quick access for those in need and provides some measure of aesthetic pleasure.

6.3 Resource Allocation

One of the more challenging parts of Friendly House's operations is coping with severely increased demand during holiday seasons. In other words, the daily stress on the building can easily double or triple during Thanksgiving or Christmas. Also along the lines of logistics, new and more optimal ways to distribute resources like food and information should be devised in order to ease the stress on the facility. Possible solutions include

satellite locations for food distribution and a type of "drive thru" system to eliminate parking and traffic hassles.

6.4 Fundraising and Cost Analysis

Cost analysis involves determining the major factors that contribute to the cost of construction. Construction of the building carries a relatively fixed cost, yet there are other costs associated with the site that add to the bottom line. In Friendly House's case, the composition of the subsoil makes construction especially difficult and expensive. Further excavation would provide for more usable area for the building and parking, which is a major issue. A study is required to analyze the feasibility and costs associated with the excavation process. Such a study would ultimately determine the amount of funds that need to be raised.

Once the design of the new facility is completed, it is certain that Friendly House will then embark on a financial campaign to raise money for the new building's construction. A potential project could examine the best ways for fund raising and assist Friendly House in their efforts. The Department of University Relations at WPI is well versed in campaign finance tactics and can be used as a knowledgeable source. Also, an examination of government-sponsored programs which provide funding would be pertinent and serve as a significant component to such a project.

7 Conclusion

This study's primary purpose was to assist the lead architect, John Wadsworth, in the design of a new building for Friendly House through an analysis of the existing conditions and proposed plans. Through extensive visits to the site and many personal conversations, this goal was realized. Products of this project include an extensible relational database system that catalogs the functions of each room of the existing and proposed buildings, summary and detailed comparisons between both buildings, and a thorough analysis of the proposed plans, as well as a set of suggestions for their improvement.

7.1 Personal Statement and Reflections

When I began to search for topics for an IQP, I had a number of criteria that I was striving to meet. First, I needed to stay in the Worcester area because of other commitments (work, etc.). Second, I wanted to be involved in a project that would have some *real impact* on someone or something. I knew that I was going to be spending a considerable amount of time on the project, and because of that I wanted to make sure that it would be worth *something* to *someone* besides myself. Lastly, I wanted the project to have something to do with buildings. Although I am a Computer Science major, I have a strong interest in Civil Engineering and I was interested doing something outside my main discipline for this project.

After much discussion with Professor Roberto Pietroforte of the Civil Engineering Department, he suggested that I work on a project involving architectural programming for a social services facility in Worcester called "Friendly House." The organization was in need

of help to prepare for the construction of a new building, and Professor Pietroforte assured me that my interests in architecture and engineering would suit me well. At that point, it seemed like all my objectives were met, but I was in for more than I had bargained for.

Working on this project has been somewhat of a life-changing experience for me. Friendly House's chief goal is to help those in need, and only by walking through the halls can one truly appreciate the magnitude of their mission. Many of their clients can not speak English, are homeless, are in need of food or clothes, or are victims of various types of abuse. Additionally, hundreds of children call Friendly House their "home away from home" while their parents work during the day. All of this illustrates that there is great inequality in our society because there are some that have "everything," and more that have "nothing." Friendly House aims to reduce the magnitude of this division by helping those in need. Personally, my family is far from rich, but we are well-settled in middleclass suburbia. As a child, I was fortunate enough to be part of a loving family and never had to know what it felt like to be hungry or alone. Although I am certainly not ashamed of my upbringing, I must admit that I was rarely exposed to the problems that Friendly House faces routinely. To that end, it has made me appreciate the opportunities I have had and continue to have on an even greater level. Because of this, the chance of making even a small difference by helping the people of Friendly House is truly rewarding and fulfilling. In reality, Friendly House is one of many examples of the progression of society. In can easily be argued that society, in general, has progressed throughout the years. However, it is obvious that the distribution of wealth becomes increasingly imbalanced as time continues. This proves that there is an even greater need for organizations such as Friendly House.

A large part of the IQP is working with other people or groups. This component holds the potential for disaster or the prospect of a fruitful relationship. I am happy to

report that both Gordon Hargrove (Executive Director of Friendly House) and John Wadsworth (Lead Architect, Wadsworth & Associates) are easy-going and a pleasure to work with. They are always eager to lend their limited time to help in any way they can. Additionally, the overworked and underpaid staff members of Friendly House is extremely pleasant. It is truly inspiring to see those employees with smiles permanently engraved on their faces. Even though their current work atmosphere leaves much to be desired, they make due and find ways around these obstacles to accomplish their goals.

It is without reservation that I wholeheartedly recommend this project to any student at WPI wishing to take part in something meaningful. I can only hope that my small contribution will help Friendly House realize their goal of a new and improved facility and I would encourage many to follow in my footsteps and help in any way possible.

8 Bibliography

Berg, Bruce L. *Qualitative Research Methods for the Social Sciences.* Needham Heights: Allyn & Bacon, 1989.

Downes, John and Goss, Erika. Personal Interview. November 19, 2001

Friendly House. Internal Documentation and Literature. September 1999.

Hargrove, Gordon. Personal Interviews. September, October, November, and December, 2001.

Haviland, David. *Predesign Services.* Washington, D.C.: American Institute of Architects, 1987.

Hershberger, Robert G. *Planning—Predesign Services: The Architect's Handbook of Professional Practice.* New York: John Wiley & Sons Inc., 2001

Mikulski, Diane. Personal Interview. December 4, 2001.

Rosario, Edwin. Personal Interview. December 4, 2001.

St. Martin, Sabrina. Personal Interview. December 4, 2001.

Velez, Josephina. Personal Interview. December 4, 2001.

Williams, Jim. Personal Interview. December 6, 2001.

9 Appendices

Appendix A: Summary of Existing Areas by Department

ADMINISTRATION

Code	Description	Note	Net Area (ft^2)
106	Conference Room	also used for recreation for 30 children (ages 7-12)	632.5
107	Accouting/Business Office	supports 2 employees	189
110	Office	2 Employees share office	84
111	Office		84
113	Reception Area/Secretary		109
115	General Office/Reception for 4-5 Employees	used as overflow for distribution of food during busy seasons	517
116	Office		110
117	Office		104

Administration Subtotal: 1,829.5 ft^2

BATHROOM

Code	Description	Note	Net Area (ft^2)
108	Women's Bathroom		198
109	Men's Bathroom		146
123	Mens/Womens Bathroom		180
211	Bathroom		96

Bathroom Subtotal: 620 ft^2

BUILDING SUPPORT

Code	Description	Note	Net Area (ft^2)
114	Custodian's Closet		20
128	Boiler Room		297

Building Support Subtotal: 317 ft^2

CIRCULATION

Code	Description	Note	Net Area (ft^2)
102	Main Lobby/Waiting Area		475
118	Corridor between Gym and rest of building		217
121	Corridor in west wing		168
216	Second Floor Corridor		815

Circulation Subtotal: 1,675 ft^2

KITCHEN SUPPORT

Code	Description	Note	Net Area (ft^2)
101K	Refridgerators and Food Storage		238
104	Main Kitchen		405
106K	Refrigeration and Storage of Dry Goods		31.5
115K	Storage of Dry Goods for Distribution		20
118K	Refridgerators for Kitchen		95
120	Walk-in Refridgerator		185
121K	Refridgerator		32
127	Storage for Kitchen		153

Kitchen Support Subtotal: 1,159.5 ft^2

LONG TERM STORAGE

Code	Description	Note	Net Area (ft^2)
131	General Long Term Storage	crawlspace -- limited accessibility	1,696
212	Long Term Recreational Storage	not readily accessible	255

Long Term Storage 1,951 ft^2

RECREATION/EDUCAT

Code	Description	Note	Net Area (ft^2)
101	Gymnasium		6,342
205	Recreation Room	dinner is served	722
206	Recreation/Education Room	dinner is served	351
207	Recreation Room		380
208	Recreation Room		380
209	Recreation Room		306
210	Arts & Crafts Room (22 children)	dinner is served	382

Recreation/Education 8,863 ft^2

SHORT TERM

Code	Description	Note	Net Area (ft^2)
102S	Storage and Distribution of Donated Clothing.		104
105	Storage for Recreational Items	includes ladder entrance to Room 212 for additional long-term storage.	198
106S	General Storage		73
121S	General Storage		60
122	General Storage		24

124	Recreational Storage	supports basketball program for 500 children	110
125	Recreational Storage	supports basketball program for 500 children	274
130	General Storage		180
209S	General Storage		45
210S	Arts & Crafts Storage		55
216S	General Storage in Corridor		48

Short Term Storage 1,171 ft²

Total Net Area: 17,586 ft²
Building Gross: 18,940 ft²

Total Net to Building Gross Ratio: 92.9%

Appendix B: Summary of Proposed Areas by Department

ADMINISTRATION

Code	Description	Note	Net Area (ft^2)
108	Office		110
109	Staff Lounge		198
112	Office		396
113	Social Services		880
114	Office		120
115	Office		96
116	Conference Room		192
214	Office		120
217	Meeting Room	supports 30 people	486
221	Office		84
222	Director's Office		192
226	Office		207
227	Office		108
228	Assistant Director's Office		144
229	Conference Room		432
231	Copy Room (?)		45
314	Cubicals		144
315	Staff Meeting Room		150
319	Lounge		180
322	Office		330
326	Director's Office		180
327	Assistant Director's Office		120
328	Conference Room		288

Administration Subtotal: 5,202 ft^2

BATHROOM

Code	Description	Note	Net Area (ft^2)
105	Men's Bathroom		165
106	Women's Bathroom		165
117	Men's Bathroom		132
118	Women's Bathroom		132

202	Showers	165
204	Men's Bathroom	154
205	Men's Locker Room	198
207	Women's Bathroom	274
208	Women's Shower	120
209	Women's Locker Room	138
212	Bathroom	25
213	Bathroom	25
216	Men's Bathroom	48
219	Bathroom	40
220	Bathroom	40
223	Men's Bathroom	132
224	Women's Bathroom	132
303	Bathroom	70
304	Bathroom	70
307	Bathroom	70
308	Bathroom	70
317	Women's Bathroom	48
320	Bathroom	20
321	Bathroom	20

Bathroom Subtotal: 2,453 ft^2

CIRCULATION

Code	Description	Note	Net Area (ft^2)
123	Lower Lobby		162
124	Corridor in Northwest Wing		325
125	Corridor Between Offices		430
126	Corridor Next to Unexcavated Gym		365
127	Corridor in West Wing		378
230	Waiting Room		279
232	Reception		180
234	Lobby		52
240	Corridor between Gym and Offices		1,356
241	Corridor between Gym and Lockers		141

242	Corridor between Meeting Rooms	144
243	Corridor between Offices	84
245	Corridor between Offices and Meeting Rooms	88
329	Waiting and Reception	726
330	Corridor Between Classrooms	504
331	North Corridor Between Classrooms	2,740
332	Corridor Between Upper Gym and Offices	656
333	Corridor Between Offices	144

Circulation Subtotal: 8,754 ft²

KITCHEN SUPPORT

Code	Description	Note	Net Area (ft²)
104	Food Storage		552
210	Kitchen Storage		375
211	Kitchen		540
225	Concessions (?)		110

Kitchen Support Subtotal: 1,577 ft²

RECREATION/EDUCAT

Code	Description	Note	Net Area (ft²)
101	Recreation Room	supports 80 elderly people	1,785
107	Program Room	supports 80 people	504
201	Conference/Meeting Room	supports 275 people	4,116
237	Gymnasium		6,674
301	Classroom	supports 26 people	924
305	Classroom	supports 26 people	924
306	Classroom	supports 26 people	924
310	Classroom	supports 26 people	924
311	Library		980
312	Arts & Crafts		841
318	Recreation Room	supports 57 people	2,021
323	Site Colocation		99
324	Site Colocation		99
325	Site Colocation		99

Recreation/Education Subtotal: 20,914 ft²

STORAGE

Code	Description	Note	Net Area (ft²)
102	Storage for Furniture		580
103	Storage for Clothing		552
110	General Storage		28
111	General Storage		28
122	General Storage		390
203	General Storage		160
206	General Storage		352
215	General Storage		126
218	General Storage		32
238	General Storage		369
302	General Storage		77
309	General Storage		77
313	General Storage		180

Storage Subtotal: 2,951 ft²

Total Net Area: 41,851 ft²
Building Gross: 50,800 ft²

Total Net to Building Gross Ratio: 82.4%

Appendix C: Detailed Description of Existing Conditions

CODE: 101

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
6580 ft²	0 ft² 0.0%	0 ft² 0.0%	238 ft² 3.6%

Day	Start Time	End Time	Description
All	12:00 AM	12:00 pm	Recreation for children of all ages Supports on average 100 children/day Some recreational/educational activities are outsourced to other locations Used for dining on rare occasions

CODE: 102

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
579 ft²	104 ft² 18.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	short-term storage for donated clothes.

CODE: 104

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
405 ft²	0 ft² 0.0%	0 ft² 0.0%	405 ft² 100.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	Kitchen

CODE: 105

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
198 ft²	198 ft² 100.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	Recreational storage: various balls (soccer, basketball, tennis, etc.) -- includes only ladder entrance to Room 212 (attic) storage for more long-term recreational storage.

CODE: 106

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
737 ft²	73 ft² / 9.9%	0 ft² / 0.0%	31.5 ft² / 4.3%

Day	Start Time	End Time	Description
All	1:30pm	4:30pm	recreation for 30 children ages 7-12

CODE: 107

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
189 ft²	0 ft² / 0.0%	0 ft² / 0.0%	0 ft² / 0.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	Account/Business Office (supports 2 Employees)

CODE: 108

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
198 ft²	0 ft² 0.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00pm	Women's Bathroom

CODE: 109

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
146 ft²	0 ft² 0.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	Men's Bathroom

CODE: 110

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
84 ft²	0 ft² 0.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	8:00 am	2:00pm	Office for 1 Employee
All	2:00 pm	6:00pm	Office for a different Employee

CODE: 111

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
84 ft²	0 ft² 0.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	Business Office

CODE: 113

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
109 ft²	0 ft² / 0.0%	0 ft² / 0.0%	0 ft² / 0.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	Reception Area

CODE: 114

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
20 ft²	20 ft² / 100.0%	0 ft² / 0.0%	0 ft² / 0.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	Custodian's Closet

CODE: 115

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
537 ft²	0 ft² 0.0%	0 ft² 0.0%	20 ft² 3.7%

Day	Start Time	End Time	Description
All	12:00am	12:00pm	General Office and Reception for 4-5 Employees

CODE: 116

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
110 ft²	0 ft² 0.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	12:00am	12:00pm	Private Office

CODE: 117

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
104 ft²	0 ft² 0.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	12:00am	12:00pm	Private Office

CODE: 118

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
312 ft²	0 ft² 0.0%	0 ft² 0.0%	95 ft² 30.4%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	Corridor between Gym and rest of building with freezers/refridgerators for kitchen.

CODE: 120

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
185 ft²	0 ft² 0.0%	0 ft² 0.0%	185 ft² 100.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	Walk-in Refridgerator for Kitchen support

CODE: 121

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
260 ft²	60 ft² 23.1%	0 ft² 0.0%	32 ft² 12.3%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	Corridor with closets and freezer/refridgerator

CODE: 122

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
24 ft²	24 ft² 100.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	General Storage

CODE: 123

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
180 ft²	0 ft² 0.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	12:00am	12:00pm	Mens/Womens Bathroom

CODE: 124

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
110 ft²	110 ft² (100.0%)	0 ft² (0.0%)	0 ft² (0.0%)

Day	Start Time	End Time	Description
All	12:00am	12:00pm	Recreational storage: games, sports, supports basketball program for 500 children

CODE: 125

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
274 ft²	274 ft² (100.0%)	0 ft² (0.0%)	0 ft² (0.0%)

Day	Start Time	End Time	Description
All	12:00am	12:00pm	Recreational storage: games, sports, supports basketball program for 500 children

CODE: 127

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
153 ft²	0 ft² 0.0%	0 ft² 0.0%	153 ft² 100.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	Storage for Kitchen

CODE: 128

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
297 ft²	0 ft² 0.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	Boiler Room

CODE: 130

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
180 ft²	180 ft² 100.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	General Storage

CODE: 131

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
1696 ft²	0 ft² 0.0%	1696 ft² 100.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	long-term general storage

CODE: 205

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
722 ft²	0 ft² 0.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	1:30pm	5:30pm	Recreation for 40 children ages 7-13 Would like to have roughly 60 children Partition to Room 205 is always drawn
All	4:30 PM	5:30 PM	Dinner for 40 children
All	5:30 PM	8:30PM	Recreation for 40 children ages 13-16

CODE: 206

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
351 ft²	0 ft² 0.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	1:30pm	5:30pm	Homework/Education for children ages 7-13
All	5:30pm	8:30pm	Homework/Education for children ages 13-16
All	4:30 pm	5:30pm	Dinner for approximately 30 children

CODE: 207

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
380 ft²	0 ft² 0.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	1:30pm	5:30pm	recreation for children ages 7-13
All	5:30pm	8:30pm	recreation for children ages 13-16

CODE: 208

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
380 ft²	0 ft² 0.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	1:30 PM	5:30 PM	Recreation for children ages 7-13
All	5:30 PM	8:30 PM	Recreation for children ages 13-16

CODE: 209

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
351 ft²	45 ft² / 12.8%	0 ft² / 0.0%	0 ft² / 0.0%

Day	Start Time	End Time	Description
All	1:30pm	5:30pm	Recreation for children ages 7-13
All	5:30 pm	8:30pm	Recreation for children ages 13-16

CODE: 210

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
437 ft²	55 ft² / 12.6%	0 ft² / 0.0%	0 ft² / 0.0%

Day	Start Time	End Time	Description
All	1:30 PM	5:30 PM	Arts & Crafts for 22 children ages 7-13
All	4:30 PM	5:30 PM	Dinner for 18 children
All	5:30 PM	8:30 PM	Arts & Crafts for 22 children ages 13-16

CODE: 211

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
96 ft²	0 ft² 0.0%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	12:00am	12:00pm	Bathroom (unisex)

CODE: 212

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
255 ft²	0 ft² 0.0%	255 ft² 100.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	12:00 Am	12:00 pm	long-term storage for recreational equipment

CODE: 216

Total Area	Short Term Storage	Long Term Storage	Kitchen Support
863 ft²	48 ft² 5.6%	0 ft² 0.0%	0 ft² 0.0%

Day	Start Time	End Time	Description
All	12:00 am	12:00 pm	Second Floor Corridor