

TOD at the Street:

A Human Scale Evaluation of the Socialization of
Mass Transit Infrastructure

Matthew M. Arakaki
December 2011

Submitted towards the fulfillment of the requirements for the Doctor of Architecture Degree.

School of Architecture
University of Hawai'i

Doctorate Project Committee

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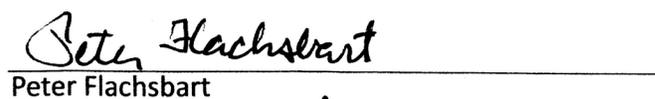
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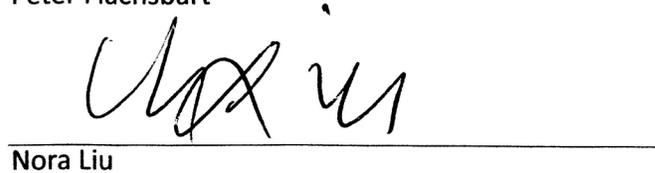
Matthew M. Arakaki
December 2011

We certify that we have read this Doctorate Project and that, in our opinion, it is satisfactory in scope and quality in fulfillment as a Doctorate Project for the degree of Doctorate of Architecture in the School of Architecture, University of Hawai'i at Mānoa.

Doctorate Project Committee


Clark Llewellyn, Chairperson


Peter Flachsbart


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Thank you...

*To my parents for twenty-four years of
your undying love and support.*

*To Clark, Peter and Nora for your wisdom
and guidance.*

*To Amy and William for your valuable
contributions to my progress.*

*To my friends and classmates for the
journey we have endured together.*

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Abstract

With Hawaii in the mix of a huge mass transit project, communities in Hawaii will undergo major transformations. The introduction of an elevated rail will affect the character and experience of whole communities. This research will focus on maximizing the opportunity to enhance communities through social interactions that is presented by the introduction of a rail station. Social interactions in the public realm will play a key role in the integration of an elevated rail station into existing communities. To do this the research will look at new ideas to understand the experience at the human scale to shape the relations in the overall context of a community. The project will look to not only integrate the station in the community but to maximize the potential of these spaces as an urban core. The transit stops are important nodes within the city and play a unique role in the interactions it can create in a community. Through design the typical station can be transformed into a new dynamic element to revitalize existing communities.

I. Introduction

A. Project Goals

The overall goal of the project is to analyze and better understand how a transit station can enhance an existing community. The introduction of a new form of infrastructure can have a drastic effect on an existing community. This project will focus on the change in circulation patterns and how the benefits of such changes can be maximized through the design of a station and its surroundings. Through the changes in circulation patterns in the community an increased pedestrian and vehicular traffic offers new opportunities for development and growth. The research and case studies will attempt to analyze the different factors that contribute to the success of such developments.

The goal of the new station design and its surroundings will aim to act as a catalyst to revitalize existing communities and promote new developments in the area. These transit stations should not only promote use of the rail line but also other modes of transportation outside of the car such as walking or bicycling. By promoting this sustainable lifestyle it will help to enhance the experience around the station. An increase in pedestrian activity and increase in retail and business opportunities can have a symbiotic relationship that has been sparked by the introduction of a new transit line.

To understand the different relationships that are created in and around a transit line, several different case studies will be analyzed. The different case studies examined in the research will play an important role in developing background knowledge of the existing body of knowledge in the field. These real life examples will provide the opportunity to examine how they function in the context of their community and in its interaction with people. These two relationships will be the key focus in the analysis of the station. To complete such an analysis a series of key ideas and guidelines must be established.

The social aspect is an important part of creating comfortable neighborhoods and developing a sense of place and belonging in the community. Communities are defined in which people interact with the environment and most importantly each other. Transit stations are highly trafficked public spaces in the community but often are not

very successful social spaces. This may be attributed to the type of activities involved at a transit station of waiting and moving. Sociability is an important aspect in creating a comfortable environment that can not only promote the rail system but also promote other developments and activities in the area. A new transit station has the opportunity to revitalize its surrounding community by establishing new social centers created through the ridership of the rail.

B. Methodology

The research will focus on two major areas of design that play an important role in the development of the project. The first issue that is addressed is the issue of social interactions within the public realm. Promoting social interactions around the transit station will be a main focus of the project. The research will help to develop a basic understanding of the relationship of the built environment to the human experience. To better understand the human interactions field observations were conducted in public spaces around Honolulu, Hawaii. This study looked at people as they interact within the public realm and compares their interactions with the built environment. The second issue will focus on the successful developments around a transit station. Here research will focus on what defines a successful Transit-Oriented Development. Each section will first address the past research that has already been explored for each topic. Then these ideas will be analyzed and extracted to form a series of principles that will help to guide the direction of the project.

The next section of the project examines six different transit stations. Three of the case studies look at Transit-Oriented Developments to understand a broader scale at the neighborhood plan. The next three case studies analyze new proposed designs for transit stations and analyze the design in relationship to the immediate surroundings. These case studies will help to understand the current design of transit stations and the developments around them.

The design portion of the document will be centered around the Waipahu Transit Station in Waipahu, Hawaii. This station will be analyzed for the existing conditions of social interactions and potential for future growth around a new station. The design will first focus on the larger area plan focusing mainly on the larger scale at approximately a quarter mile radius around the station. This will help to understand the context in which

the station fits into the larger community. The next phase of design will analyze an individual site that sits adjacent to the station in order to understand the relationship on the human scale. All design work will be focused on promoting social interactions and integrating the station into the community.

II. Why Social Interaction?

The importance of social interactions is imbedded within the city. As David Sucher writes in his book, *City Comforts*, “The city’s job is to bring people together.”¹ These simple words embody the importance of social interactions within the city. This interaction is what creates neighborhoods and gives people a sense of place. Without these interactions a city is endangered of alienating its residents and creating a lonely city². Christopher Alexander says in his book “People come to cities for contact. That’s what cities are for: meeting places.”³ To truly understand the importance of social interactions in the city we must also understand what are these social interactions and the impact they have.

Within each city there are certain spaces that allow us to gather and interact with one another. In his book sociologist Ray Oldenburg describes three places that make up the lives of people. The first two are ones home and the workplace. The last space is referred to as the “third place,” which is a neutral space where people can informally gather and interact. He says “Most needed are those “third places” which lend a public balance to the increased privatization of home life. Third places are nothing more than informal public gathering spaces.”⁴ These “third places” could be spaces such as a main street, pubs, cafes or beauty salons. By creating a neutral environment it allows people to interact without any previous defined social roles, thus allowing unrestricted conversations. These “third places” help to avoid the monotonous life of a repetitive journey of home to work and back. Oldenburg believes that these third places and a community are essential to the social well being and psychological health of the individual.

Within these gathering spaces in the community there are many interactions that contribute to the environment. Social interactions such as those random encounters of old friends or acquaintances play an important role in shaping how a community functions and are approached. The Project for Public Spaces identifies Sociability as one of the four key elements to create a successful place. Creating an environment that allows people to meet their friends and neighbors and feel comfortable around

1 David Sucher, *City Comforts: How to Build an Urban Village* (Seattle: City Comforts Inc. 2003) 25-43

2 Christopher Alexander, “The City as a Mechanism for Sustaining Human Contact,” in *Environment for Man the Next Fifty Years*, ed. William R. Ewald, Jr. (Bloomington: Indiana University Press, 1967), 60

3 Alexander, “The City as a Mechanism for Sustaining Human Contact,” 60

4

strangers can help to develop a sense of place⁵. Creating an area in the community built around social interactions can create a place where people can identify with and create a stronger attachment to their neighborhood.

Social interactions also play an important role in shaping the mental health of an individual. In his book Christopher Alexander expresses the importance of what he defines as intimate contact. He defines intimate contact as “that close contact between two individuals in which they reveal themselves in all their weakness.”⁶ He goes on to state “I believe that intimate contacts are essential for human survival...” and that people need a minimum of three or four intimate contacts at all times⁷. While it is hard to define social health, the research he cites as evidence provides a negative correlation between social interactions and social pathologies such as schizophrenia. Through this evidence he uses extreme cases of social isolation to emphasize the importance of social interactions in everyday life.

5 “What Makes A Successful Place” Project for Public Spaces, Accessed 9/10/11 <http://www.pps.org/articles/grplacefeat/>
6 Alexander, “The City as a Mechanism for Sustaining Human Contact,” 62
7 Alexander, “The City as a Mechanism for Sustaining Human Contact,” 67-68

III. Understanding Social Interactions and the Public Realm

The transit station is one of the most frequented spaces that exist in a community. It carries a strong public presence in the community and serves as a major connection to a broader region making communities more accessible. The relationship between a transit station and its community should be considered as a symbiotic one that helps to enhance both elements. The two are connected through the public realm that surrounds the station and runs through the community. This public realm is shaped by a wide range of elements that contribute to the character of the community and the station. To understand how to maximize the potential of these public spaces around a station we must understand how to promote social interactions within these spaces.

The character of a place and its public realm is defined by the people that inhabit it. To further understand the dynamics of this public realm we must look at the social interactions that take place between the users that inhabit this space. These social interactions play an important role in creating a sense of place and engaging the community. Social interactions can help cultivate lively spaces and enrich the areas surrounding these spaces. The social interactions is a key component to creating a good community place and helps to foster a stronger sense of place and sense of attachment for the residents and users⁸. Social interaction will be a key element to design spaces that promote ridership of the rail and help the surrounding community thrive.

It is important to identify the fact that social interactions have a very different context when considering a transit station and neighborhood setting. The bridge between these two different social settings is important in the integration of the station into the community. The types of activities that are often associated with transit are usually not conducive to social interactions⁹. One strategy to promote social interactions around the transit station is to introduce other uses and activities. By introducing new uses in the area it brings a new user group that riders can interact with while being exposed to new stimuli that one would not experience in a typical journey. An increase in social interactions around a transit station can help the station to develop a stronger presence in the community. As a result this can help to promote ridership of the rail while at the same time promoting the public spaces around the station.

8 The Federal Transit Administration, *Transit-Friendly Streets: Design and Traffic Management Strategies to Support Livable Communities*, Report 33, *Transit Cooperative Research Program*. (Washington, D.C.: National Academy Press, 1998), 72.

9 The Federal Transit Administration, 72.

Research into understanding the public realm will help to better understand how a transit station can maximize social interactions. The following section identifies various authors and their perspectives on social interactions in the public realm. There has been much research done to better understand how people interact in public spaces. The first writing comes from Lyn H. Lofland and discusses the dynamics of the public realm. The next two sections talk about how to design successful public spaces. William Whyte's studies analyzed public spaces around New York in an effort to understand what attracts people to public spaces. The next excerpt is an article published from the Project of Public Spaces which is an organization dedicated to the successful development of public spaces. The last section discusses social issues within the neighborhood. One book is written by Suzanne Keller and the other by David Sucher.

A. The Public Realm

1. The Public Realm: Exploring the City's Quintessential Social Territory

Lyn H. Lofland

To begin to understand how to manipulate social interactions in a place we must first understand what types of interactions we can expect in a public environment. There are many different social interactions occurring everyday that may not be as obvious as a casual conversation. Lyn H Lofland attempts to define these different interactions that occur in the public realm and how architectural design can influence these interactions. Lofland identifies five principles that define the different types of public interactions ¹⁰;

Cooperative Mobility describes the collective movement of people through a public space. It identifies the way people move through spaces as a response to others without incident. This cooperative movement through a space constitutes one type of interaction between strangers.

Civil Inattention identifies the ritual to withdraw oneself in a public situation in a way as to give privacy to others. This principle establishes the idea of how people can exist in a space and recognize one another without physical interaction. Such interaction is often common in buses or trains where seated passengers stare blankly around the car without imposing on any other passenger.

¹⁰ Lyn H. Lofland, *The Public Realm Exploring the City's Quintessential Social Territory* (New York: Aldine De Gruyter, 1998), 27-34.

Audience Role Prominence defines the act of people watching where people become the audience to the events that surround them in a public zone. But at the same time everyone can be both the audience and the performer. Successful public spaces have a range of human activities on display.

Restrained Helpfulness describes the mundane acts of assistance that a stranger may provide for one another. Such acts can range from a simple request of the time or holding the elevator door for the next person.

Civility toward Diversity refers to the equal treatment of the diverse population of people that make up a public space. This principle is key in creating the feeling that one is free of judgment while out in public.

These five principles represent the range of different types of interactions that can occur between strangers who inhabit the same public space. These interactions are important to the user in that they shape the experience of a place and as a result shape people's perception of the place. By understanding the types of interactions we can begin to identify how the built environment can shape these interactions. Lofland goes on to identify three ways that the built environment can shape human interaction¹¹. The first element is how the built environment can shape the way interactions occur. While no design can dictate the exact response to a space, certain arrangements can help to foster interactions in a typical manner. The second is the structuring of who interacts with whom. This can be controlled by the placement of the use and the placement of certain access and connection points. The third is structuring the interactional content. This describes how the built environment can have a significant impact on the social life of its users.

11 Lofland, 181-188.

B. Designing Public Spaces for Social Interaction

1. The Social Life of Small Urban Spaces

William H. Whyte

The work of William Whyte began by studying various plazas in New York as a way to understand city spaces. His research helps to identify various elements that contribute to the success of small urban spaces and identify what makes places bring people together and spur activity. Whyte identifies the number one activity in a public space as people watching other people¹². His research focuses on understanding what attracts people to the space and how they use it. He identified seven major elements that contribute to the successful design of a public space:

First he looked at various physical elements of plazas and compared them to the number of users for each plaza. Elements such as the shape and size of the plaza had no correlation to the number of users in the space. But greater number of sittable spaces has a positive correlation to the more popular plazas in New York¹³.



Figure 3.1 - People sitting in a public plaza in New York.

Within a plaza it is important to provide seating that is physically and socially comfortable seating. Socially comfortable seating means to provide choices of seating to allow for users to adapt to the different situations. Seating can be built into the design of a public space through ledges and level changes. The ideal height of a bench is around 17 inches but seating can be acceptable anywhere from 7 inches to 44 inches high. A bench should also be deep enough to accommodate seating on both sides to double the options of places to sit. Moveable chairs are also another seating option that allows the user to control the space and help to create a comfortable environment. As a rule of thumb Whyte developed the rule that for every thirty square feet of plaza space there should be one linear foot of sitting space. Sitting helps to create a usable space in the plaza and is

12 William H. Whyte, *The Social Life of Small Urban Spaces* (Washington, D.C.: The Conservation Foundation, 1980), 24-39
13 Whyte, *The Social Life of Small Urban Spaces*, 24-39

one of the driving forces behind creating successful plazas.

Natural elements such as sun, trees and water play an important role in the success of a plaza. Exposure to the elements can play an important role in the success of a plaza but it is dependent on the climate conditions in the area¹⁴. During colder months people tend to gravitate towards the areas



Figure 3.2- View looking in to New York's Paley Park.

exposed to the sun but as the season's change this correlation disappears. Large gust of winds generated from the sides of large towers can become a deterrent to using the public spaces below. Trees can help to create a comfortable environment to provide privacy and shelter while maintaining a connection to the public realm. Water is another element that can help to improve the overall atmosphere of the public space. Water is valuable for not only its visual benefits but its tactile experience as well. The most successful water features allow you to splash around or just rest your feet in the edge of the water. The sound of falling water can mask the noise from the city as well as other people's conversations. Studies have shown that the sound by itself is unpleasant, but the noise of a waterfall is often perceived as a peaceful element¹⁵.

One of the biggest draws for a public space is food. Food is an effective way to attract people to a space who then attract more people. With food vendors you must also provide tables and chairs where people can enjoy their food within the public realm. Areas around food create excellent opportunities for one to bump into someone they know. Introducing food into a public space is one way to effectively encourage activity within the area.

Another characteristic of a successful plaza is its connection to the plaza and the street. A well designed plaza will have a strong connection both visually and physically

14 Whyte, *The Social Life of Small Urban Spaces*, 40-49.

15 Whyte, *The Social Life of Small Urban Spaces*, 48.

which can encourage users to enter the plaza easily. The plaza should be integrated into the community by creating a seamless transition between the street and the plaza. Plazas that offer a strong connection often will draw the attention of people passing by and many times attract those people into the space. Plazas should be located as close to the street level and avoid sunken or raised plazas. A strong disconnection between the plaza and the street will discourage people from entering the space.

The last element that is identified as a factor in creating a successful plaza is triangulation. Triangulation refers to external elements that can provide a common point of interest between two complete strangers. These elements can be physical objects like art work or they can also be visual elements like a beautiful view of the city. Entertainers and musicians also bring strangers together and create interactions between strangers by giving them something to talk about.

2. Why Public Spaces Fail¹⁶

Project for Public Spaces

Founded in 1975 the Project for Public Spaces (PPS) was founded as a tool for people to create successful public spaces. Their research and designs were inspired by the work of William Whyte. Since its founding PPS has completed 2,500 projects in 40 countries. The article “Why Public Spaces Fail” was written by PPS as one of many resources that they put out. This article gives insight into specific elements of a public place that can make it unsuccessful. The article can also serve as a resource to understand how one can manipulate the space to make it more successful. The article identifies eight different elements that can contribute to creating an unsuccessful public space;



“Lack of places to sit” - Seating is one of the most important elements in the public realm and the lack of it can serve as a deterrent for users. A variety of seating options and location in relation to other activities occurring in the area can also play a role in the success of the seating.



“Lack of gathering points” – Gathering spaces in the community are created by providing things that people want or need. These elements could include things such as food, playgrounds or seating.



“Poor entrances and visually inaccessible spaces” - For people to use a public space they must be able to see the space and get to the space. Open entrances that allow people passing by to see people using the space will attract more visitors than those that are cut off from the street.



“Dysfunctional features” - Features within the public space should be designed with a purpose or function to allow interaction to occur around it. Those features that are designed for visual purposes and no function do not help to encourage activity.



"Paths that don't go where people want to go" - The design of the pathway is important to the use and success of it. A successful path can pull pedestrians down it and create spaces for them to stop and enjoy their surroundings.



"Domination of a space by vehicles" - It is important for the area to accommodate the pedestrian by creating a walking friendly environment. A place should provide sidewalks and crosswalks at a comfortable scale to create a pleasant walking experience that does not cause fear of the automobile.



"Blank walls or dead zones around the edges of a place" - Blank walls or dead zones around an area have no connection to the space and do not contribute to the activity in the area. The area around the space is an important element in its success and should provide activities and a connection to the building.



"Inconveniently located transit stops" - Transit stops that are located in places where no one uses makes it inconvenient and doesn't contribute to the community. When located in a busy area with lots of activity it can add to the environment around the stop as well as increase ridership of the transit.

Figure 3.3- Series of photos depicting principles of why public spaces fail.

C. Designing Neighborhoods for Social Interaction

1. The Urban Neighborhood: A Sociological Perspective

Suzanne Keller

Suzanne Keller began her research for this book at the Athens Center of Ekistics. Now she is a professor at the sociology department at Princeton University. Her book focuses on understanding the sociological impact on the physical planning of communities. The book discusses in depth the physical and social character that make up a neighborhood. She analyzes the factors that contribute to the development of neighborhood. She then finishes the book with a chapter on the impact of planning neighborhoods and how it affects the residents of the neighborhood. It is important to understand the impact

Designers consider a variety of factors that can increase social interactions in the community beginning with the planning of a community. Two strategies that help to promote an increase in social interactions in the community are to decrease both the physical distance and the functional distance¹⁷. To decrease the physical distance means to increase densities in an area and to improve accessibility between spaces. By physically reducing the distances between people it increases the chances that these people will interact with one another. Reducing the functional distance between people implies the grouping of everyday functions and routines of people. Grouping functions together increases the chances that people have “passive” or inadvertent contact with one another through their routine patterns. These activities could range from going shopping at the grocery store to exiting one’s home. By designing spaces where resident’s paths would cross can help to foster social interactions.

17 Suzanne Keller, *The Urban Neighborhood: A Sociological Perspective* (New York: Random House, 1968), 74-79.

2. City Comforts: How to Build an Urban Village

David Sucher

David Sucher's book *City Comforts* discusses many different factors that contribute to the overall success of the development of a walkable community. He begins his book by introducing a number of elements of design that helps to foster social interactions in the neighborhood. He also introduces three basic rules of developments to create a walkable neighborhood. He discusses many different contributing factors into the design and character of a community. These include getting around, feeling safe and understanding where you are in the city.

*a) Elements to Encourage Social Interaction*¹⁸

“Provide seats” - Seating is one of the basic components that can help to create an inviting city. Seating can sometimes attract the unwanted group of people to the space but by removing the seating you diminish the value of the public space.

“Let people purchase food or drink” - Food can play a valuable role in creating connections and brings people together. By including food vendors in the public realm it can encourage social interactions. Seating around the vendors that are adjacent to the public spaces and sidewalks can also encourage social interactions.

“Offer a conversation piece” - External objects of interest such as artwork can help to spark conversations between strangers in the public realm. These external objects provide some common ground for strangers and shift the focus away from the users.

“Put public space in the sun” - The importance of sun within a public plaza varies between different temperate zones in the world. But one can manipulate the space to offer shade and protection from the sun while you cannot manipulate the sun to your needs so it is important to put public spaces where they are exposed to the sun.

“Build neighborhoods for the social stroll” - The pathways can be a valuable element in the neighborhood that allows people to talk to each other and see

others along the way. To create a successful path, it should form a loop which creates a sense of departure and arrival. If there is a clear route to walk, people will automatically follow this path and focus on the journey rather than the direction. It is also important that the path is not too long to allow people to make multiple passes when out walking. The width should also be large enough to accommodate multiple users to pass without disruption.

“Put your cards (or chess pieces) on the table” - Card and board games can provide a nonthreatening environment for interaction between strangers. A game can bring people together and play for hours without the added pressures of conversation.

“Build close to the sidewalk” - By simply reducing the physical distances between people it helps to encourage conversations. Seating in close proximity to the sidewalk helps businesses by exposing those passing by to others who have already made purchases.

“Provide a place for music” - Music can help to create a calm environment while providing entertainment for those looking to kill time. Therefore music can help to bring people together without obstructing its surroundings. Large staircases can also act as seating for performance areas below.

“Reclaim and people the parking lot” - By extending functional space out on to the sidewalk and parking lot it creates a more lively space that connects the two functions. Tents or entry awnings can help to create comfortable spaces that make the parking or street experience more enjoyable.

“Build bus shelters with public services” - Small transit stops can also be home to a small newspaper kiosk or an espresso bar or even just a bank machine. These small functions can help to create a more pleasant environment around the station. The shop keeper in the area would become part of the community and social interaction around the station. On top of selling their product they will inevitably become an informant on bus schedules, the time or even things in the community like lost pets.

“Use sound to permit conversations” - White noise in the background of

a public place can help to mask other noises in the city and allow privacy for conversations. Noises like falling water can help to create a peaceful environment.

“Promote growing” - Community gardens where people in the area can lease out a patch of land are great places for people to meet and interact with each other. Community gardens give people in the community the opportunity to grow their own plants as well as learn from others in the community.

“Build in bus stop seating” - By providing shelter and integrating a bus stop with its surrounding buildings, it can create a well used space in the community.

“Use moveable chairs” - Moveable chairs helps people to develop a sense of ownership on the space because they can manipulate the space to fit their own needs. This allows users to accommodate different situations within the public realm.

b) Three Rules to a Walkable Neighborhood¹⁹

1. Build to the sidewalk

It is important for all the buildings along the street to border or come close to the sidewalk. This helps to direct pedestrians along the street and moves them functionally closer to the buildings. This also increases the chance of people running into one another. It is also important to locate the interior floor and sidewalk on the same level whenever possible. This makes the building accessible and helps to connect the street with the interior functions of the building.

2. Make the building front “permeable”

The facade of the buildings should be “permeable” to connect the interior of the building to the sidewalk. People must be able to see into the spaces as well as access them easily. Doors must be placed in a visible and easily accessed location relative to the sidewalk. Mirrored glazing or other building fenestrations that limits visibility into a space can have a negative effect on the walkability of the

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David Sucher, *City Comforts: How to Build an Urban Village* (Seattle: City Comforts Inc. 2003) 45-65

area. Being able to see the merchandise and other people using the space will help to attract others to enter the building.

3. Prohibit parking lots in front of the building

Parking is vital to a development but they should be carefully placed so that they do not disturb the street life. People do not usually socialize in parking lots so the street front should be saved for spaces for people instead of cars. Instead of being located in the front of buildings they can be placed above, below, behind the building or next to it. But on street parking is acceptable because it allows shoppers the convenience of a quick stop and go.

D. Conclusion

This chapter has discussed a variety of issues that influences social interactions within the neighborhood and in public spaces. These readings will help to provide the foundation to guide the design of the public realm and the transit station. Creating social interactions between the station and the neighborhood is important to integrate the station into the community. The ideas about the neighborhood and public spaces that have been discussed in this chapter help to identify ways to promote interactions within the community. Understanding the various ideas of these writers will play a key role in the design of the social interactions around the transit station.

IV. Elements of Social Interaction

Social interactions within the built environment are defined by the people that occupy these spaces and how they relate to their surroundings. A person's relationship to the context of a place is defined by several different factors which subsequently defines social interactions. Designing to encourage for social interactions must account for all factors that can influence ones experience through a site. A key to designing for social interaction is to create opportunities for people to interact with one another. A development can provide the opportunity for interaction by providing people a reason to come together. This can be done through the use of the site and the organization around activity that attract the interest and curiosity of people. The environment and its elements can provide the setting for people to interact through the design of physical features and its relationship to its surroundings.

The next section looks at three themes that serve as a guideline to how a development can promote social interactions. These ideas have been extracted and summarized based off of the research done in the previous chapter. The three themes focus on three basic ideas of how the site functions and how they can affect social interactions. The first theme deals with why people come to a place and how activity attracts people to an area. The second theme addresses how people get around in the site and how strong connections can facilitate interactions. The last theme focuses on how people interact when they are in the space and developing places to gather. These ideas focus on large scale concepts which can then be translated into more specific design ideas and applied to the individual projects.

Activity attracts people.

One of the biggest draws to a public place is activity and people. Creating activity within an area can be done through a variety of uses that populate an area. Retail and food venues can help to activate life on the street. Food is often one of the major draws that allow people to gather and interact within a space. Food venues paired with sitting spaces will help to draw people to linger within a space and enjoy their food. People watching other people are one of the most common activities in the public realm. It is important to provide adequate space for these activities to occur in the public realm

without disrupting the functionality of the space. This refers to public plazas and sidewalks. A balance between circulation and activity is important to ensure the success of both activities within the site.

A new transit station will attract a higher traffic into the site where it does not currently exist. This higher traffic does not necessarily translate into an increase in social interactions around the area. Waiting for a bus or train at the station is an opportunity to promote social interactions by developing a strong relationship with the surrounding public zones. Other activities located around the transit station can help to compliment the station and promote more interactions. A diversity of uses can help to stimulate activity in the area and encourage interactions. The circulation of transit riders can interact with the surroundings to promote diversity within the site.

Public Realm as a Place to Gather

Throughout all of the research one of the common goals is to create a space for people to gather. The public realm that connects a community provides numerous opportunities to interact with people if they have the spaces to gather. Creating gathering spaces in the community is more than creating open plazas and wide sidewalks. A gathering space can bring people in the neighborhood together and help to develop a sense of community. Such research from people like William Whyte and the Project for Public Spaces describe different elements to creating public spaces that can attract people.

One of the most prominent elements that was identified in much of the research was the need to provide adequate seating. By providing seating in the public realm it creates a functionality to the space. Seating creates the opportunity for a range of different interactions while allowing people to linger within a space and gather. Seating can also be a complimentary element that feeds off of the other activities in the area. Seating is an important feature in creating lively and successful public gathering spaces.

An important element of creating usable seating options is to provide a range of options to accommodate different users. Movable seating provides user with a sense of control which allows people to manipulate the space to fit their individual

needs. Integrating seating with the surrounding building and functions is important to creating social interactions. One strategy to integrate seating into the public realm is to create a semi public space for seating that creates an intermediary zone that connects exterior and interior spaces. This creates a sense of privacy for those sitting without disconnecting them from the public activity.

A gathering space is not only important in creating social interactions but it is key to integrating a transit station into an existing community. A well designed gathering space can create an intermediary space that integrates transit riders with the surrounding area. For transit riders plazas around the station create spaces to orient themselves in the space or use it to meet people. For others a gathering space can be a place for leisure or just a circulation element to and from a building. But no matter what you use it for these gathering spaces are key elements to bringing all these people together.

Integrated Experience of the Site

When looking at how social interactions are created in a community you must understand the relationship of all the elements that make up the area. This relationship shapes the public realm and becomes the stage for social interactions. A well designed public realm should encourage an integrated experience of the community. Providing physical and visual connections can help to promote social interactions in the public realm. Providing physical connections is vital to the functionality of the site and an important way to promote social interactions in the site. Physically connecting the site through a network of paths provides the opportunity for users to encounter different people in the community and help foster social interaction in the site. These paths are not just connections but a vital public space that should be designed for social interactions.

Mixed use developments introduce multiple user groups into the development but the arrangement of these different uses dictates how these users will interact. The circulation paths of different user groups should be considered in the layout of the development to encourage interaction. The circulation path is an opportunity to expose users to different uses and people along their journey. The layout should understand

how the users of one group can be exposed to other functions within the site as well as different user groups within the site. Bringing together different user groups will help to promote new social interactions that may not occur naturally. New interactions between different user groups of the site will help to increase social interactions but it will also benefit all the different uses in the site by expanding users within the site.

Along with developing physical connections in a site it is important to establish visual connections within a site. Visual connections can be just as important to bringing the site together. Visual cues or nodes can help to draw users through a site to expose them to a larger area of the community. By promoting a higher circulation in the area it expands the opportunities for social interactions. Visual continuity within a site can create an continuous experience of the site that spans multiple buildings in the neighborhood and help to bring the site together to form a cohesive experience.

One of the simplest ideas of improving social interaction is to improve visibility and increase exposure in the site. People cannot interact with people they cannot see. The street life should be visually connected to the building uses and public spaces. These spaces should complement each other through visual connections. By connecting these spaces visually opens up the possibility of social interactions to occur. High visibility not only increases the chances of random interactions but also encourages casual interactions by exposing those passing by to activities in the area.

A. Conclusion

The design of public spaces is an important element to integrate the station into the community. This chapter emphasizes the importance of public space and its relationship within the community to the design of the station. The principals outlined in this chapter will serve as general guidelines of design that will be adapted to each individual site. Integrating these principles of design will help to promote social interactions between the users of the site. These principles have been derived from a combination of the research and field studies done in public spaces around Honolulu. This chapter will serve as an important guideline in the design and development of the station to help promote social interactions.

V. Defining Social Interactions

A. Type of Social Interactions

The public realm and the types of social interactions that occur within it is an important element in understanding the connection between the transit stop and the community. By understanding the types of interactions that occur in the public realm, you can better understand how to integrate them into the design of the station. The station design should account for the public spaces in and around it and attempt to integrate these types of interaction into the spaces. These different interactions are described in the text below.

A successful design will encourage three different types of social interaction. The three types are public, random and planned interactions. Understanding what types of interactions is to be encouraged can help to dictate the principles that will guide the design and better promote social interactions. These three types of interactions have been derived from both research and observation of the public realm. The material discussed in the previous section discusses a variety of resources documenting a variety of approaches to social interaction in the community and helps to provide a basic understanding of the types of interactions that occur. These different types of interactions were documented in both research and design phases.

Casual Interactions

The first type of social interactions that should be encouraged in the public realm is interaction between strangers in the community. A public space should allow the opportunity for people to interact with and meet new people. Casual interactions can also include the indirect interactions with strangers in the public realm that aren't as obvious as some of the other types of interactions. We form unconscious relationships with strangers that we encounter as we experience the public realm. These everyday interactions that occur are an important part in shaping the environment or direct exchanges but can help to enhance the character of the public realm. Lyn H Lofland describes five different types of public interactions. These different types of interactions help to characterize the public realm and are important to developing a social space within the public realm.

Random Interactions

The second type of social interactions that should occur in the public realm is the random interactions between friends. Through high circulation areas people get exposed to high numbers of people which increases the chances that you will have these random interactions in the public realm. These interactions can be as little as informal greetings as you pass by on the sidewalks. Many times these interactions can become short conversations on the side of the road or in public gathering spaces. These random interactions can occur in the circulation paths and between the paths and the areas bordering them. Higher visibility and accessibility of a site can help to increase the chances of these random interactions.

Planned Interactions

The third type of social interactions in the public realm is the interactions that have been planned or chosen because of a specific activity or desirable space. These interactions take place between acquaintances and can include a wide range of activities like eating or just casual conversation during a stroll. Public spaces should be designed to accommodate groups or pairs of people to interact with each other in a comfortable and appropriate manner. Public spaces should provide activities within the public realm to attract groups of people to interact. To encourage these planned interactions, public spaces should have gathering spaces where people can meet and relax in.

B. Degrees of Interaction

This section focuses on establishing varying levels of social interactions. It is important to allow for a variety of interactions to accommodate for the different users and needs within a space. Different individuals and situations can call for different types and levels of interactions. To understand the varying levels of interaction we can use Edward T. Hall's work on man's perception of spatial distances as a reference. Hall coined the term proxemics as the "interrelated observations and theories of man's use of space as a specialized elaboration of culture²⁰." Hall has established four social distance zones that make up different levels of social interaction. He derived these

20 Hall, Edward T., *The Hidden Dimension* (New York: Doubleday & Company, Inc., 1966), 1

distances through interviews and observations of Americans in the United States.²¹ The four distances are the intimate, personal, social, and public distances. Distances help to quantify different types of interactions that are defined through numerical values

Intimate Distance

Intimate distance is the most personal which describes distances from physical contact to eighteen inches. At this distance one's senses can be overwhelmed because of the close interaction with another person.²² The intimate distance are very personal encounters and are usually reserved for private settings. They are not socially accepted within the public realm by the American culture but can come into play in some situations such as a crowded bus or train. To cope with these situations people attempt to be as still as possible while staring off into the distance to try to avoid eye contact.

Personal Distance

Personal distance refers to the idea of your own personal bubble. This space ranges from eighteen inches to four feet. At this distance there is no distortion of the senses but still allowing a detailed experience through your vision. At this distance an angle of 15 degrees creates a clear view of the face with good detail²³. At this distance people can hold conversations of interest and be involved while still being able to reach out and make physical contact.

Social Distance

Social distance is the next level which ranges from four to twelve feet. Conversations between coworkers or during casual social gatherings occur at this distance. Here it allows one to interact while getting a broader view of the other person. The details of the face are lost at this distance but other features like condition of clothes, hair or skin are still visible²⁴. As the conversations become more formal the distance grows to the outer limits of this distance. Interactions at distances greater than ten feet to interact but at the same time are not attached to the conversation

Public Distance

21 Hall, Edward T., *The Hidden Dimension*, 109.

22 Hall, Edward T., *The Hidden Dimension*, 111.

23 Hall, Edward T., *The Hidden Dimension*, 113.

24 Hall, Edward T., *The Hidden Dimension*, 115.

The last distance of interactions is the public distance that ranges from twelve feet to twenty five feet and beyond. There is a shift in fundamental ideas of interaction that occur when moving to the public distance. Many physical characteristics are lost and at this distance while parties are outside the circle of involvement²⁵. When analyzing large public areas this is the most common type of interaction.

C. Six Domains

A range of interactions is important to foster a complete public realm and in order to do this you must understand the different zones that are essential to meet the varying needs of the people. While the project focuses on the design of the public realm it is key to understand the relationship between the public and private and how these two realms intersect and offer unique experiences to the user. Alexander and Chermayeff write about this relationship in their book **COMMUNITY AND PRIVACY: TOWARD A NEW ARCHITECTURE OF HUMANISM**. In their book they describe six different domains to define the varying degrees of public and private spaces²⁶. In their studies they focus on this relationship from a residential aspect and idea of privacy within this space. But the categorization of spaces is valuable to this study to understand the varying range of privacy needed even within the public realm. The six different domains from most public to most private are Urban-Public, Urban-Semi-Public, Group-Public, Group-Private, Family-private and Individual-Private.

Urban-Public - This domain includes places like roads, paths and civic parks that are under public ownership.

Urban-Semi-Public- This domain includes public buildings or facilities such as a transit station, hospitals, public schools or a city hall.

Group-Public - This domain describes public property that still requires public access for mail delivery or garbage disposal.

Group-Private - This domain includes places like roads, paths and civic parks that are under public ownership.

25 Hall, Edward T., *The Hidden Dimension*, 116.

26 Alexander and Chermayeff, *Community and Privacy*, 121-122

Family-Private - This domain refers to spaces within the ones private home that are only shared by family members such as living or dining room.

Individual-Private - This domain is the most private and refers to the individual room where one can withdraw from all contact.

The project will focus mainly on the first two domains, Urban-Public and Urban-Semi-public domains because of the strong emphasis on the public realm and the connection the station. The design will also touch on the Group-public and Group-private domain in the form of multifamily housing. But it is important to understand the importance of privacy within this hierarchy and how it interacts between them. Alexander and Chermayeff refer to this idea as the “joints between domains” and identify the need for barriers or screens to separate the desirables from undesirables²⁷. This relationship between the community and privacy will play an important role in the design moving forward.

D. Diagramming Social Interaction

To gain a better understanding of the interactions of the public realm and the transit station a series of diagrams were created. These diagrams compare people in public spaces in the neighborhood with the physical layout and circulation of the space. Observing people first hand helps to provide a better understanding of the social interactions that occur in the public realm. The last series of interactions that were observed was riders waiting at bus stops. These users help to provide insight into the use of public transportation and can help to provide a better connection to the types of social interaction that will occur in a transit station.

The same method of analysis was repeated with a focus on the community of Waipahu. The existing community has few places for interaction within the community. The community has a mixture of retail and residential areas but does little to promote social interactions. The bus stations are widely used and many of the pedestrians are going to or from a bus stop. The diagrams identify different situations of people interacting on the street.

27 Alexander and Chermayeff, *Community and Privacy*, 213

The diagrams provide analysis of the three types of social interactions that were described in the previous section . Each series identifies different interactions that demonstrates a type of interaction. The photo and plans help to illustrate the relationship between the interactions and the built environment. Each photo highlights the people that are using the space to emphasize their relationship to one another. The plan drawing alongside it uses yellow to represent the focus of each photo and provides the context of each situation. The green lines represent the pedestrian circulation while the orange lines represent the vehicular circulation. The physical layout and circulation patterns in each case are important to understand how the built environment has influenced each type of interaction.

Casual Interactions

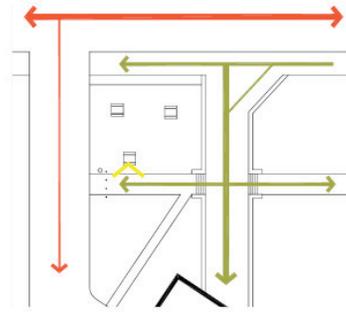


Figure 5.1 - Photo and plan for casual interactions 1.

Here the group of three sit at the edge of the walkway watching people passing by. They can engage in a private conversation but also casual interactions because of the close proximity to the people passing by. While this is not a major walkway there is significant activity around this area to watch.

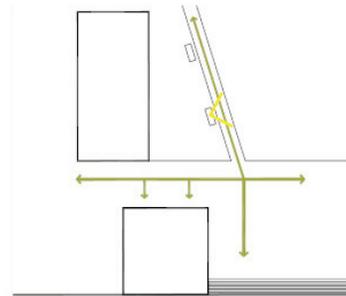


Figure 5.2 - Photo and plan for casual interactions 2.

The bench is located along the sidewalk but placed off the pavement so that it doesn't affect the circulation path. The bench is shaded by the large canopy of the tree and away from heavy pedestrian traffic but is still located in a very public location.

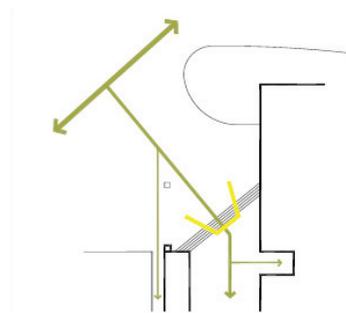


Figure 5.3 - Photo and plan for casual interactions 3.

This group sits on the steps outside campus center watching those passing by from afar. The steps are wide enough so this group does not block the flow of traffic. The overhang of the building creates a sheltered group that can sit comfortably.

Planned Interactions

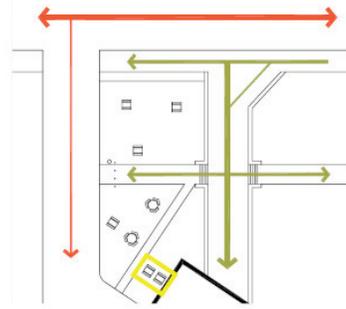


Figure 5.4 - Photo and plan for planned interactions 1.

The two groups here have chosen a more private location away from the main walkway to hold their private conversations. One group has their back turned to the other to focus on their own individual conversations.

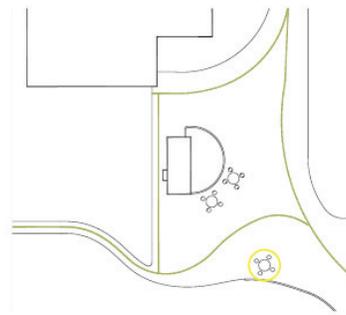


Figure 5.5 - Photo and plan for planned interactions 2.

The tables are organized around a food vendor and provide shelter for people eating with the umbrellas. The tables are separated from the major walkway with a low wall and grassy area. This creates privacy but does not cut off tables from major activity area.

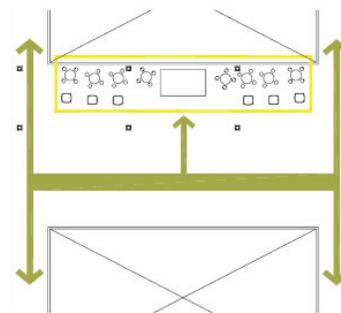


Figure 5.6 - Photo and plan for planned interactions 3.

These people are seated along a major walkway at Ala Moana shopping center around a small coffee shop. The umbrellas and planters provide protection and creates a comfortable seating area.

Random Interactions

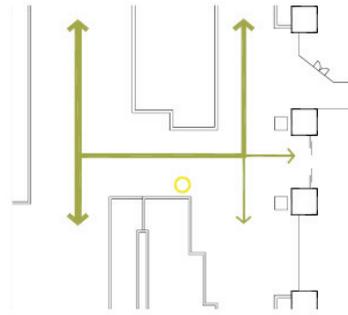


Figure 5.7 - Photo and plan for random interactions 1.

Three men are engaged in conversation at a corner in a plaza in downtown Honolulu. While they gather around they also look around to observe those passing by. During lunch hours the plaza has a high traffic of people walking through and resting.

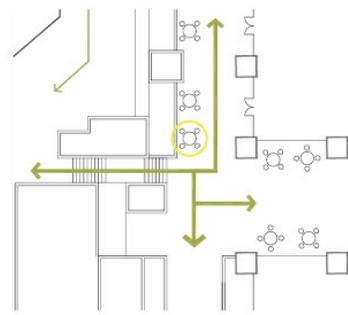


Figure 5.8 - Photo and plan for random interactions 2.

The seating area is located in front of a line of small food venues and is a major walkway through the plaza. The two men have randomly bumped into the women sitting at the table. The table is exposed to a high traffic of people making it more likely for random interactions to occur.

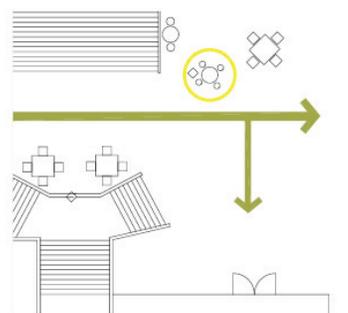


Figure 5.9 - Photo and plan for random interactions 3.

Here the group standing stopped for a conversation in the middle of the major walkway through Campus center at the University of Hawaii. There is seating placed along the major access route through campus center which increases the chance people will run into each other like this group.

Transit - Bus Stops



Figure 5.10 - Photo and plan for bus stops 1.

Casual Interactions - This bus stop is located along Bishop Street with a pedestrian walkway connecting the adjacent office buildings away from the street. The ledge of the planter provides seating for the bus stop. A stronger connection between the riders waiting for the bus and the shops and street front.

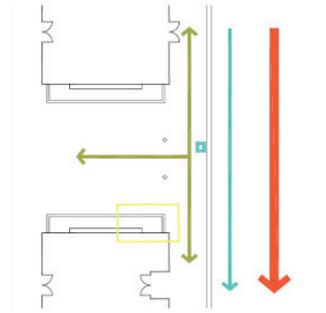


Figure 5.11 - Photo and plan for bus stops 2.

Casual Interactions - The bus stop at Ala Moana is cut off from the shopping center and surrounded by vehicular traffic. The linear layout of benches limits any interaction between riders. The bus is segregated from any public activities and has no relation to the surrounding functions.

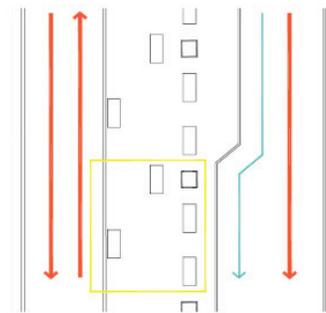
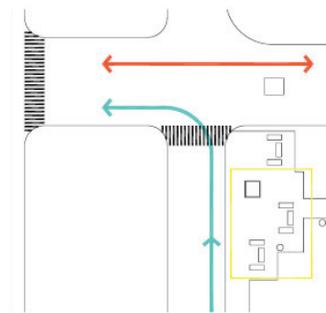


Figure 5.12 - Photo and plan for bus stops 3.

Casual Interactions - The bus stop at the University of Hawaii is located along University Avenue surrounded by a large field and parking lot with no activity around it. The benches are arranged in a U shape that promotes conversations while the benches allow users to sit in either direction.



Waipahu - Public Interactions

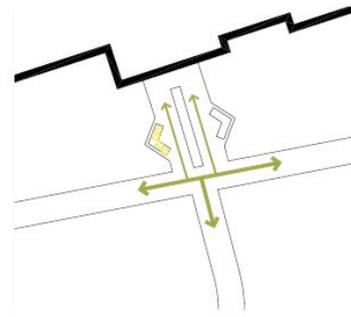
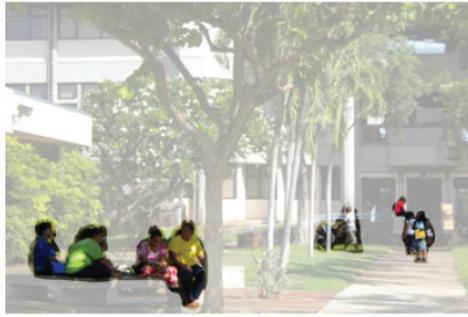


Figure 5.13 - Photo and plan for Waipahu public interactions 1.

Casual Interactions - This group of people are seated in front of the public library along the main access path to the Waipahu Civic Center. The three are engaged in conversation while the fourth member is more isolated. The three members are sitting against the natural arrangement of the benches and face the walkway where the major activity occurs.

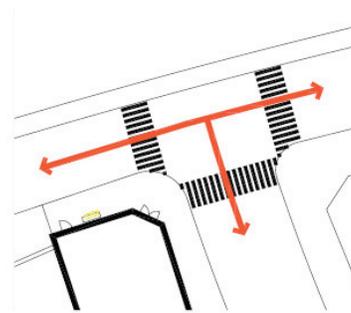


Figure 5.14 - Photo and plan for Waipahu public interactions 2.

Planned Interactions - This bench is one of the few seating options along the street in Waipahu. It is rather isolated from any major pedestrian traffic. The sidewalk does not continue on along this street making these two sitting on the bench unusual.

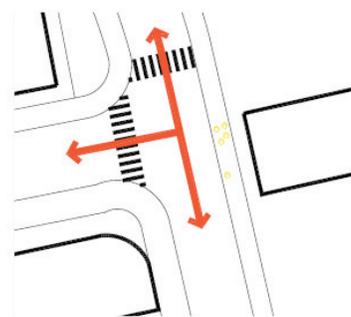


Figure 5.15 - Photo and plan for Waipahu public interactions 3.

Casual Interactions - A major group of people walking around the neighborhood is students who are walking to the bus stops or to the retail shops nearby. The streets are disconnected from the buildings with little activity and social interactions. People on the street only move to their destination with little public interactions.

Bus Stops

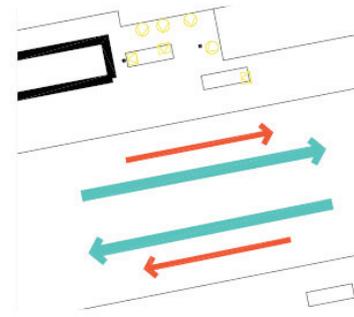


Figure 5.16 - Photo and plan for Waipahu bus stops 1.

Casual Interactions - This bus stop is located along the bus transit station. Along the street are several bus stops staggered down the road. The majority of the riders here are turned away from the road and gazing off to the empty parking lot behind.

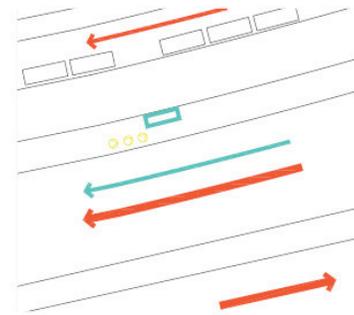


Figure 5.17 - Photo and plan for Waipahu bus stops 2.

Casual Interactions - The bus has just dropped off a few riders along Farrington highway. The sidewalk is isolated from any buildings by roads on either side. As they walk towards the crosswalk they have no interactions between each other or any part of their surroundings.

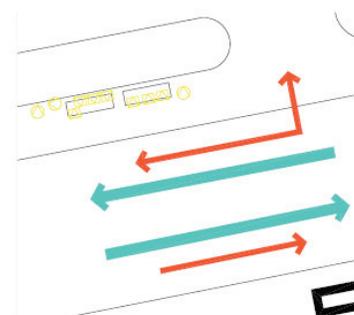


Figure 5.3 - Photo and plan for Waipahu bus stops 3.

Casual Interactions - Here all the individual riders are sitting or faced towards the seat and focus their attention forward to not make contact with the other riders. The wide street separates the bus stops on the adjacent side further preventing any interactions. The one group is faced away and engaged in conversation away from the others.

VI. Planning Around the Transit Station

This chapter will shift the focus of the research from social interactions to the development specifically around a transit station. While the focus of the thesis is based on promoting social interactions, it is also important to understand the elements that contribute to planning and design around a transit station. This research will help to provide the foundation for the planning and development of a community around a transit station. A variety of writings and analysis has been gathered to provide insight into what defines a successful design of a station and the community around it.

The next section features research from a variety of sources as a way of defining a successful development. The research that has been gathered looks at a variety of issues dealing with the design of the street and its context in the community. The range of research focuses on identifying different sets of issues on a range of scales that affect the transit station. The first section looks at the role of the station in the planning context and what large scale elements affect the station. The second focuses on transit oriented developments, which addresses the bigger picture of the communities future developments. The next piece of research takes a closer look at the relationship of a transit station and what makes a livable community. The next scale looks at the design of the street and how different elements contribute to the character and experience of the street. These different scales of design are all important elements in integrating the station and the community.

A. Urban Planning

International Association of Public Transport

The International Association of Public Transport (UITP) is an international network of companies, authorities in the transportation world and research institutes. UITP promotes innovations in the field of transportation and acts as a catalyst for business partnerships across the world²⁸. The global network of knowledge from many different areas of the field of transport helps UITP to serve as a reference point for best practices around the world.

The UITP discuss the importance of the connection between transportation

28 "Connecting the world of public transport," International Association of Public Transport, accessed October 9, 2010, http://www.uitp.com/about/What_is_UITP.cfm

and urban life. They outline three issues that are necessary to improve the quality of the environment while at the same time meeting the transportation needs of the people²⁹. The first issue is the coordination of land use and mobility policies to foster development around the stations. This is important to help revitalize town centers and public transportation. The second issue is to shape mobility policies to favor public transportation and putting restraints on the private vehicle. The last issue is to understand the demand of the user and adapt services to fit that need. The issues outlined here have been addressed from a policy standpoint but highlight several of the major issues in creating a successful community and transit development.

B. Transit Oriented Development

Urban Land Institute (ULI)

The Urban Land Institute (ULI) is a nonprofit organization that was founded in 1936. Today it is composed of over 18,000 members in over 60 countries. The members come from all different disciplines dealing with land use. The ULI focuses on research and education as a way to serve as a leader in land use to enhance the quality of the physical environment.

With the recent trends that have emerged in the U.S., transit oriented developments have begun to gain popularity. With its success in such cities as Chicago and Seattle, many other cities have begun to follow their lead. The ULI has developed ten principles that will help to guide future developments to plan around new transit stations³⁰. These principles are aimed to help the transit station to enhance the surrounding community as well as increase ridership of the transit lines.

1. *Make it better with a vision*

A vision for a community will help to ensure a single direction for the future that will lead future developments in a cohesive and collective manor. The vision for the community should be flexible and plan for the future while understanding the existing limitations and characteristics of the community. The creation of the vision should incorporate all those involved from citizens, developers, local

29 "Transport and urban life: Developments and trends," International Association of Public Transport, accessed October 9, 2010, <http://www.uitp.com/Public-Transport/urban/index.cfm>

30 Dunphy, Robert, Deborah Myerson, and Michael Pawlukiewicz. "Ten Principles for Successful Development Around Transit," Washington, D.C.: ULI – Urban Land Institute, 2003.

businesses and government departments.

2. Apply the power of partnerships

Public/private and public/public developments can be beneficial to promote development around the transit stations. These partnerships help to take advantage of the financial benefits of land in close proximity to transit stations.

3. Think development when thinking about transit

In the development of the transit systems it is important to place stations with the consideration of the private developments that will surround it. Although this may require higher cost to build the transit line, an area better suited for higher density developments will create a more successful transit project.

4. Get the parking right

Parking is an important factor in the success of a station. Each station will have different parking requirements based on the surrounding community. It is important to determine the right amount of parking required for the station. Too much parking will waste space that could be used for development and be less pedestrian friendly. Too little parking can limit the use of the station and the developments around the area. Moving parking away from the station allows developers to maximize the potential of the land directly adjacent to the station while creating more development opportunities between the parking and station. Creating shared parking lots that also feature retail and other developments is a helpful solution to limit parking and ensure it is used throughout the day.

5. Build a place, not a project

The design of a station should focus on creating a sense of place in the center of a neighborhood. The design should relate to the character of the community as well as the scale of its surroundings. The design and position should help to foster activity in all areas around the station while providing engaging public spaces. A pedestrian friendly environment with strong pedestrian connections will help to strengthen the sense of place and encourage retail development.

6. *Make retail development market driven, not transit driven*

Retail developments should not be misguided by the presence of a transit station. Retail developments should focus on the market, and its location independently of the transit station. The presence of a transit station can increase the success but it is not the only factor to success.

7. *Mix uses, but not necessarily in the same place*

Mixed use developments help to increase diversity of a site but are not necessarily required on the same site. An easily accessible transit system can help to bridge different activity nodes to create a mixed use dynamics over various sites. Again the market demands of each area should be carefully considered when looking to develop an area.

8. *Make buses a great idea*

Successful bus systems in the community will help to improve transportation services on all levels. Buses can be an attractive option because of their flexibility in use. Bus stops can also help development around the area by reducing parking and allowing higher densities.

9. *Encourage every price point to live around transit*

Catering to a wide range of users will help to increase diversity of a site and help to foster successful developments. Transit oriented developments can be attractive to a wide population range, so the housing options should accommodate these different users.

10. *Engage corporate attention*

Well designed transit systems and developments are very attractive to companies when establishing their office. The large companies will attract employees to developments as well as stimulate business areas around the lines.

C. Livable Communities

Transportation Cooperative Research Program (TCRP) Report 22



Figure 6.1 - Diagram from TCRP Report 22 illustrating the varying elements that contribute to creating a livable community.

The TCRP has developed a conceptual model of what makes a livable community. The TCRP identifies four different attributes that have continuously arisen in the background research of what makes a livable place. These different attributes can carry different levels of importance based on the individual communities and their character. The four attributes that make up a livable community are; uses and activities, comfort and image, access and linkages, and sociability. The model is not limited to these four attributes but can be expanded to include specific areas of design.

Uses and Activities

Land use and activities help to define a place and are one of the foundations behind a community³¹. These activities are not limited to use in buildings but can spread out into open public spaces of the community. Transit stations that are isolated and separated from other uses are then unable to contribute to the livability of a community other than in improving mobility. Centrally located transit stations surrounded by other uses help to promote different interactions and more livable communities.

Visible Signs of Success

As cited in TCRP report 22 by the Transportation Research Board National Research Council

... of success

- Many different types of activities are occurring
- Many different kinds of people and different age groups are using a place.
- Activities are not necessarily related to a specific facility or a planned event.
- There are several “choices” of things to do and it is easy to go from one choice to another.

.... Of problems

- Spaces are empty of people for all or part of the day.
- Security problems are evident. (Broken windows, graffiti, etc.)
- Buildings are vacant or under utilized.
- Uses are isolated from each other or cannot be seen.
- Spaces are too small and congested for the number of transit riders present.

Approaches.... for Design

- Create a public space that can be programmed for a wide variety of uses
- Provide amenities that support desired activities.
- Provide specific uses and activities in adjacent or nearby structures.

.... for transit

- Make a transit stop the central feature of a place.
- Develop easy transfers between buses or modes of transportation.
- Provide amenities for transit patrons.
- Provide information about attractions in the area.

Comfort and Image

Comfort and image represents the user's perception and experience of a place. Two major issues that often contribute to people's perception of a place are safety and cleanliness. Other factors that contribute to the overall image of a place include scale and character of buildings. Many of the same issues that affect the community carry over into the experience of a station. A station can add to the comfort within a community through human scale elements and an integrated design.

Visible Signs of Success

As cited in TCRP report 22 by the Transportation Research Board National Research Council

... of success

- Spaces are clean and free of litter.
- Seating is located near other activities.
- Users have a choice of places to sit or use in the sun or shade.
- "Undesirables" are not able to dominate use of a space.

.... Of problems

- Few places exist for people to sit.
- The environment generally appears unattractive or unsafe.
- Buildings or spaces lack human scale.
- Litter and other signs of lack of maintenance are evident.
- Poor environmental quality exists.

Approaches.... for Design

- Upgrade the physical appearance of a place with improved materials.
- Add public amenities (Seating, telephone, waste receptacles)
- Provide information for transit facility and surrounding area.
- Create community-oriented public art.
- Restore or renovate existing buildings.
- Add trees and landscaping.

.... for transit

- Assure customer-friendly operations on and off transit vehicle.
- Initiate special security services for transit riders.
- Establish cooperative efforts with local communities and police.
- Recognize organizational structure to create station and transit terminal managers.

Access and Linkages

Access and linkages help to connect different places in a community. A well designed community will allow for options to move through the community through a variety of modes of transportation. Access also refers to the building scale and how well a building connects to its surroundings. Physical elements like store fronts or the ability to see your destination also contribute to greater linkage between places.

Visible Signs of Success

As cited in TCRP report 22 by the Transportation Research Board National Research Council

... of success

- People can easily walk to the place; they are not darting between moving cars to get to the bus stop.
- The interior of the place or transit stop is visible from the outside.
- Sidewalks lead to and from adjacent areas, allowing for convenient pedestrian access.
- Occupants of adjacent buildings use the place.
- Continuity of street level for uses makes for a pleasant walking environment.
- A variety of transportation options provide access (transit, car and bicycle)

... of problems

- Traffic is congested or fast moving, acting as a barrier to pedestrians crossing the street.
- Bicycles are infrequently used as a mode of access.
- People are walking in the street or along areas not paved as sidewalks.

Approaches... to design

- Widen sidewalks or provide sidewalk extensions
- Make accommodations for bicycle users
- In fill vacant lots with structures and uses to create continuity of pedestrian experience.
- Balance on street parking with other uses.

... to transit

- Establish neighborhood shuttle or circulator vehicles.
- Adjust or expand route locations and schedules
- Create inter modal centers, allowing transfers between transportation modes.
- Establish services for special users.

Sociability

Sociability is an important trait within a good community. Interactions and a sense of comfort in public places help to develop a sense of place and attachment to the community. In a transit station the usual types of activities that take place are not usually conducive to be a social experience. But the introduction of other uses and activities can help to transform a transit station into a social environment.

Visible Signs of Success

As cited in TCRP report 22 by the Transportation Research Board National Research Council

... of success

- People use the place (or facility) regularly by choice.
- Users know each other by face or by name.
- “Triangulation” occurs (an event occurs causing strangers to talk to each other).
- People bring their friends and relatives to see the place or they point to one of the elements with pride.
- People are taking pictures; many photo opportunities are available.
- Strangers make eye contact; people smile and display affection.
- There is a mix of ages and ethnic groups that generally reflects the community at large.
- Chance encounters happen frequently, as people tend to run into someone they know.
- People tend to pick up litter when they see it.

.... Of problems

- People do not interact with other users of the place.
- There is a lack of diversity of people using a place.
-

Approaches for Design

- Develop public gathering places to accommodate a variety of community activities.
- Arrange amenities to encourage social interactions (e.g., groupings of seating, movable seating).
- Provide a variety of uses in adjacent buildings to attract a diversity of people.
- Integrate transit stations into spaces where socializing and community activities take place.
- Design facilities so that there is room for social activities to occur.

D. Transit Friendly Streets

Transportation Cooperative Research Program (TCRP) Report 33

The Transportation Cooperative Research Program (TCRP) is run by an independent board but publicly funded through the Federal Transit Administration³². The TCRP explores a wide range of topics in mobility, environmental and energy objectives. These reports are intended to provide real life solutions to today's transportation issues. Research panels are made up of professionals in the industry from around the country.

The design of the street is an important element to understand the context of a transit station and its relationship to the community. The street is a vital public space of any community that offers much more than just a means for transportation. The street serves as a vital connection between surrounding buildings and the community. It plays a large role in dictating how people will access and use the transit stations. A successful street design can shape the environment and experience of the area in and around the stations. Understanding the relationship between transit station and the street is an important element to understand the integration of the station in to the community. A successful street design can not only lead to an integrated transit station but also to more livable communities.

The design of the street should incorporate all modes of transportation to shape a complete experience when moving through the space. The relationship between these different modes of transportation is vital in the experience of the street. These relationships help to define spatial characteristics and experience one would have when moving through the street.

The National Transportation Research Board identifies five different strategies that create a transit friendly street.

1. Sidewalk Widening

Wider sidewalks allow the sidewalk to be utilized for more than just walking, therefore creating opportunity for social interaction alongside the usual movement of a sidewalk. The width of the sidewalk often depends on the scale of development around the neighborhood. A successful sidewalk

32 "What is TCRP?" Transit Cooperative Research Program, accessed October 5, 2010. http://www.tcrponline.org/whatistcrp_about.shtml

design will be divided into different lanes for walking and viewing/social spaces. A desirable walking width for a sidewalk is 8' while 2' to 3' for viewing space.

2. Provide adequate amenities for pedestrians and transit riders

Amenities help to enhance the experience for pedestrians along the street. These amenities are often described as "street furniture." They include anything from seating, fountains and light fixtures to trees and planters. The sale of food and other retail elements can help to enhance the sidewalk experience. It is also important to properly site these amenities so they will not interfere with transit services but compliment them.

3. Create priority lanes for transit vehicles

Priority lanes are aimed to maximize efficiency for larger projects by separating the traffic. Priority lanes may not always function as planned.

4. Initiate traffic calming measures for automobiles

By reducing the speed of vehicles through traffic calming measures it helps to shape a positive environment on the street. The best traffic calming measures are ones that cause little or no delay in transit times but help to reduce the speeds. Such strategies could include road narrowing, changes in road material and mini roundabouts.

5. Redesign intersections and modify signalization

The intersection and signal modification is important to understand when dealing with mixed modes of transportation. It is important to design the signals to maximize the efficiency of transit between the different modes of transportation.

F. Conclusion

A transit station can have a large affect on multiple scales in the community. This research attempts to define what makes a design successful on a variety of scales. By looking at a range of scales it gives the design a holistic approach to creating a successful design. This section looks at existing research to understand the fundamentals of design that relates to a transit station. This information will help to provide a basic understanding of designing and planning the area around a station. From this basic understanding we can better integrate the ideas from the first chapter to promote social interactions. All of the research covered in this chapter plays an important part in the overall design of a station.

VII. Aspects of Design

The overall goal of the project has been broken down into several key ideas in an attempt to organize and guide the different case studies. These ideas will examine the design and organization in an attempt to integrate the station and its users into the existing community. Through design these key ideas will be applied to understand the relationship between architecture and the experience of the user. The architecture of the station will aim to shape the experience of the user to and through the station to benefit the community.

A. Integrated Mixture of Uses

A mixture of uses in and around the stations is an important element in creating a successful design. By introducing other uses around the station, a new user group is introduced into the circulation of the area. This creates the opportunity for social interactions between people that include other users other than those using the transit station. An expanded user group further expands the possibilities of social interactions and establishes the area as a central node in the community. Variety of users creates diversity amongst the space which is essential to establish the area as a center of the community.

The diversity of uses will help to benefit the development as a whole by exposing the user to a variety of choices. This expanded user group will help to increase ridership while at the same time increase the success of different business ventures in the area. This relationship is important from both a social and business perspective.

In each case study the different uses within the station as well as surrounding the station shall be analyzed. A simple analysis of each use in the area will help to understand the different users that utilize the space and how the transit station has affected it. The location and density will be useful in determining the relationship to the station. Retail, commerce and mixed developments are assumed to promote a walking environment.

B. Accessibility and Connectivity

One of the most important ideas of a successful transit system is connectivity

and continuity of design. Through physical and psychological connections a design of the area can help to develop a strong relationship between the transit station and the existing community. The accessibility of a place is important when considering the mixture of uses and how the circulation can be maximized to benefit all aspects of the development. The ease of access in and around a station is an important element of design and will dictate the success of the area.

Accessibility will also play an important role in shaping the experience of the users on their journey to and around the transit station. The experience of the user will be shaped as they move through the sequence of spaces. This sequencing of events is important in understanding the relationship between the user and the surroundings. The basis of the design of the area should be based off of the idea of access and experience. Case studies should be analyzed for the ease of access and sequence of spaces in relation to the architectural built form of the area.

When considering accessibility and connectivity for this project it will be important to keep in mind the elevated station design. Connecting an elevated platform with the ground level will be important in establishing a relationship with the transit line and its surrounding context. An elevated platform presents new challenges to connect the transit line with the community. The elevated platform introduces a new sequence of spatial experiences that should relate physically and mentally to the community and surrounding developments.

Within a mass transit project it is important to understand the connections with other modes of transportation. By creating connections to and from the transit station to other modes of transportation, it creates a complete system that will function at a higher level. The experience that users have getting to and from the station is just as important as the experience within the station. These different modes of transportation include bus, car, bicycle and other means of transportation. By addressing the connection between these different modes of transportation, the design can take advantage by creating connections and providing access. A mixed modal approach accounts for a holistic design that can accommodate a wider range of users through diversity. This can be beneficial for the transit station by increasing the different user groups to promote different social interactions and maximize exposure of other functions in the area.

C. Sense of Place

Sense of place refers to the context of a station in its community. It is important for a station to belong functionally through access and different uses, but it is also important for the station to belong in the character of the community. Stations must be identifiable and recognizable images in the community. There are many different factors that contribute to the character of a station. The organization of public space and uses surrounding a station create an identity for the area. The scale and style of the building design are also important elements in defining a sense of place. Through a strong sense of place, a transit station can serve as a destination in the community and provide development opportunities around it.

Creating a sense of place involves shaping the experiences of the residents and users of the station. It is important to shape this experience to create a positive image and a comfortable setting of the area. Two of the most important aspects of creating a comfortable environment are security and cleanliness. Creating a comfortable place to be will have a positive effect on the surrounding community and help to integrate the station itself into the everyday life of the people in the community.

D. Conclusion

This chapter focused on extracting the major ideas from the research that contribute to a successful development around a transit station. Each idea discussed here plays a major role in how the stations function and their overall success in the community. The ideas explored here are general ideas related to transit oriented developments but are important when understanding the relationship of the station to the community.

VIII. Case Studies

The next section will analyze a series of case studies to understand the relationship between the transit station and the surrounding community. Case studies have been selected to provide a range of different examples that represent a range of conditions at and around the station. Each case study has particular characteristics that maximize the connection between the station and the surrounding neighborhood. Basic information and plans have been generated to provide a foundation for comparison between projects. But the projects vary in scale and program with no clear precedent that embodies the conditions in Hawaii. The case studies will be analyzed to extract certain design ideas that are successful and can translate to the design in the next section. The case studies are divided into two sections. The first section focuses on transit oriented developments and the second section focuses on the design of the station itself.

A. Transit Oriented Developments

The first section looks at three different transit oriented developments that have been designed around a transit station. The three developments are the Fairview Transit Village, Mockingbird Station and Denver Union Station. These developments feature a mixture of uses that are designed to take advantage of the proximity to the station. Each development uses different design strategies to connect it to the station. While the design portion will not feature large developments like these, there are valuable ideas that can be extracted from the projects. Looking at the organization of different uses and the connection to the station can provide design ideas in the next phase.

Fruitvale Transit Village

Oakland, California

Population (1/2 mile radius): 10,033

Density (1/2 mile radius): 5.25

Average Daily Ridership: 7,535



Figure Ground



Land Use



Green Space



Circulation

Figure 8.1 - Base plans for Fruitvale Transit Village.

Fruitvale Transit Village has been cited as one of the leading models for transit oriented developments in the United States. The Fruitvale Transit Village is a public private transit oriented development. The new development has helped to revitalize an older existing Oakland community and sparked many other transit village investments in the surrounding area³³. There have been articles that question the success of Fruitvale. But the Urban Land Institute cites the large waiting list for the residential units and the decrease in vacancy rates on retail surrounding neighborhood from 40 percent to nearly 1 percent³⁴. The total development encompasses over 250,000 sq ft offices, retail, residential and parking³⁵. The mixed use development provides residents and riders a place to shop, eat and rest in a comfortable environment. The project has a planned phase two that will expand the mixed use development around the area. The phase two project will

33 "Fruitvale Village I," The Urban Land Institute, Last modified 2005, http://www.hud.gov/offices/cpd/about/conplan/pdf/fruitvale_transit_village.pdf

34 "Fruitvale Village I," The Urban Land Institute, Last modified 2005, http://www.hud.gov/offices/cpd/about/conplan/pdf/fruitvale_transit_village.pdf

35 "Overview," Fruitvale Village, accessed November 15, 2010, <http://www.fruitvalevillage.net/>

provide maximum number of mixed income housing units combined with green building techniques and energy savings systems.

Fruitvale Transit Village helps to serve as a valuable case study of a new development being inserted into a troubled community to help revitalize the area. The elevated BART system and station presents many similar issues as the rail system that is proposed in Hawaii. The development features retail on the first floor, community facilities on the second floor and loft spaces on the third floor. The mixture of these uses attracts a wide variety of users into the site. The community resource center, library and health clinic attract a different user group that helps to benefit the retail by increasing the foot traffic in the area. The development creates a pedestrian access way that connects the BART station and the major retail strips that runs parallel to the rail line. It is important for a new development to respond to the existing conditions of a community. This mixture of uses and integration into the community are two important elements in creating a successful development around the station.

The design of the station draws riders attention from up on the station as well as down on the ground level. The bright colors and staggered form stands out from the bleak surrounding community. Because the design stands out from its surrounding community it helps to draw riders towards the development as they exit the station. Because the development is so visible from the elevated platform it forms a visual connection between the rail system and the mixed use development. This can not only help the users exiting the car at this station but also create exposure to other riders on the car. Although riders may not exit the car they are being exposed visually to an attractive development that can help to benefit the development in the long run. The development does not create physical connections to an elevated rail line but creates a visual connection to the vibrant design of the station.

The station has been cited by various people for being under used and the lack of pedestrian foot traffic. Some shop owners have complained about the lack of business and customers in the area. The downfalls of the retail spaces seem to be attributed to a varying clientele base rather than a flaw in the design. Some users prefer to shop at less expensive shops lining International Boulevard rather than in the Fruitvale complex. Aside from the Fruitvale complex there are also very few and much less dense residential developments in the area. Aside from the main connection to the retail strip, it leaves this

development rather isolated. Future developments and an increased density could also help to increase foot traffic and lead to more success for retailers. Any new developments should be carefully designed to properly integrate into the existing developments.

The major parking structure is located across the rail line and away from the major development. This could have provided major foot traffic through the design that could have also helped the development thrive. If users who parked in the major parking lot were forced to walk through the development to access the rail station it would help to expose these businesses to a new user group that would have otherwise missed the entire development. These major connections could have been designed to work in a more integrated manner to help benefit all elements of the design.

The major walkway that runs down the middle of the development creates a space that can promote social interactions. Along this major walkway there are several restaurants that provide seating that spills out into the public zone. The seating is separated from the walkway by a low rail which helps to provide some privacy without disconnecting the seating from those passing by. There are numerous planters throughout the walkway which provide nice greenery for shade as well as seating options. The seating at the restaurants and planters create opportunities for social interactions to occur between the people passing by and the users that are seated. This main walkway is also used as a farmers market once a week. A farmers market is a successful tool to attract residents to the site and promoting social interactions between residents in the community. The main walkway creates numerous opportunities for social interactions by expanding the use to become more than just a walkway.

Mockingbird Station

Dallas, Texas

Population (1/2 mile radius): 3,706

Density (1/2 mile radius): 3.86

Average Daily Ridership: 2,700



Figure Ground



Land Use



Green Space



Circulation

Figure 8.2 - Base plans for Mockingbird Station.

Mockingbird station was completed in 2001 and is centered around a DART light rail station. The 10-acre mixed use development is located 4 miles north of downtown Dallas³⁶. The development introduces new construction to complement the adaptive reuse of an existing assembly building and an office building. The development features retail, offices, restaurants, loft and luxury housing along with a cinema and parking structures. The development was the first of its kind in Dallas and has proven to be a success.

The design of the development focuses on creating its main approach from the DART station turning its back to the main street and freeway. The direct connection to the rail station has helped the development to thrive and become one of the most successful Transit Oriented Developments. The developer was also responsible to improve infrastructure in the area to accommodate the higher traffic in the area that is attracted by

36 "Mockingbird Station," DART, Accessed September 25, 2010, <http://www.dart.org/about/economicdevelopment/factsheets/Mockingbird.pdf>

the high density development. The developer plans to add additional housing, hotel and more retail spaces in future phases.

Mockingbird Station in Dallas has been considered one of the leading examples in transit oriented developments in the United States. The higher density, mixed uses and strong connection to the transit station make it one of the first of its kind. The light rail line runs parallel to the development in a deep trench below grade. The depressed rail station is directly connected to the development through a pedestrian walkway. The direct connection serves as a “front door” to the development while providing easy access to other amenities that are provided in the development. All riders exit the station and pass this pedestrian bridge making the entire Mockingbird development a visible element to all riders. While some riders cross and head across to a parking lot and drop off area, the Mockingbird development is still very visible and welcoming as people look across the rail into the retail areas. This connection is one of the main reasons why Mockingbird Station has grown to be such a successful development. By funneling riders past this pedestrian bridge it creates higher foot traffic so the station can take advantage of all the riders exiting the light rail line.

This strong connection to the transit station has made units within the development very desirable which is reflected by the increased rates of rent. The development features a range of high end retailers, outdoor cafes, restaurants, and cinema theater available to the public. These public amenities help to create a public realm within the development that compliments the more private residential and office spaces.

While the development is successful in creating a strong connection to the station, it is disconnected from the surrounding community. The development is located between the depressed trench where the rail runs and the freeway. These two major infrastructure arteries create major boundaries that isolate the development from pedestrian access. Users that live outside of the development must rely heavily on the automobile to access the development. This is evident because of the large amount of space in front of each building that is dedicated to parking rather than pedestrian walkways. The surrounding community has a visibly lower density than the development being mainly surrounded by single family homes and some retail buildings. Major retail buildings surrounding the sites still rely on large parking lots that separate the building from the main street.

The surrounding community has little connection to the mixed use development and becomes physically separated. The station is located less than half a mile away from Southern Methodist University but has no connection other than a shuttle to take you to and from the campus. The freeway becomes a major barrier between the two elements while the only access is through the six lane wide Mockingbird Lane. The wide road is mainly lined with parking and no pedestrian amenities which suggest a dominance of vehicular traffic. While the development itself has thrived from the connection the station, the existing community is not as well connected. These constraints are not so much a result of the station design, but because of the constraints imposed by the existing community. Future developments in the area could help to further integrate the station into the context of the existing community rather than just the immediate development.

Union Station

Denver, Colorado

Population (1/2 mile radius): 3,035

Density (1/2 mile radius): 4.30

Average Daily Ridership: 43,000

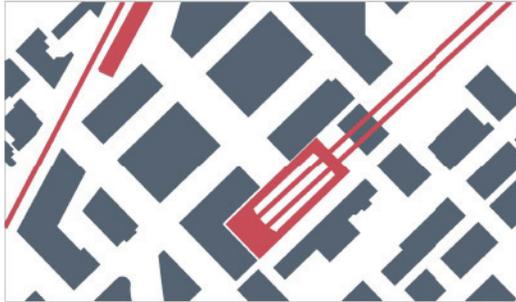


Figure Ground



Land Use



Green Space



Circulation

Figure 8.3 - Base plans for Union Station.

The redevelopment of the Denver Union Station focuses on creating a new multi modal hub for the area. The mixed use development spans 19.5 acres and includes office, retail, hotel, residential units and parking³⁷. The station connects the commuter rail, light rail, regional bus facility and mall shuttle. The public realm surrounding the station serves as the connection of all the individual elements of the station. The historic Union Station building will remain in its original state and is connected to the new development through the architectural form of the canopy over the tracks. The design of the development is aimed to create a broader sense of place while completing Denver's downtown district.

The historic station will be renovated to restore its prominence in the city and serve as a gateway to Denver. The exterior spaces will be transformed into bustling public spaces through the addition of seating, greenery and other public amenities. The spaces

37

"Master Plan," Denver Union Station Project Authority, Accessed October 27, 2010,

http://www.denverunionstation.org/index.php?option=com_content&view=article&id=60&Itemid=48

are designed to form an interconnected series of spaces that will help users move through the entire development to move between destinations. The new mixed use development will be designed around a the historic building and connect the light rail and commuter rail stations over a three block span with the major bus terminal in between³⁸.

The design attempts to create connections between the different modes of transit through the architectural design of the site. The swooping canopy over the train platform creates a dynamic relationship between the platform and historic building. A similar canopy is used along the light rail station forming a visual relationship that creates an identity to the transit district. The bus station is located underground and connected by various vertical circulation elements. The underground plane is linked visually by skylights that penetrate to the ground level. The link between these different elements throughout the site is key in the success of the design and help to increase social interactions in the area.

The design of the public spaces throughout the site provides a range of activities to attract users. The space required for a variety of public activities was compared to the large open space in front of the Union Station building during the design process. These activities range from farmer markets to skate rinks. These activities were considered to promote interactions within the public realm. Water and light features are incorporated in the design of the plazas and compliment a variety of gardens. These public spaces use these features to create “healthy” public spaces along the development. The variety of activities helps to promote social interactions in the public realm.

The new design of the station focuses on connecting the major public transportation systems in the area. A main promenade is created that runs from the old Union Station building to the light rail station. The design attempts to create intermediate nodes along the promenade to draw users through the space. The public spaces are designed with a variety of activities with ample planters that provide seating. These plazas provide spaces for social interaction along the major circulation path in the site. The main promenade is complimented by high density mixed use developments that border the promenade on both sides. Retail along the street can also help to increase activities and social interactions along the street.

38 “Vision Plan,” Denver Union Station Project Authority, accessed October 23, 2010, http://www.denverunionstation.org/index.php?option=com_content&view=article&id=60&Itemid=48

The light rail plaza is located at one end of the promenade and connects the site to the light rail station. The design of this plaza uses the projected circulation paths of the riders entering and exiting the station to design the planters in the plaza³⁹. The planters provide seating that is integrated into the design and function of the plaza. The seating provides a place to wait for the light rail that is integrated into the public plaza and surrounding buildings. This open space is key to provide access to and from the rail station and promote social interactions around the station. The plaza serves as the waiting area for the light rail station creating a seamless connection between the station and surrounding context.



Figure 8.4 - Plan and rendering illustrating the light rail station integrated with public plaza.

Union station is a useful case study because of the emphasis of the design on the public realm throughout the development. The design uses a range of elements to create vibrant public spaces that help to promote social interactions throughout the site. The connection between the various modes of transit and the public spaces is a prominent idea to foster social interactions within a space. Other strategies promoted in this project can help to encourage social interactions around the transit station.

39 "Public Realm Design - Light Rail Plaza," Denver Union Station Project Authority, accessed October 25, 2010, http://www.denverunionstation.org/index.php?option=com_content&view=article&id=75&Itemid=72

B. Transit Station

This section focuses on the design of the station and the relationship it has to the surrounding community. The three stations analyzed in this section are the Norreport Station, Orenco Station and Transbay Transit Center. These stations range in scale but all provide different examples of the relationship between a transit station and the community. These case studies look at how a transit station can influence the surrounding area through the design of the station and its connection to the surroundings. These case studies can provide insight to understand how different design elements in a station can influence how it interacts with the community. In each case study both successful and negative design features were identified as elements to consider the design phase.

Norreport Station

Norreport Denmark

Population: 72,887

Density: -

Average Daily Ridership: 250,000

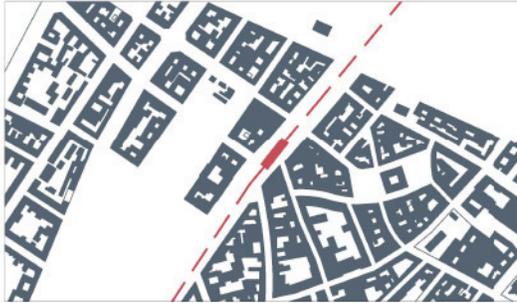


Figure Ground



Land Use



Green Space



Circulation

Figure 8.5 - Base plans for Norreport Station.

The proposed design for the station and winner of the design competition proposes a station that focuses on bringing back the openness that once existed in the site. Currently Norreport station is the busiest station in Denmark with 250,000 passengers daily. The design of the station is intended to relate to the original station at Norreport where pedestrians moved on the same plane as cars, cyclist and the tram⁴⁰. The station becomes a natural gathering space because of its openness and accessibility in the community.

The design of the station is divided into two different zones⁴¹. The first zone is focused on movement and flow throughout the site. The second zone is focused on the station facilities and bicycle parking. By separating these zones it allows circulation to flow through and around the station to connect the surrounding neighborhood. The

40 "The Busiest Station in Denmark," COBE, accessed November 17, 2010, <http://www.cobe.dk/>

41 "The Busiest Station in Denmark," COBE, accessed November 17, 2010, <http://www.cobe.dk/>

bicycle parking is an important element in the design because cycling is a major mode of transportation in the area. The bicycle parking is slightly depressed to create a separation between the parking and the circulation routes. This also makes the bicycle parking very visible in a central location in a way to celebrate Copenhagen as one of the best bicycle cities. Another benefit of depressed bicycle parking is that it doesn't obstruct visibility across the entire plaza and maintains an open feel to the station.

The station buildings themselves are designed to appear as floating roofs with glass walls in the landscape. The functions within each of these glass pavilions are located in the middle to allow the facades to be free. This helps to create a transparency to the buildings and create visibility around the station. This visibility also helps to promote the openness and create a sense of security in the area.

The current design of the station separates itself from the community because of the two roads that surround the station. The new design will push the station to border one edge of the city blocks with roads running only on one side. This creates a much stronger connection to the surrounding shops and cafes that line the side streets of the area. The station now has a direct connection to the context of the community instead of being separated by the streets as the current station does. The design also focuses on creating an urban plaza mixed in with the transit station. The open feel and clear line of sight help to integrate the community into the station. Its modest design makes a seamless transition between the community and the station. The open plaza is an important element in the design that not only helps aesthetically but also functionally. The plaza serves as a natural gathering space and circulation path that makes the station accessible and successful.

The design of the station acts as a natural gathering space in the community and helps to promote social interactions. The Openness of the site helps to increase visibility therefore increasing the chances of random interactions. The high traffic of people using the rail and those just passing by also helps to promote casual interactions around the station. The circulation paths are key to promoting social interactions. There are no seating opportunities around the plaza. Providing places to sit around the circulation paths could help to increase the opportunity for social interactions around the plaza.

Overall the proposed station design is successful because of its connection to the

context of the environment. The open plaza can become a bustling node because of the transit line, which will help the surrounding businesses to prosper. The integration of bicycle parking and station facilities has a minimal impact on the open plaza while still creating a visible station entrance. The station design becomes integrated within the circulation of the community while seamlessly integrating both the station facilities and bicycle parking.

Orenco Station

Hillsboro, Oregon

Population (1/2 mile radius): 1,231

Density (1/2 mile radius): 1.10

Average Daily Ridership: 24,500

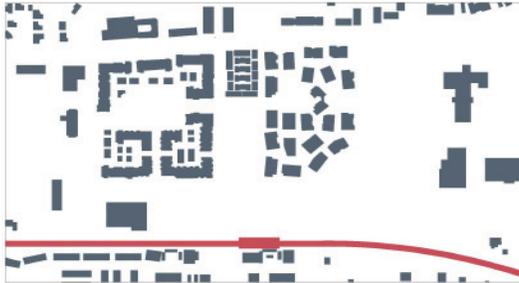
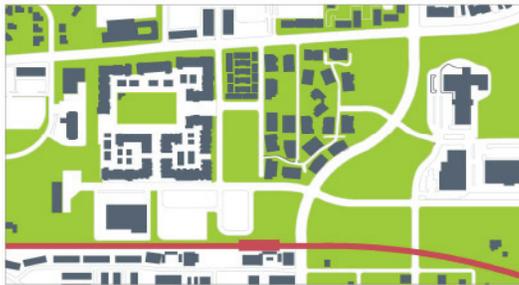


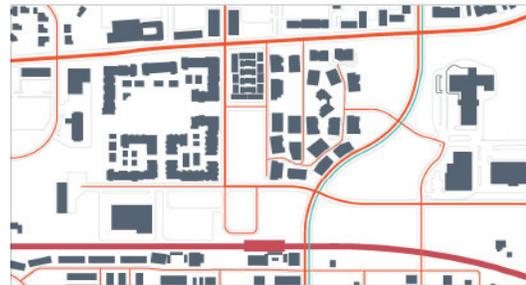
Figure Ground



Land Use



Green Space



Circulation

Figure 8.6 - Base plans for Orenco Station.

Orenco station is a mixed use development with service from Portland's MAX light rail system. Orenco station has been developed under Oregon's Urban Growth Boundary laws that have served as an example for similar communities around the country. Orenco station has provided much needed housing to an existing high tech industrial area. Mixed use centers provide work/live homes and access to a variety of activities and amenities in the community. The higher density and mixed uses help to create walkable streets in the community. The development has won numerous awards including the 1998 Oregon Governor's Livability Award and 1998 NAHB Best Master Planned Community in America.

Orenco station was chosen as a case study because of its success as a walkable neighborhood. The introduction of the new light rail station has helped to spark development in the area. But the station design does not appear to have a strong immediate relationship between the rail line and the community. The rail line is located

adjacent multifamily residential developments with a drop off access road located on the other side. The major retail strip is located over a quarter mile away from the rail station. The design intent was to create a central pedestrian spine that connects the light rail to the town center and residential housing. While there is a clear access between the two nodes, the connection seems questionable in how successful it functions. The major retail street bordering the town center also has a high vehicular traffic and discourages pedestrian access to the light rail station⁴². A large portion of the land bordering this spine is left undeveloped while the other half is lined with multifamily residential developments. The rail line itself creates a strong division in the development by limiting access to only a few designated crossing points. This division suggests limited pedestrian movement from the residential neighborhood to the retail area above.

Planners for the project created a Station Area Interim Protection Ordinance (SAIPO) as a way to regulate the developments that would occur in the neighborhood to promote higher densities in the area⁴³. The plan for the area called for a minimum density of 6.7 dwelling units/acre but also included over eight acres dedicated to open spaces and parks⁴⁴. This required numerous amendments to the local zoning code to allow for the higher densities in the area.

Orenco station is surrounded by five high tech campuses and 24,000 technology based jobs⁴⁵. During the planning of the development surveys were taken of local employees to understand the market in the area. Through these surveys accommodations such as high speed Internet connections were added to appeal to the local market. This has helped the development to be successful in the area because of the studies into the current users in the community. Orenco station also offers a variety of housing options in the area that include single family dwellings, townhouses and granny flats. This diversity of housing options attracts a more diverse population that can add to the character of the community.

The public realm plays an important role in creating an identity to the community and bringing together the neighborhood. Focusing on a pedestrian environment with

42 Jennifer Hock, "Practice, Theory, Project, Place: Fairview Village Orenco Station" Places 13 (2000): 23

43 Michael Barton and John A. Charles, "The Mythical World of Transit Oriented Development," Cascade Policy Institute. 2003, 10.

44 Michael Barton and John A. Charles, "The Mythical World of Transit Oriented Development," 13

45 Hock, "Practice, Theory, Project, Place: Fairview Village Orenco Station" 20

human scale elements designers attempt to create a comfortable public realm to linger and walk⁴⁶. These elements include wide sidewalks, streetlights, prominent cornices, bay windows and balconies. Parks and civic buildings help to bridge the public realm throughout the community. But the large central green space currently is unused and not large enough to hold festivals.

The design of the community has a cohesive appeal because of the strict design codes in the area. This has helped to create an integrated experience of the neighborhood. The neighborhood helps to promote social interactions by encouraging walking in the community. A comfortable pedestrian environment is important to promote social interactions in the neighborhood. Looking at the design of Orenco station can help to understand how the architecture of a neighborhood can help to shape a comfortable environment. The character of the neighborhood is an important element to promote social interactions around a transit station.

Overall Orenco Station is a good example when looking at the higher density residential areas and the mixed use developments in the area. But the station itself is nothing special and offers little in regards to its relationship to the community. While the overall development has success because of its planning and organization it almost ignores the presence of the station. The overall scale of the community appears to be very pleasant and the wide sidewalks lined with greenery seem to help promote walking within the community.

Transbay Transit Center

San Francisco, California

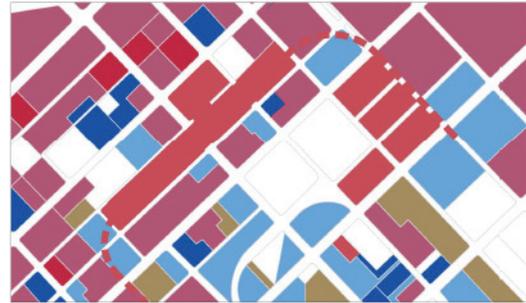
Population (1/2 mile radius): 11,199

Density (1/2 mile radius): 13.10

Average Daily Ridership: 109,000



Figure Ground



Land Use



Green Space



Circulation

Figure 8.7 - Base plans for Transbay Transit Center.

The San Francisco Transbay Transit Center is a proposed new development aimed to create a central station in the heart of downtown San Francisco. The project is scheduled to be completed in 2018. The new station will connect 11 different transit systems: AC Transit, BART, Caltrain, Golden Gate Transit, Greyhound, Muni, SamTrans, WestCAT Lynx Amtrak, Paratransit and future High Speed Rail from San Francisco to Los Angeles. The new station will replace the existing Transbay terminal and consolidate nearby transit stations. The multistory project will also feature a 5.4 acre public park that is home to a Children's play garden, vegetation gardens, amphitheater and a walking trail.

Along with the transit station the project will feature a redevelopment plan for the existing neighborhood. The current community consists of many vacant freeway properties. The new plan proposes nearly 2,600 new homes, 3 million sq ft of new office and commercial space and 100,000 sq ft of new retail. The new community will focus

on creating a walkable neighborhood centered on the Transbay Center. To do this they propose to use Folsom Street as the focus of the neighborhood by placing cafes, markets and wide sidewalks. The redevelopment plan is an important element to the success of the Transbay project.

The Transbay project presents a much larger scale development than the proposed stations in Honolulu, Hawaii. But there are still many elements of the design that can be drawn from this example. The station becomes a focal point for all different public transportation systems in the area. As a result of this it naturally creates a location for high social interactions because of the high traffic volumes of people. The station also features a large community park that features walking paths, playgrounds, gardens, and a performance venue. This park is an important element in the design of the station to integrate it into the community and promote social interactions. The park offers the community a valuable resource that is not available in the dense neighborhood. By introducing the park it has expanded the users of the building beyond just those who use public transportation.

The design of the station helps to integrate the development into the community while creating an iconic form that stands out in the context of the area. The undulating facade that runs across the length of the building creates an interesting relationship to the street while juxtaposed with the straight lines of surrounding buildings. It is important for the transit station to stand out in the context of the community to help draw pedestrians and direct them to the station. People will be naturally drawn to the curved form and walk down along it pass the retail shops. This will help to increase social interactions around the station because it will draw attention in the community.

The facade of the station also helps to create a connection to the interior of the spaces with its surrounding context. The clear facade allows both users to see into the station and users to see out into the street. This helps to promote ridership of the various transit systems by allowing them to form a visual connection from outside of the station. This transparency of the building helps to create a form of social interaction by visually connecting users between two physically unconnected spaces. The building spans four blocks but runs over any perpendicular streets in order to let the traffic run uninterrupted. This also helps to form a connection between the streets and the building. The station also features many cafes and retailers that line the street front along the building. This is

an important element to activate the street life along the building. These subtle elements help the development to relate to its surrounding context without mimicking it.

The Transbay station has also been paired with a redevelopment plan for the immediate surrounding area to maximize the potential for the project. The project will mainly focus on using vacant lands and transforming them into housing, offices and retail. Folsem Street will be a major access way of the development. The plan proposes the opening of Folsem Street to two-way traffic as well as widening the sidewalks and planting trees. This will be complemented by new retail and cafes that will line the street to create a prominent retail street in the community. Improving the streets will be a main focus to connect the community to the station and create a pedestrian friendly neighborhood. They also introduce service facilities and open space to help enhance the connections between the station and surroundings.

C. Conclusion

The case studies examine a wide range of scales and address a variety of different conditions within the context of their surroundings. The goal of this better approach of the case studies was to gain a broad understanding of the relationship between a station and the community. The case studies identified different features within each design that helped to promote social interactions within their own settings. These different elements serve as precedents to a range of techniques to promoting social interactions around a station, which may be considered in the design of a new development.

IX. Project Context

Waipahu Transit Station

Waipahu, Hawaii

Population (1/2 mile radius): 4,530

Density (1/2 mile radius): 2.48

Average Daily Ridership: 2,800

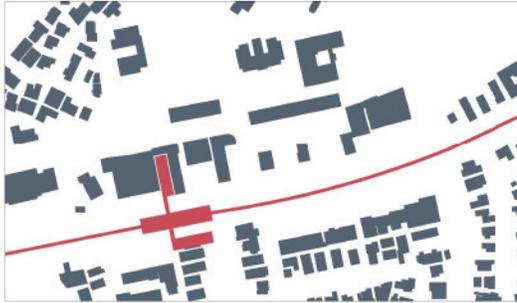


Figure Ground



Land Use



Green Space



Circulation

Figure 8.8 - Base plans for Waipahu, Hawaii.

A. Existing state of the community

Waipahu will be the site for two stations on the proposed elevated rail line. Both stations are located on Farrington highway. The introduction of a new station into the historic neighborhood offers many interesting new design opportunities. These new stations will change the dynamics of the community by changing circulation patterns. The first station is the West Loch station which is located near the Waipahu Town Center Shopping Center. The second station is the Waipahu transit Center and is located further down the line. The first step to understanding the impact of a new station is to understand

the existing neighborhood.

Waipahu's history dates back to the beginning of the 19th century as a plantation⁴⁷. The historical beginnings are remembered at Hawaii's plantation Village which lets one experience a historical plantation village. Today the total population of Waipahu is 33,108 people with an average household income of \$49,444⁴⁸. The population is composed of a wide mixture of nationalities. Waipahu also features a variety of parks for the community including Hans L'Orange Baseball Park, Waipahu Cultural Garden Park and Honowai Neighborhood Park. Along with a diverse residential population Waipahu also features multiple shopping centers along Farrington highway. Farrington highway serves as a major retail corridor with office and industrial uses also lining the highway. Waipahu offers a diverse population along with a diverse mixture of uses to compliment a predominantly residential district. The existing neighborhood and history of Waipahu create a unique character.

The existing neighborhood is predominantly dominated by cars centered around a major artery in Farrington highway. The highway is 4 lanes wide with a median creating a great division within the community. There are sidewalks along the main road but the lack of activity on the street discourages any pedestrian activity on the area. There are a few disconnected bike lanes in the neighborhood. Bike lanes could help to create a strong connection from the residential neighborhood to the stations. The bus services are heavily used in the area and can help to compliment a new rail transit station.

47 "Waipahu, Honolulu County, Hawaii," Accessed 11,29/2010 <http://www.hawaii.stateinfo.com/waipahu.php>

48 "Waipahu, Honolulu County, Hawaii"

X. State of Social Conditions around Waipahu Transit Center

It is important to understand the current make up and conditions of Waipahu to create a design that respects the character of the community. The existing community will be analyzed to understand the elements that are restricting and promoting social interactions. The themes that were identified from the research will be used to evaluate the success of the current development. Understanding what areas are currently limiting social interaction will influence the focus of the design. Each section identifies one design principle and analyzes its success or failure in its current state. The analysis will look at the area immediately surrounding the station including the different uses and public realm.

A. Elements restricting social interaction

Integrated Experience of the Site

One of the major issues hindering social activity around the site of the transit station is the domination by the automobile. The station itself is centered on Farrington Highway with entrances located on both sides of the road. The four lanes of traffic and median create a barrier in the community dividing both sides of the street. On top of the wide highway one side of the station is further separated by a secondary road that runs between Farrington and the buildings. This division between sites creates an unfriendly environment for pedestrians because of the heavy competition with cars.



Figure 10.1 - Farrington Highway

Every major retail development surrounding the station also features a

large parking lot further separating the sidewalk with any activity in the buildings. These parking lots create a secondary barrier that isolates the sidewalks creating a larger divide through the middle of the Waipahu community. The large roads and parking lots leave little protection and shade for pedestrians on the street. As a result there is absolutely no pedestrian activity along Farrington Highway with the exception of a few out of place bus stops.

Hikimoe Street is a major bus stop is located one street north of Farrington Highway. This road has a much lighter traffic flow than the main highway but is very disconnected from any of its surroundings. The road is enclosed by a fence on one side and the blank side of the adjacent buildings. The distance between bus stops and across the street creates a



Figure 10.2 - Bus stops on Hikimoe Street.

separation for each stop making it harder for social interaction. The street is usually busy with pedestrians waiting for the bus but because of this separation each stop feels disconnected from one another.

Currently the streets surrounding the station isolate riders from a comfortable pedestrian experience and discouraging walking even though the distances are very close. The lack of activity along the street along with heavy vehicular movement creates an uncomfortable environment for people walking along the street. Creating social interactions around Farrington Highway would be very difficult but Hikimoe Street offers a much more manageable project.

The site features a wide range of uses but feel disconnected from one another even though they may be close in proximity. Each site functions independently with individual parking lots and access to each building through

the vehicle, eliminating any interactions amongst other sites. The large parking lots create a barrier to pedestrians and reduce the chances of interaction between buildings. The users at two buildings which may be located adjacent to each other may never interact with one another because of the layout of each building. Many users do not have any reason to venture beyond their immediate needs at the site.

The two entry buildings for the station are located on opposite sides of Farrington Highway. The north station is sandwiched between two retail buildings on a long narrow lot. The station becomes a narrow building that is sandwiched between two blank walls of surrounding buildings. The property has little interaction with surrounding lots and barely any connection to the many bus stops that run on the adjacent street. Improving the connection to the surroundings will be an important element to promote social interactions in the area.

Public Realm as a Place to Gather

Around the station there are no community spaces for people to gather and hang out with one another. The closest thing to a gathering space is the grassy area between the library and government building. But this space is isolated from the surrounding buildings and doesn't offer many seating options. Aside from that the open space in the public realm is dominated



Figure 10.3 - Walkway in front of public library leading to Waipahu Civic Center.

by vast parking lots. There are several different shopping centers and strip malls along Farrington Highway but they do not offer spaces that promote gathering. Gathering spaces or a plaza around the station and retail can become a valuable feature in the community and attract a range of different groups.

The highest levels of public activity are centered on Hikimoe Road because

of the numerous bus stops. The seating at each bus stop are well used during peak hours of travel. Other than the bus stops there are not many other seating options around the retail and other buildings near the site. The library and government offices offer some exterior seating but the path is isolated from the path of travel by the general public.

*B. Elements **promoting** social interaction*

Integrated Experience of the Site

One of the biggest benefits of locating the station in this area is the adjacency of the site to the large bus stop in Waipahu. The street is heavily trafficked with riders waiting and arriving from the bus. Creating a strong connection with the bus stops will be an important element in the success of the station. The existing bus routes will help to integrate the station with a larger population for neighborhoods in a larger area.

To compliment the bus routes there are the beginnings of a few bike routes located on Mokuola St. There is also the beginning of the Pearl Harbor Bike Path located about a quarter mile away from the station. This bike path runs along the water all the way to the Aloha Stadium. Creating a complete system of bike routes will help to encourage bike ridership in the area. Currently the bike routes go



Figure 10.4 - Bike path on Mokuola street blocked by parked cars

mostly unused because they are incomplete and often blocked by parked cars. Further developing these bike lanes can help to create a complete transit system.

The area around the station features numerous different uses making up a diverse community. Along Farrington Highway is predominantly retail with numerous shops and a supermarket in the adjacent lot of the station. One block north of the station is a day care center and a community church and across the street is the public library and Waipahu Civic Center. Radiating out away from the main highway are single family housing with some larger multifamily developments

and elderly housing mixed in. Within the quarter mile radius around the station there are four other churches along with the Leeward YMCA and the Filipino Community Center. Just outside of the quarter mile circle there is also the Hans L'Orange Baseball Park and St. Joseph School. This diverse community creates many opportunities to promote social interaction between these different groups.

These numerous amenities in the area attract a diverse group of people that create the foundation for social interactions. The addition of a rail station has the potential to consolidate these users in the community through a single node in the area. The close proximity of these diverse uses in the neighborhood and residential make this station a good candidate to promote social interaction. Designing the public realm will be key to facilitating interaction between these different users.

Activity Attracts People

There are no clear gathering places in the immediate community but it does feature many important nodes in Waipahu. The earlier section mentioned several elements within the existing Waipahu community. Many of these elements are important to the public realm within the community and can be utilized to enhance social interactions. Many of the elements are in close proximity to the station but have little or no connections to one another. These existing nodes can be utilized to maximize social interactions between existing conditions that do not intersect in the current layout.

The Leeward YMCA is located at the site of the old sugar mill at the top of Waipahu Depot Road. The newly renovated building now offers numerous classes that range from yoga and Pilates to cycling and hip hop dance. The recreation center also features a



Figure 10.5 - View from Waipahu Street to Leeward YMCA.

swimming pool and offer swimming lessons. This site is a key element within the community both as a visually and functionally. The old smoke stack that still remains at the site has become an visual icon because of its historical significance and height. The community based activities that are provided here make this site an important feature in the public realm.

Within the area there are two major sporting complexes in Hans L'Orange Baseball Park and the Waipio Soccer Complex. The Hans L'Orange was the home to many Hawaii Winter Baseball games but the last games have been played in 2008. Currently the field is home to numerous local baseball games with players from around the island. The Waipio Soccer Complex is located a little over a half mile south of the site of the transit station. The field is home to all home games for the University of Hawaii Women's Soccer Team. The field is frequently used by many other armature and professional soccer events. Both parks are key attractions in the community that bring in a range of users that would otherwise not exist in Waipahu.

One of the most interesting parts of the Waipahu community is the old town commercial area that runs along Waipahu Depot Road and up along Waipahu Street. Waipahu Depot Road used to be home to Arakawa's store but closed down in 1995. Along with numerous retail establishments there is a public marketplace located in the area. While the area is not the same bustling hub that it once was, it has the potential to reestablish the area and embrace Waipahu's past.

Located along Farrington Highway is Tanioka's Seafood & Catering. While this is on a much smaller scale it can still be considered a node in the area. Tanioka's is widely known in the local community for their food and is a high traffic area. Located just across the road from the station it can be an important element in the design. Tanioka's often draws people from all over the island and is a popular stop for those attending sporting events in the area. The store is often busy with long lines but does not offer any place for customers to eat making it a quick stop for most. Its popularity makes it a great opportunity to expand on their success and provide a nice complement to the station.

XI. Designing Social Interaction Around Waipahu Transit Center

The design of the area surrounding the station should focus on creating an integrated public realm that connects the existing nodes within the Waipahu community. Establishing an integrated public realm around the existing community would promote social interactions while embracing the existing character of Waipahu. The design will focus on redeveloping the public realm around the station and proposing the redesign of critical buildings in the area. But as a whole the design will attempt to maximize the potential of the existing site leaving key public elements in the area.

The next chapter focuses on five key points in an attempt to develop the area around the transit station into a social hub for the community. These next points will look to address key deficiencies in the public realm as it currently functions and integrate ideas that have been developed from the research. The goal of the project is to integrate the station with the surroundings in a way that can revitalize the area while promoting social interactions

Looking at the Big Picture

Conceptual Site Plan



Figure 11.1- Site plan highlighting four development zones.

The area around the Waipahu Transit Station has many positive attributes but the greatest challenge is bringing them together. The redevelopment will focus on the retail development and housing north of Farrington Highway. This is because the project focuses on the public realm and the major public buildings and retail developments are located in this area. A major goal of the design is to establish an integrated development that will bring together the different elements of the neighborhood.

The diagram above identifies 4 major components of the area that are key to developing around the station. There are two main retail districts in the area. The main focus of the new development will focus on the retail developments around Hikimoe Street. This area is highlighted in red in the diagram above. This area is further discussed in detail in the next section. The purple section is the existing historic retail district. This area will not be redeveloped but is identified here because it is an important element in the area. The addition of new developments and the station can help to revitalize the area through a stronger connection with its surroundings.

In the area there are residential and recreational spaces that compliment the retail districts. The blue color identifies an existing single family residential development that will be redeveloped in future projects to higher density housing. Multifamily housing can help to provide a larger user base in close proximity to the station. The current single family housing in the area creates a physical barrier between Hikimoe Street and Waipahu Street. This separation isolates the historic retail area from the rest of the development. Redeveloping this area to multifamily units will allow for a more public access through the block along with a larger user base in the immediate vicinity of the station. There are also two large community parks in the area that are identified in green. Creating a stronger connection to these parks can help to serve as anchors in the neighborhood. Opening up the connections to the park can help to develop them as a bigger part of the public realm.

1. Integrated Experience of the Site/Access and Connectivity

Figure 11.2 - Site Circulation Diagram

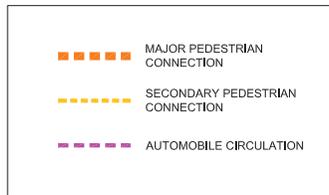


Figure 11.2 - Site plan highlighting four development zones.

Redesign Hikimoe Street

The bus stops that run along Hikimoe Street can be a great opportunity to integrate the transit station with the existing infrastructure in the neighborhood. This street has the potential to become a lively pedestrian oriented street. The development around the station would be centered on this road leaving Farrington Highway as the main access for vehicular traffic. Redesigning this street can help to create a central axis that not only connects the station to the bus system but also connecting the retail strip along Waipahu Depot Road to the Waipahu Civic Center. These two elements would act as anchors on each end with the station as the main draw in the center. This street will be a key element around the station in bringing people together and promoting social interactions.

Hikimoe Street's primary function is geared to servicing the bus stops yet the street design seems focused on the automobile. Currently the wide open feel of the street leaves pedestrians feeling exposed pushing them away to take refuge along the edges. To promote social interactions along the street it is important to create a comfortable environment for the pedestrian. The first steps in



Figure 11.3 - Bus stop along Hikimoe Street.

transforming this street are to incorporate ideas from the Transportation Cooperative Research Program to create a transit friendly street. Using these design ideas will help to transform the street into a more complete experience that shifts the focus to the pedestrian. By narrowing the street and widening the sidewalk it would help to reduce the speed of vehicles along the street and create more areas for interaction for pedestrians. A narrow street would increase the possibility of interactions to occur across the street between bus stops on both sides. To differentiate this road from the others you could replace the pavement with a cobblestone or pavers. This would help to further reduce the vehicular speed along the road. While the road has some amenities for pedestrians like trees it could use more to consistently shade the entire road. The addition of more

pedestrian amenities like benches and planters would speak towards the human scale and creates a more pedestrian friendly environment.

To truly embrace Hikimoe Street as a social hub in the area it is important to connect the street with the surrounding retail. Pedestrians are currently trapped between the blank back walls of the retail lining Farrington Highway and a fence encompassing the day care center. As a guideline to redesigning the buildings along the street one can refer to the three rules of creating a walkable neighborhood cited by David Sucher in his book *City Comforts: How to Build an Urban Village*. The first rule is to build to the sidewalk. There are some areas along the street that have built to the sidewalk but it is important to keep this consistent along the entire street. The second rule is to make the building front permeable. This is very important in connecting the surrounding buildings to the street. Buildings should consider the store front along Hikimoe Street equally important. A successful store front would improve the quality of the street but also would be beneficial to the retailers. A secondary store front would increase visibility of their business to all those waiting for the bus. Transforming Hikimoe Street into a retail corridor would create a new dynamics between transit riders and shoppers that would promote social interactions.

The new design will emphasize Hikimoe Street as a pedestrian oriented street while leaving Farrington Highway as the main access for the automobile. Farrington Highway is an important vehicular corridor through Waipahu making it very unfriendly for pedestrians. Hikimoe Street can become a pedestrian oriented street while not disturbing the flow of the existing highway. Hikimoe Street will become an important element in bridging the major public entities within the area by providing a comfortable pedestrian environment. The retail along the block should allow for open space to create a visual connection that links the automobile drivers on the highway back to the new development.

Bridging Farrington Highway

The rail line runs directly overhead of Farrington Highway making it a focal point of the development. But Farrington Highway is one of the major deterrents to promoting social interactions because of the automobile dominance along the road. The wide highway creates a divide separating the community. The rail station has the opportunity

to bridge the two sides through the concourse level that can function as a public pedestrian overpass. Opening up this level as public access would create an amenity for the community that extends past just those riding the transit.

A pedestrian overpass over Farrington Highway would create a safe environment for pedestrians by utilizing the design of the station. A pedestrian bridge would become an amenity in the community allowing the design to consolidate higher levels of pedestrian traffic around the station. This allows one to manipulate the path of a greater amount of pedestrians to intersect with the development around the station. This idea emphasizes the idea of creating intersecting circulation paths that was formed in the elements of social interaction. By opening up the station to pedestrians it becomes a part of the public realm in the community rather than just a station.

A bridge over Farrington Highway helps to create a physical connection between the two sides of the Highway. This could help to connect the retail shops including Tanioka's with the other side of the development. Currently this area is popular because of Tanioka's but has no connection to any of the surrounding areas. All customers arrive by car and are forced to eat elsewhere because of the lack of seating. Creating physical connections to this development can help to integrate and provide other options to driving when coming to these stores.

Further developing this area can help to establish it as an anchor that can attract people to cross Farrington Highway. To build upon the success of Tanioka's the area can be developed into a outdoor food court. Providing seating and tables around the area can attract people to linger in the area rather than forcing them to find somewhere else to eat. This can then create many opportunities for social interactions around the area. This area then becomes an attraction for other people in the area as a food destination. By creating a safe link for pedestrians and giving them a reason to venture across the highway can help to unite the two disconnected sides.

Develop connection to Waipahu Street

Waipahu Street is the location for several important elements in the Waipahu community with the Leeward YMCA, Filipino Community Center and Hans L'Orange

Baseball Park. The street is on the outer edge of the quarter mile radius from the station making it a walkable distance. Currently Waipahu Street and Farrington Highway are disconnected from a pedestrian stand point. From the area around the station people have no connection to the developments along Waipahu Street forcing the design to find other ways to connect the two. Developing Mokuola Street and Waipahu Depot Road to encourage walking in the area would help to connect the public realm. By encouraging walking in the area you open up the possibility for interactions to occur between the area around the rail and those going to Waipahu Street.

Currently Mokuola Street is lined with fences along the sidewalk segregating the pedestrian from any buildings. This street includes a church and the Waipahu Public Library along with some single family residential and housing for people with disabilities. Currently the wide street offers little amenities to pedestrians to encourage walking. Adding larger trees would help to provide shade and create a more comfortable environment for the pedestrian. Adding lighting fixtures and benches that match the station and Hikimoe Street would create continuity in the design and establish Mokuola Street and an extension of the area. A consistent design of the street would provide the idea that there is more to the development up the street.

Waipahu Depot Road has a much stronger foundation to entice pedestrians to walk up towards Waipahu Street. The key to establishing Waipahu Depot Road as a connection is to attract people down to the retail in the area. The area used to be a bustling retail complex years ago but several shops have closed down and the activity has died with it. Using the station to revitalize the area can become an anchor that draws people through. Continuing a theme along the entire streetscape would further establish continuity within the area that ties this area back to the station.

2. Establish gathering spaces

Public Realm Diagram

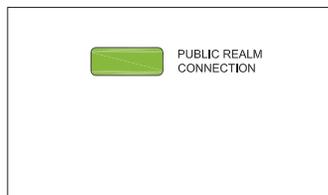


Figure 11.4 - Site plan highlighting public realm.

There are very little areas in Waipahu that can be considered a gathering space. Designing public gathering spaces around the station can establish the area around the station as a central node in the community. Gathering spaces in the area must respond to its surroundings to maximize interactions between the different user groups in the area. The diagram shown above represents the public realm as it flows through the site to connect intermediate gathering spaces. The connection of public spaces is an important element in promoting a successful community atmosphere in the area. The design will look to establish two different gathering spaces in the area. The first area would be a public plaza that lies adjacent to the station. The second gathering space would be an outdoor food court area below Farrington Highway.

Adding a public plaza near the station entry located above Farrington Highway would provide a gathering space centered on the station. A plaza could function as an intermediate space that integrates the station into the community while creating a connection to the bus stops. The plaza should be very visible and have a direct connection to both the station and the surrounding retail in the area. The station should integrate seating options into the design with landscaping to provide shading. The plaza should remain relatively open to allow a direct connection to Hikimoe Street and the bus stops.

As mentioned in the earlier section an outdoor food court could act as a gathering space that builds off the existing restaurants in the area. This food court would act as both a gathering space and an anchor that will establish a presence on the lower side of Farrington Highway. The outdoor food court area should be designed with a strong visual connection to the station and road but at the same time provide a physical barrier to establish privacy for those eating. Low walls or planters can help to establish a physical barrier but maintain a visual connection. The area should include shading devices such as umbrellas or trees to create a comfortable environment by providing shade and a stronger relationship to the human scale. The area should be easily accessed by pedestrians from the station and residential area while still accommodating for parking.

3. Redesign the retail

The retail developments that are located around the site have a heavy focus on the automobile with their large parking lots and setback storefronts. There are a few retail developments in the immediate area around the station that will be key in creating

an integrated public realm. The retail developments can bridge the public realm and promote social interactions. New retail should use the design of the old town commercial area as a model to maintain the character of Waipahu and create a stronger relationship to the street. Maintaining the same design character will help to connect the public realm in the area.

The new design will focus on two main areas. The first area is the retail along Hikimoe Street. Currently the retail has no relationship to this road with all storefronts facing Farrington Highway. The new design will open up the shops to Hikimoe Street that can utilize the traffic from the bus stops. New store fronts along Hikimoe Street can help to further strengthen this as a major pedestrian access and opportunity for social interactions. There is an empty property and a large parking lot that divides Hikimoe Street that should be developed to create a continuous retail front to establish it as a central feature in the community.

The second proposed area for redevelopment is the shops at the corner of Mokuola Street and Farrington Highway. This area is separated from both roads by a sea of parking and a discrete facade. This retail development lies directly at the end of Hikimoe Street making it a key feature in connecting the Waipahu Civic Center and public library to the station. Creating a welcoming entry that is visible from the station can help to draw pedestrians to the end of the street and bring people out from the Civic Center. This development is a key area because its corner location and relationship to Hikimoe Street.

Character Profiles

The next section will identify five different characters that use the space around the station. Each character focuses on a different use within the area. The section will define how each user will interact within the space. Each section describes the typical routine and the different spaces that each character will use. Looking at the design from the user's perspective will provide context to the human scale and a better understanding of how the design can promote social interactions. The different users will help to define what the program of the space is and will shape the layout. Each character is drawn to the space because of different uses but the design of the area will be responsible for bringing these different user groups together. Understanding a typical routine of different characters can uncover areas that allow for interaction between these different groups.

BUSINESS COMMUTER – JOE

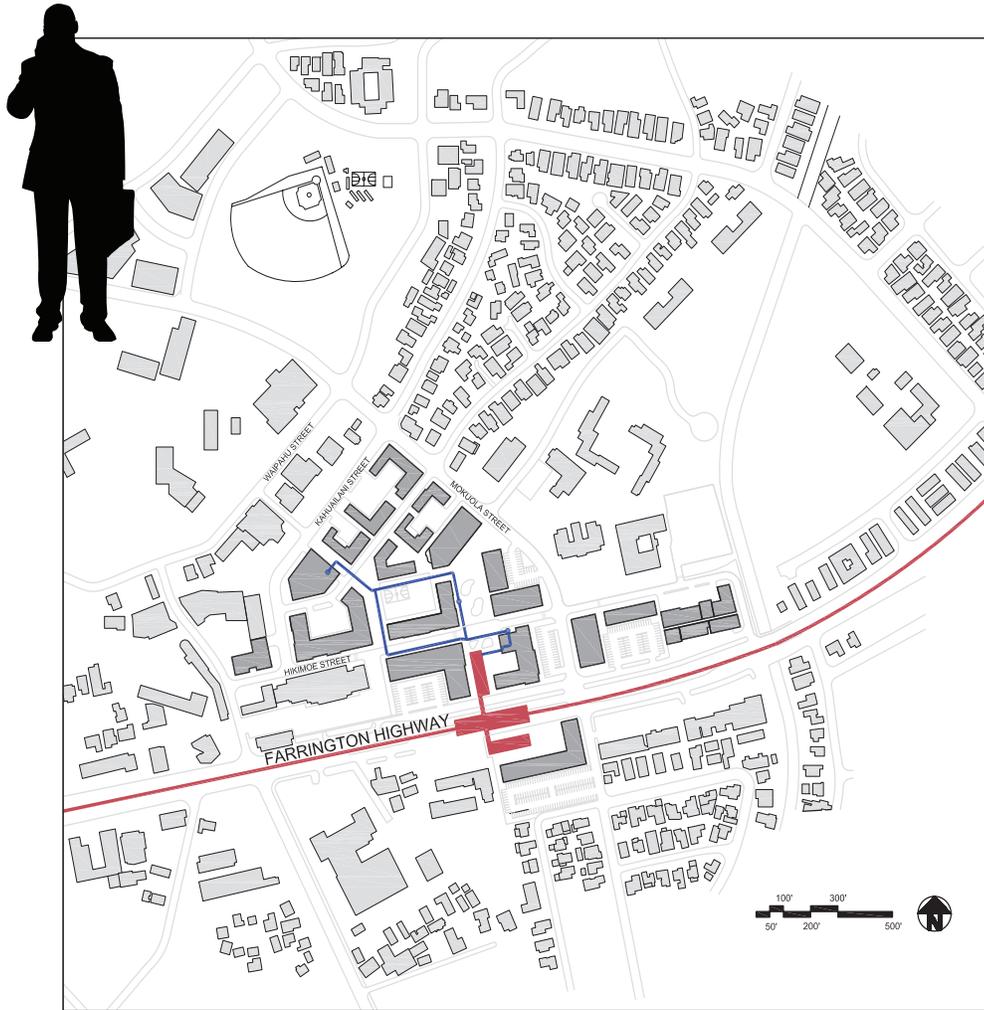


Figure 11.5- Site plan with Joe's character profile path.

Joe works in an accounting firm downtown for the past seven years. Previous to the rail he used to sit in traffic for over an hour every morning. His long hours made it difficult for him to catch the bus. With the new rail it provides him with a more reliable mode of public transportation. He leaves his house at 7:00 AM every morning and parks his car at the park and ride parking lot near the transit station. He then drops off his one year old daughter at the day care center along Hikimoe street. He then picks up a cup of coffee and muffin every morning from the coffee shop across the street and then jumps on the rail headed to work. During busy season Joe spends many late nights at the firm. Upon returning to Waipahu from work he often shops by the drug store or supermarket because of their convenience.

STAY AT HOME MOM – CINDY



Figure 11.6- Site plan with Cindy's character profile path.

Cindy is a stay at home mom with two children. Her two children, Amy and Trevor are in the 5th and 7th grade respectively. They live in the high density housing that is located just north of the Waipahu Civic Center. Every morning she makes lunch for her children and drops them off at school. She often walks to Hikimoe St. through the Waipahu Civic Center to run her errands during the day. She has access to the supermarket, bank, drug store or other professional services like the eye doctor. Most times she eats at home but she meets some of her friends every Friday at the plaza across Farrington Highway for lunch. She also takes yoga classes twice a week at the Leeward YMCA up on Waipahu Street. Because she lives so close to everything she doesn't need a car and can walk around the area to access everything she needs.

HIGH SCHOOL STUDENT – CRAIG



Figure 11.7- Site plan with Craig's character profile path.

Craig is your average high school freshman who attends Waipahu High School which is located right up the street. Craig gets decent grades and someday hopes to attend the University of Hawaii. Craig plays football and runs track which keeps him busy with daily practices most of the year. Practice usually starts at 4:00 and school finishes at 2:00 giving him some free time before he starts practice. Because he can't drive yet he walks up the street to the retail strip to get a snack before practice Craig likes to hang out at the crack seed shop on Hikimoe Street and eats a manapua from the Chinese restaurant next door. The rail station is also very convenient for Craig because he can't drive yet so he often uses it to go down to Ala Moana. The shops and open public places provide many options for high school students to hang out and meet their friends.

LOCAL ATHLETE – SHANE



Figure 11.8 - Site plan with Shane's character profile path.

Shane is 15 years old and has been playing baseball since he can remember. This year is especially important because next year he will be trying out for the high school varsity team. He has been playing in the summer league and has games every Wednesday and Saturday at Han's L'Orange Baseball Park located just north of the transit station. Shane lives in Kapolei and attends school at Kapolei High School. On game days he often catches the rail down early for warm ups before the games. His parents will drive down to the park after to watch the start of the game. Every Sunday the team has snacks after the game with the entire team and family. The supermarket and restaurants provide many places for the families to pick up food or snacks for after the game. Once in a while the team will meet at a restaurant or at some of the open picnic tables down at the restaurants near the station.

CITY WORKER – MICHELLE



Figure 11.9 - Site plan with Michelle's character profile path.

Michelle works at the Waipahu Civic Center and keeps a regular 8-5 schedule from Monday to Friday. She drives in every day from her home in Mililani and parks in the Civic Center parking lot. While she spends most of his day in the office he often walks out to eat lunch on one of the picnic tables around the plaza. She often makes trips out to the supermarket or drug store during his breaks. The close proximity of these different stores allows Michelle to run his errands without adding an extra trip in his day.

Character Profile Daily Schedule

The second part of understanding the character profiles is looking at them as a whole. Understanding how each of the users use the different spaces in relation to one another will provide insight into how the design can promote social interactions. The two graphics above illustrate how characters will overlap physically and over time. It is important to look at both elements to understand how people's paths may cross within the site. The site plan looks at the projected path of all the characters on a single chart to analyze where the possible intersections may occur. The table illustrates the different times that each character will be using the site. A range of functions at the site can help to promote a range of users throughout the day. Populating the space with a range of users throughout the day is important to achieve the overall goal of social interactions. Functions and usage should overlap so that people have the opportunity to run into one another throughout the day. Further analysis will allow a wider range of character profiles to be included in the plan, which will increase the amount of social interactions that may appear in the graphics. The small selection of characters described here has been provided to understand a few personal accounts of the space.



Figure 11.10 - Site plan with combined character profile paths.

		Daily Schedule																							
		12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM
Business Commuter	Joe																								
Stay at Home Mom	Cindy																								
High School Student	Craig																								
Local Athlete	Shane																								
City Worker	Michael																								

Figure 11.11 - Table identifying daily usage estimations.

XII. Getting Down to the Building Scale

The next phase of the design will focus on the redesign of the site that is located directly east of the mauka station for the rail line. The project location is identified in the site plan below. The site is currently occupied by two automobile repair shops. The current design and layout of the building alienates both the station and the bus stops that are located behind on Hikimoe Street. Long blank walls create a division between the bus stops and station and do not encourage social interactions. Relocating the automobile shops and redeveloping this site will be very influential in connecting the station with the surrounding areas.

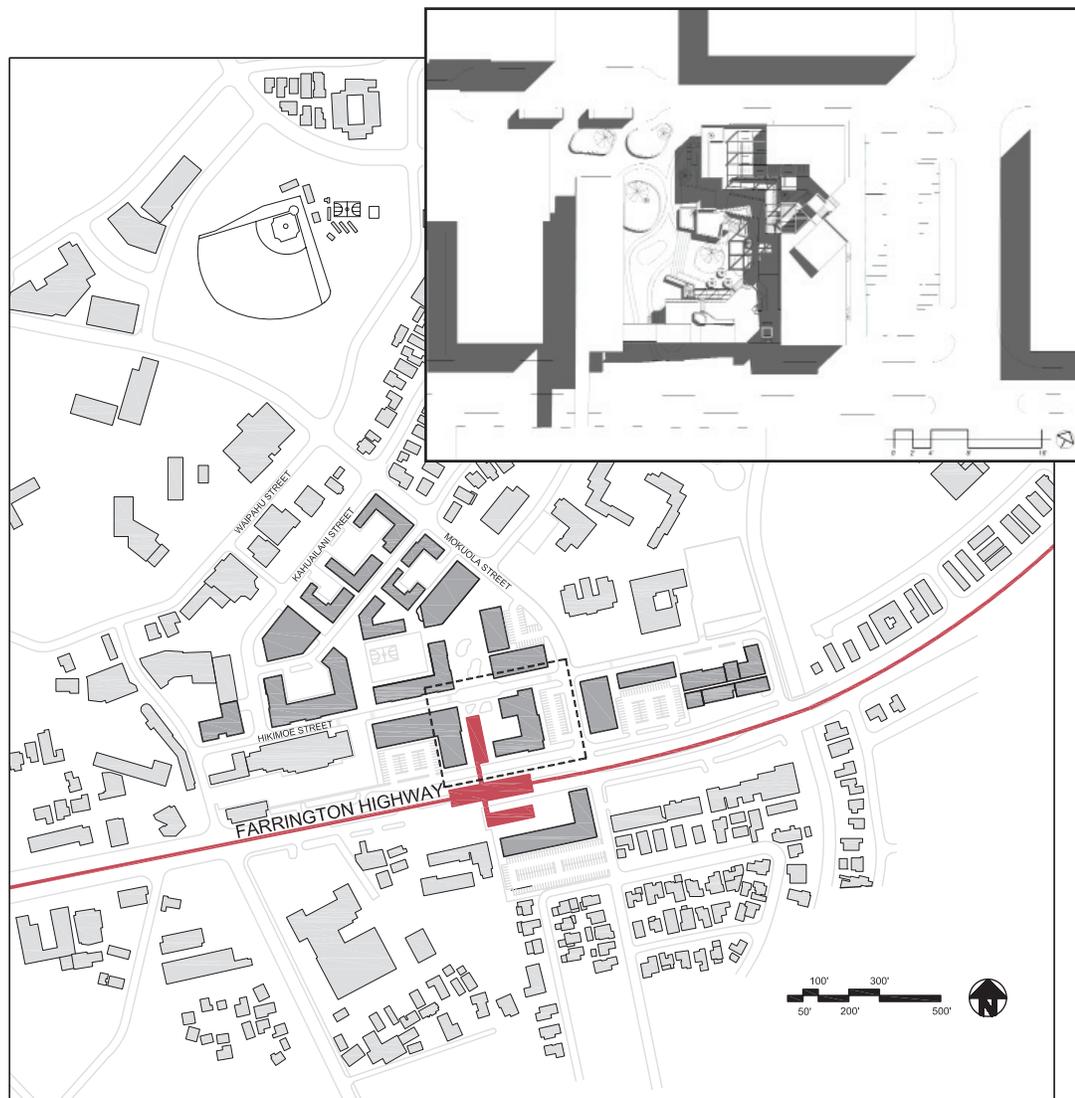


Figure 12.1 - Area plan and site plan of location for project

Design Intent

This site was chosen because it provides an opportunity to illustrate how the ideas of promoting social interaction are interpreted on the building scale and how they can relate to the human scale of a space. This building is the last step in understanding how social interactions can affect the design on all scales of design. The design of the building takes into consideration the relationship between building and surrounding context as well as the relationship between building and its users. Understanding these relationships play a key role in influencing social interactions in the design. The design will look at several areas in specific to understand how they may promote different types of interactions. Understanding the relationship between the built environment and social interactions plays a key role in the design.

This site was chosen because of its potential to serve as a major connection and catalyst for the surrounding community. Its adjacent location to the station makes it an ideal location to capitalize on the benefits created by the new rail line. The design of the site can transform the space into a dynamic element that serves the greater community and all transit users. A successful design will promote social interactions while developing a sense of community within the area. The design will focus on developing a successful public realm that relates to the entire surroundings as well as the new building design. The building will strive to bring together the surrounding public realm and activities within the building to form a single integrated gathering space.

Building Concept

The concept for the building is derived from the idea of integrating the public realm and building to create an integrated spatial experience. The public realm extends into the building and extends up through the various floors of the building. The building is designed as individual masses that are connected with each other through a series of ramps and public gathering spaces. The ramp circulation make the upper floors accessible and encourage circulation up in the building. The U shape of the building frames a central gathering space that unites the public realm through all floors of the building. The concept is aimed to create a strong relationship with the surrounding developments and transit station.

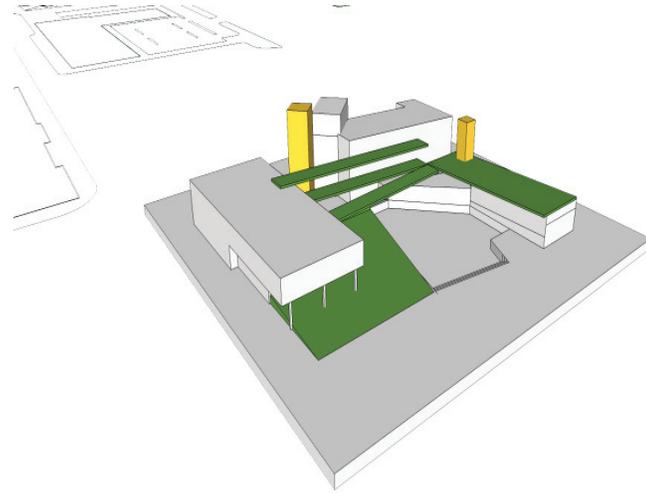


Figure 12.2 - Conceptual Model

The following series of diagrams identifies the three major elements that contribute to the concept of the building. The three elements of the diagrams are the tenant space, public space and the circulation space. These three elements are intertwined throughout the different levels. These three elements come together between staggered half level floor plans. These half levels of mixed uses are broken up by the open public spaces that are scattered throughout the upper floor.

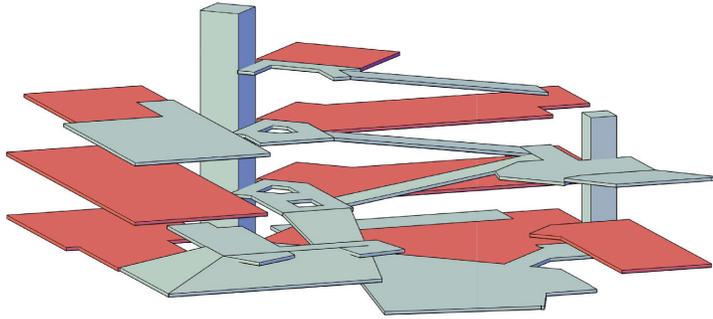


Figure 12.3 - Tenant Space

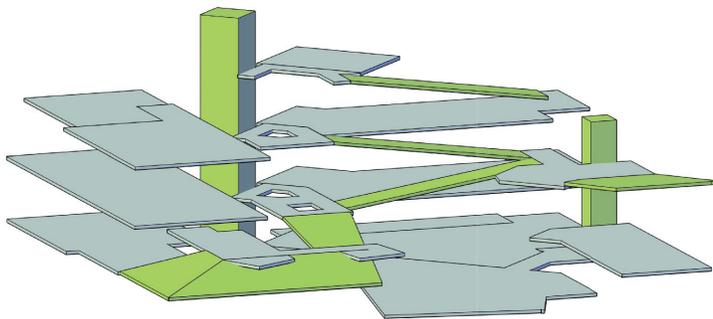


Figure 12.4 - Circulation Space

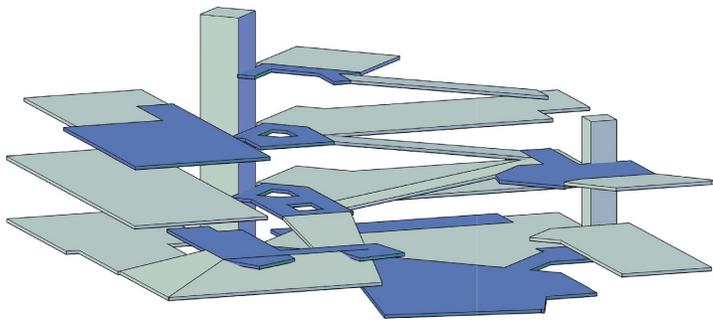


Figure 12.5 - Public Space

Integrating Building with Site

One of the most important ideas with the design of the building is the relationship between the building and its surrounding site. It is important to incorporate the surrounding public realm into the building. The building is located at a major intersection between two major pedestrian promenades between Hikimoe Street and the access from the station up to Waipahu Street. The circulation diagram below represents the major axis ways that surround the site. The design of the building will look to maximize these connections through the public plaza and orientation of the building. The asterisks denotes the entrance of the station and bus stop. The combination of the major transit node and pedestrian paths will expose a large number of people to the site. These major circulation axis will remain open and easily accessible to promote these as the main points of circulation to encourage other users to use these paths.

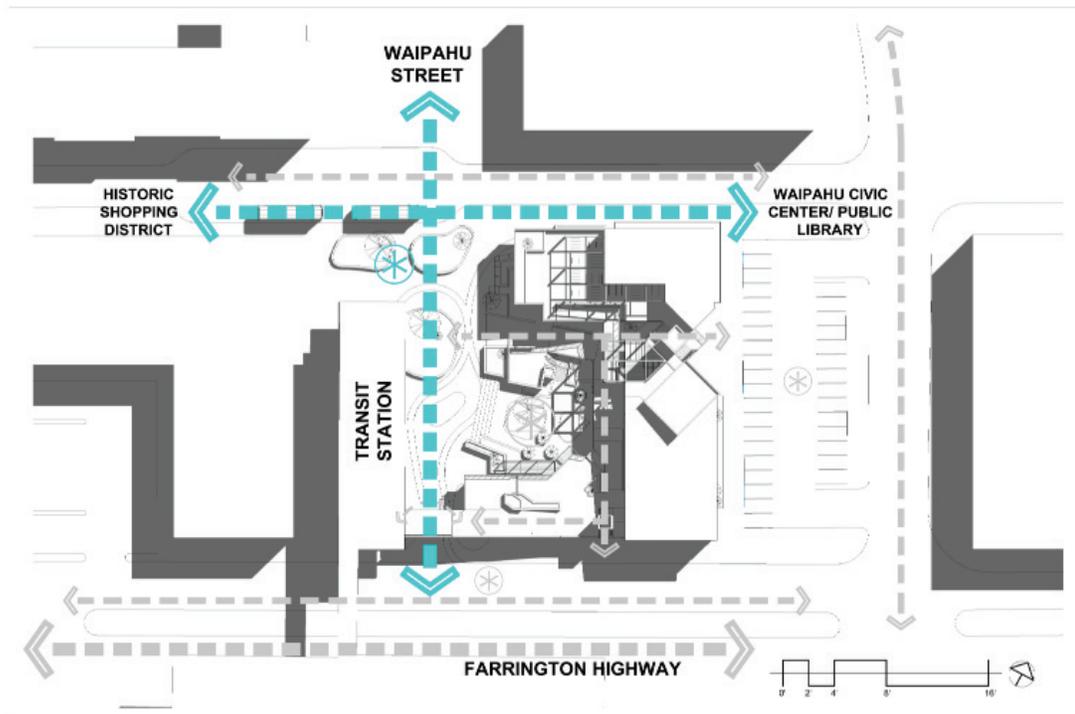


Figure 12.6 - Major Pedestrian Axis

Major Pedestrian Connections

The diagram below shows the secondary pedestrian connections around the site. The secondary pedestrian connections are established to allow connections through the building to allow for easy access through the site. The major circulation is designed to wrap around the central gathering space. All major circulation routes in the building are centered around this central space. These paths help to frame the central space while providing all users with a clear route and a strong connection to the public realm.

The circulation routes help to shape the public realm by providing opportunities for social interaction through direct and indirect contact. The building allows for users to access the parking lot or Farrington Highway as well as a direct connection to the station on the second floor. Allowing for easy public access through the building to the station and the surrounding site help to increase the opportunities for social interactions to occur.

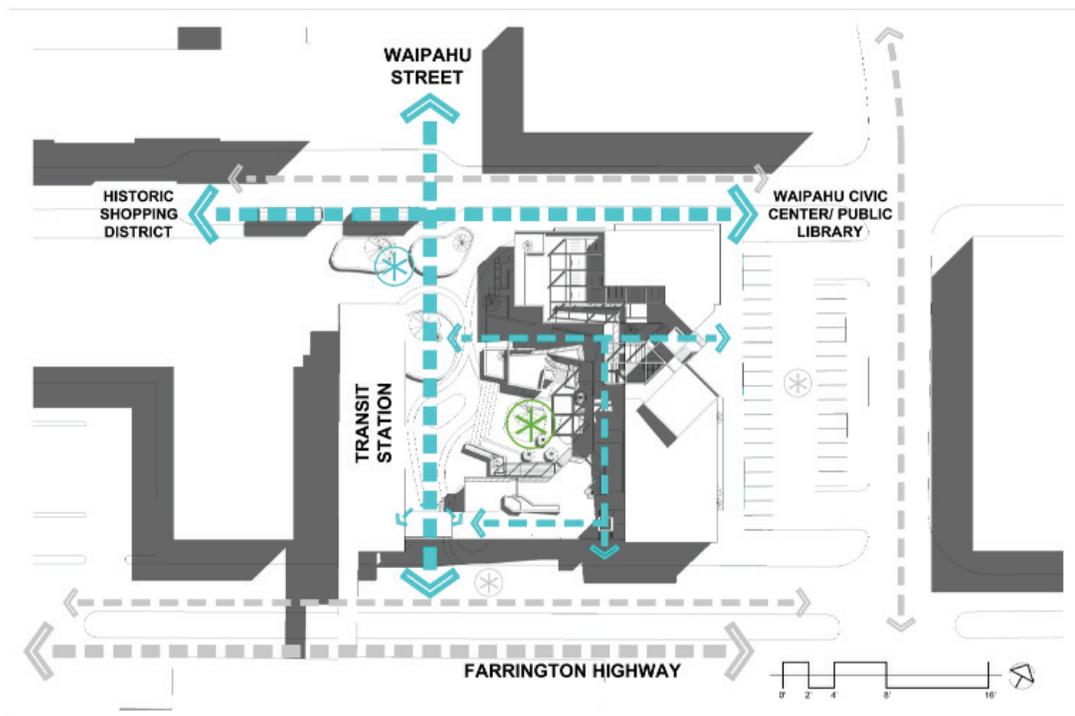


Figure 12.7 - Secondary Pedestrian Circulation

Vehicular Circulation

The vehicular circulation remains untouched in the surrounding areas. There will be a drop off lane along Farrington Highway that will allow for quick access for riders to the rail. This lane is separated from main traffic through an existing median. This division of space was originally a barrier to design because of the separation created because of the added lanes of traffic. There will be a parking lot located on the east end of the site with access from Mokuola Street. The parking is separated from the main flow of pedestrian traffic but still remains easily accessible from the building. The building attempts to maintain a visual relationship with the major vehicular traffic through a transparent facade. Allowing views in from the street creates an interest to the central gathering space within the building. The facade of the building are built out to line the street front and border the main vehicular traffic and maintain a consistent storefront on all sides.

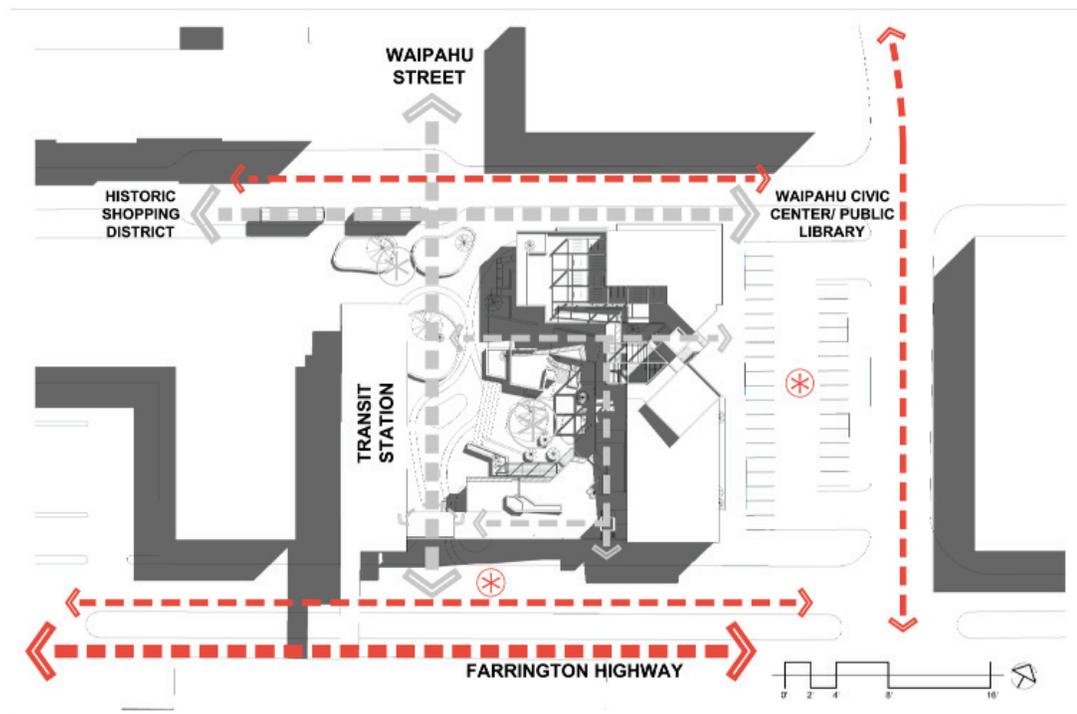


Figure 12.8 - Vehicular Circulation

Central Gathering Space

The design is centered around a central gathering space that attempts to merge the public realm around the station. This gathering space is indicated in the plan below in the green dashed line. The space is designed as an extension of the public realm that merges the central gathering space with the adjacent circulation and bus stop. The space is oriented so that it opens up towards the station and major circulation path. The central space is identified through a slight level change that provides a sense of privacy.

The blue dashed line indicates where the bus stops will be located along Hikimoe Street. The bus stop is comprised of planters that are an integral part of the public space that is open to riders and pedestrians. By locating the stop here transit riders have an easy transfer point between the light rail and bus system. This location exposes riders to a heavy traffic to increase the chances for random or casual interactions. This integrated bus stop becomes part of the central gathering space.

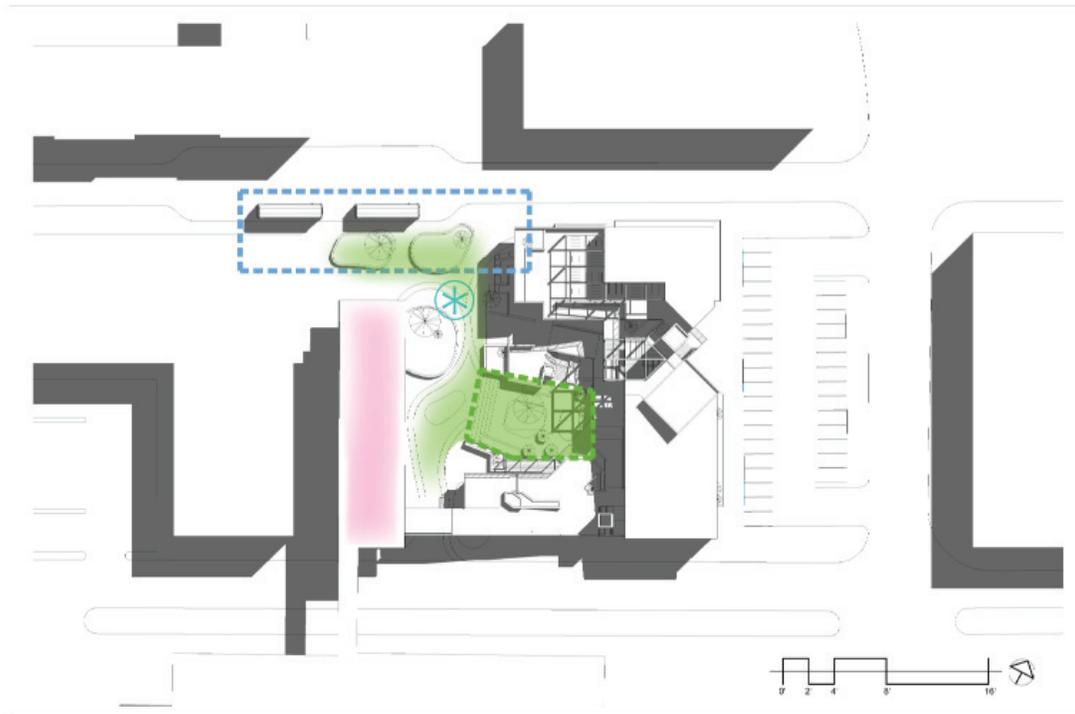


Figure 12.9 - Public Realm Diagram

Central Courtyard Connection to Station

The central gathering space is an important element in uniting the public realm on the ground plane. The central space's influence also extends up to connect the floors above. This is important to establish a connection with the three story station that borders one edge of the space. The station frames the space to complete the courtyard effect within the public realm. This courtyard effect forms a relationship between the station and new development through a common public space.

The open facade of the station would allow riders to have a clear view of the space while they ascend or descend in the station. Riding the escalator provides people with the opportunity to establish visual connections to the surrounding areas. While riders will not have physical access to the space this will allow them to form a mental connection to the space that may encourage use in the future or even later in that trip. This is a key element in developing a relationship between the station and public realm around.

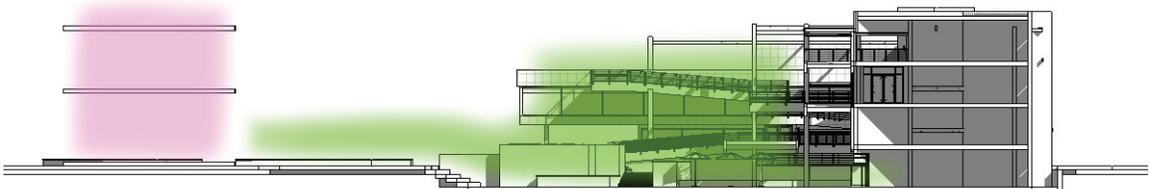


Figure 12.10 - Building section and rendering looking at relationship of building and public realm on ground floor.

Connection to Station Platform

The platform of the station is elevated above Farrington highway and isolated from any of the surrounding developments. But this elevation above the highway allows for views over the surrounding sites. To take advantage of this opportunity the design of the building bordering Farrington Highway is only one story. This allows for views into the central gathering area and up through the development. The aerial view provides a broad overview of the surrounding site that has not existed before. Taking advantage of this viewpoint through roof gardens and visual corridors is important to establish visual connections to the rail line.

This is not a physical connection to the development but can lead to a higher usage because of the visual connections that are formed. The activity in the building may catch the eye of a passenger waiting for the next train or one as he arrives on the platform. Looking down from the platform may prompt riders to take the secondary entry bridge down from the station and through the development instead of the main entry. These visual connections will help to spark curiosity in the surrounding development and promote higher usage of the space.

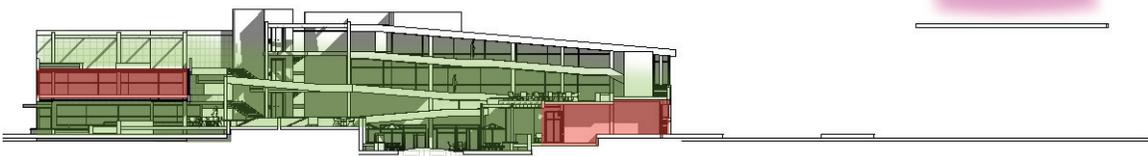


Figure 12.11 - View from Station looking back at development.

Central Gathering Space -5'-0"

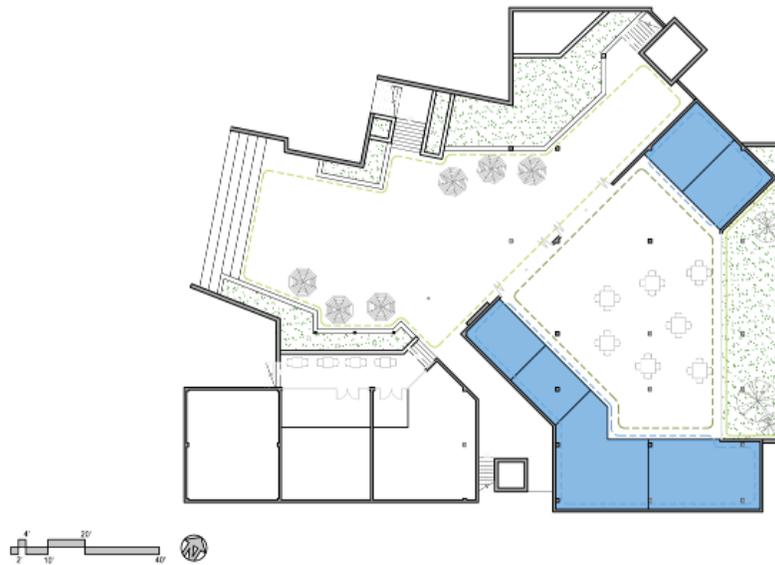


Figure 12.12 - -5'-0" Floor Plan

The goal of the depressed level is to create an open space that provides people with a place to gather and relax near the transit station. The building has a secondary connection to the transit station but the depressed gathering space is a complimentary piece that is located adjacent to the station. The depressed elevation helps to create a sense of privacy within a large open space. The stepped nature of the space helps to create integrated seating opportunities. Planters will line the outer edge of the space with tables mixed into the center of the space to provide dining spaces. Leaving the main plaza mostly open will allow for the space to be used as a public market or other large public gatherings on weekends or special occasions.

This level will feature a range of cafe/coffee shop type retail spaces along with small restaurants which will help to maximize the use of the outdoor seating areas. The entire retail on the floor would function to something similar to a small scale food court that opens up into the plaza. The walls will have the ability to open through accordion

type doors that will allow for a unique outdoor food court feeling under the building. The public realm flows under the building into the interior space creating an extension of the central gathering space. During larger gatherings the activities can flow between interior and exterior spaces. This provides flexibility within the design that responds to the nature of events in Hawaii by accommodating both interior and exterior functions. The different food vendors will help to populate the seating area creating a lively environment on the depressed level.

Ground Floor 0'-0"



Figure 12.13 - 0'-0" Floor Plan

There are several retail shops located on the ground floor that will have access from the depressed level through an intermediary level that bridges the height difference. This retail will feature a open glass facade along the central courtyard space and along Farrington Highway. This transparency will help to create a visual connection through the building to Farrington highway. These shops will be very visible from both facades making them prime locations for retailers. These shops could be shops like a florist or bakery

where a high visibility and easy access can draw in customers that may stop because of the convenience of the shop.

On this level there are also storefronts that border Hikimoe road. There will be a restaurant along this facade. The casual dining establishment is a popular location for happy hour after work because of its convenient location near the transit station. A restaurant can also contribute to the atmosphere around the public realm by utilizing outdoor seating.

1.5 Floor 5'-0"

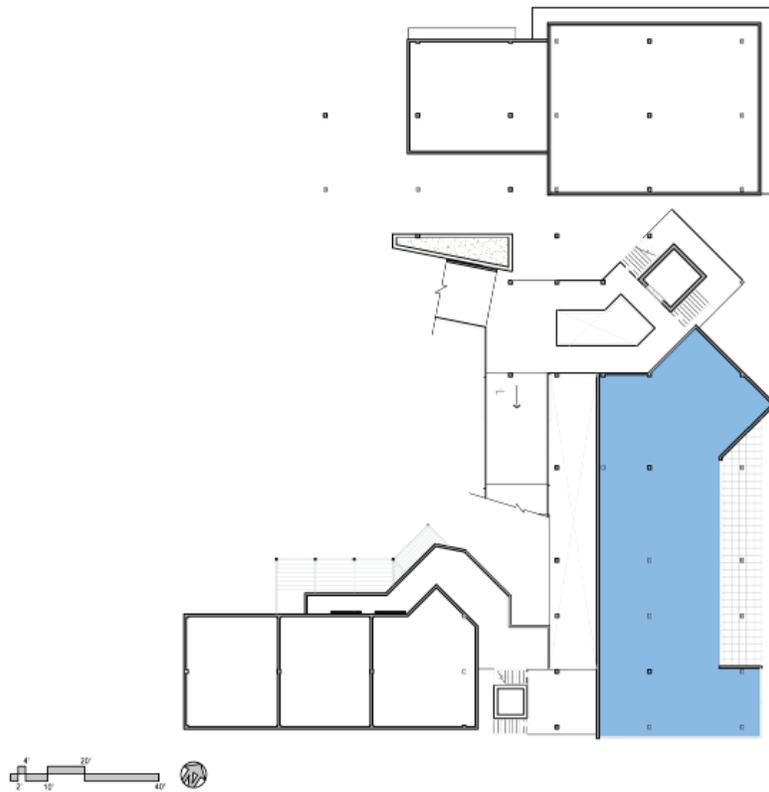


Figure 12.14 - 5'-0" Floor Plan

There will be a pharmacy/convenience store on the 1.5 level which can be accessed easily through the main ramp up from the ground floor. The location of the convenience store is less public than the other retail but is still easily accessible to the public. The convenience store will draw shoppers and can serve as an anchor within the building to help other functions in the area thrive. The location will help to draw users who are shopping here into the site forcing them to pass the other retail and public gathering

spaces and creating possible opportunities for social interaction. The facade on this retail space is less exposed than the others on the ground level. The nature of the retail space requires less exposure and can still function successfully.

2.0 Floor 10'-0"

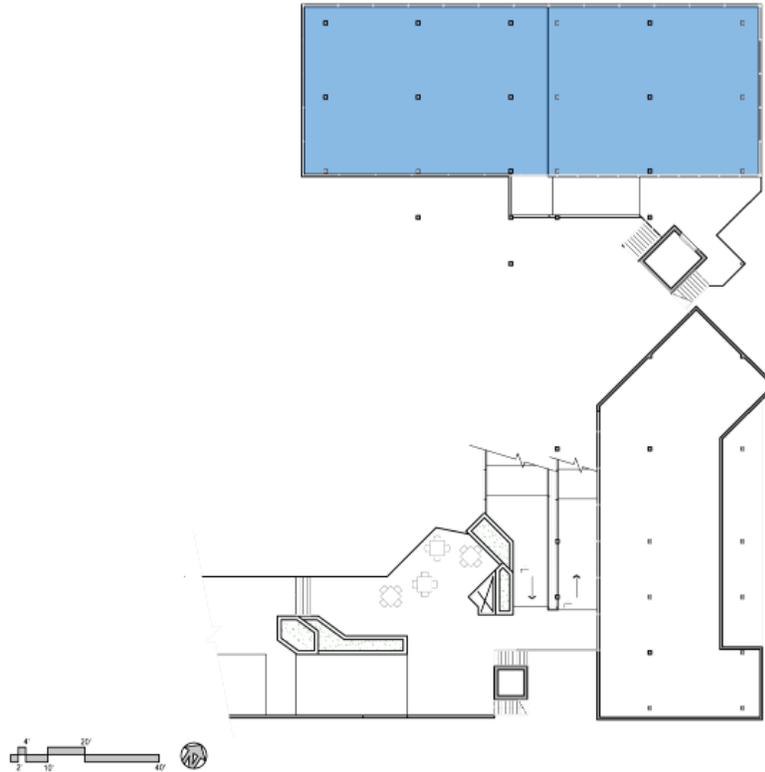


Figure 12.15 - 10'-0" Floor Plan

The second floor of the building will feature several more restaurants along the north facade of the building. The restaurants will be located along Hikimoe road and will be very visible from the ground floor. From the second floor you will still maintain a visual connection to the ground floor and the main pedestrian access along Hikimoe Street. These restaurants will be relatively casual but offer a complete dining experience compared to the very casual food establishments on the lower level. These restaurants can offer families some dining options that can help to populate the space during night time hours.

2.5 Floor 15'-0"

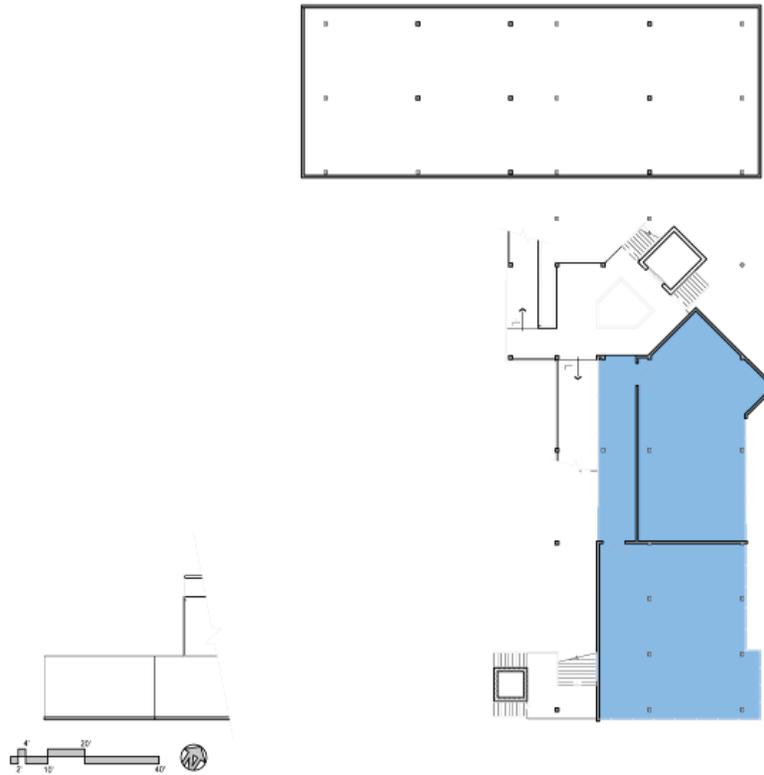


Figure 12.16 - 15'-0" Floor Plan

On the 2.5 and 3.5 levels there will be several professional offices. The offices on the 2.5 level could include possible service professions that draw a specific clientele. These offices will help to attract another user group to the building and diversify the user base and the way the space is used.

3.0 Floor 20'-0"

The multipurpose hall will be located on the third floor on the north facade of the building along Hikimoe Road. The room is located next to the roof top garden on the third floor which is accessible to the public but can be shaped to accommodate private events. The room will be used on a regular basis for community classes such as Karate or Yoga classes. Many times these classes occur during the nighttime hours so this will help to populate the building during later hours. The room will also be available to rent out as a meeting room or party hall for larger parties. The room has some privacy being separated from the other uses with access only through the ramps. But the level is still a very visible

element along Hikimoe Road and from the station. Creating a sense of privacy without isolating the space is important to meet the needs of the space while still contributing to the public environment.

The location of the multipurpose room will allow for a large overlap in user groups. People who attend classes or parties here have the convenience of food establishments or other retail in close proximity to their activity. One example one may consider would be the parent of children who may attend a Karate class that meets twice a week. While the parent waits for their child they have the option to walk downstairs to pick up a few items from the convenience store or pick up food for dinner before they leave. Parents waiting also provide an excellent opportunity for social interaction either with other parents or other users that may be at the building.

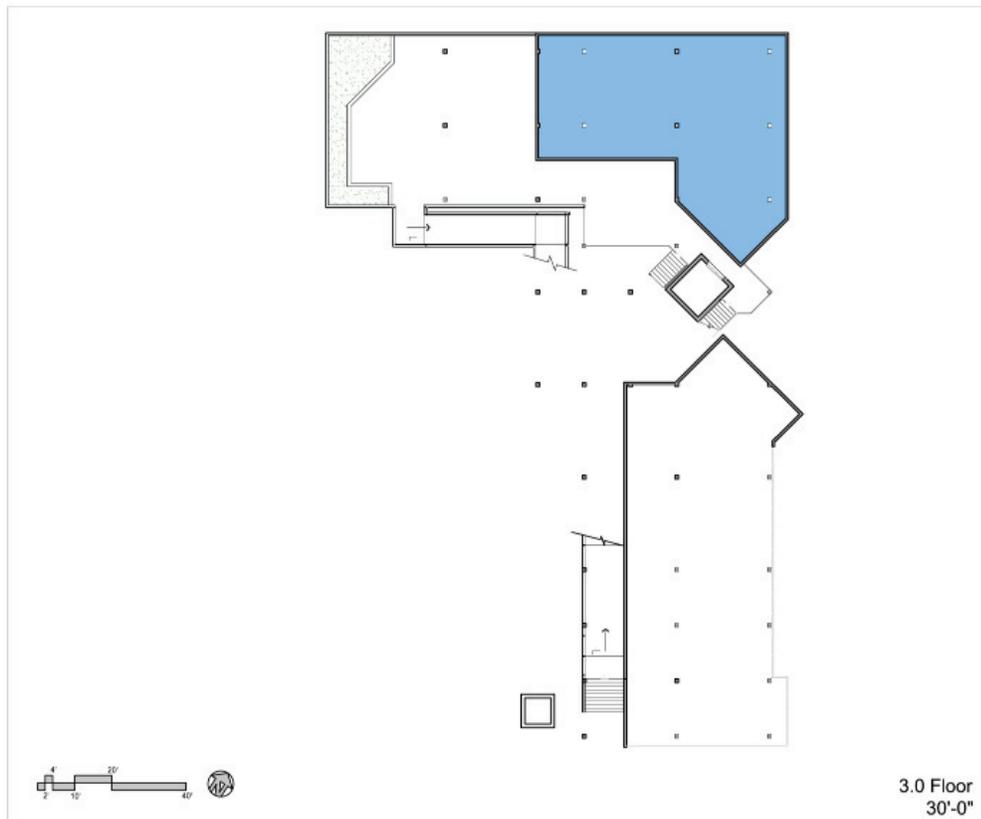


Figure 12.17 - 20'-0" Floor Plan

3.5 Floor 25'-0"

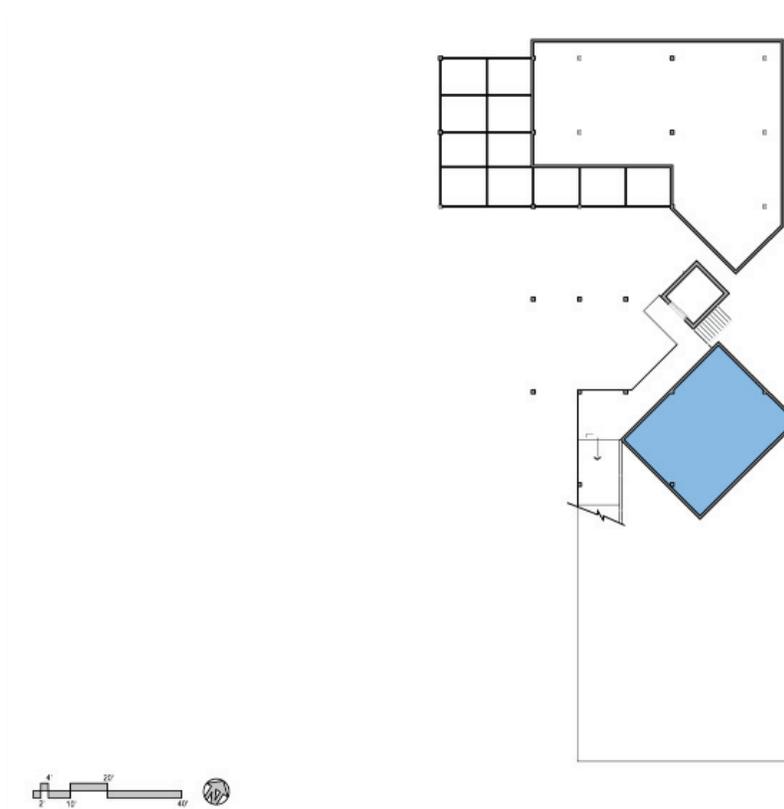


Figure 12.18 - 25'-0" Floor Plan

On the top floor there is a realtors office that is responsible for overseeing the new multifamily development north of the site among other projects. This tenant space is the most private and has the least connection to the public realm. The close proximity to the large development allows people to easily access the office if they have any issues or making payments on rent. The office draws a specific user group to the building that can utilize many of the other uses surrounding the office.

Social Interaction

The concept of the building focuses on integrating the public realm and building but one of the underlying goals is to create social interactions on the building scale. The next section discusses the major principles that were developed in the first half of the project and how the building design addresses each issue. The three major issues come down to why people come, how they get around and creating an integrated experience. It

is also important to understand that the building is affected by issues on the building scale as well as the larger development scale. Understanding the relationship between both will be key to establish a building that is connected to the surroundings.

Why people come?

The building serves as a compliment to the surrounding area by creating a public gathering space that serves as an amenity to the area. A large number of users will be attracted to the area because of other activities or for access to the transit line. The design of the building focuses on how it can take advantage of these other users in the area by attracting them to this space by providing a comfortable environment for gathering. The building will feature a depressed plaza that creates a central gathering space. The building is located at a key intersection between the main pedestrian access way and the entry to the station. Designing a strong connection can help to entice users from this key intersection to enter the building. By creating strong connections to the surrounding buildings it opens up the users base to include a wide range of people in the area.

The uses within the building also play an important role in defining how social interactions can occur within the spaces. Defining the right uses that occur within each space is important to create a successful relationship between uses and the public realm. The building will include a variety of retail, restaurants and office space. These different uses will be geared to promoting a lively atmosphere while attracting a range of users to populate the space. The location and function of each is an important element to understand how they can promote social interactions.

How they get around...

The circulation in and around the building will be key in both connecting the public realm and promoting social interactions. The major circulation in the area is centered around the transit station with a main pedestrian walkway running perpendicular to that. A secondary access stretches up north to the higher density housing and Waipahu Street. The corner at which the station meets Hikimoe Road becomes a key intersection in the area. This node also serves as a major bus stop for riders creating a large intersection of a wide range of users from the surrounding area.

The design should take advantage of this intersection as an opportunity for

social interaction. The design of the building opens up toward a central gathering space with a range of seating opportunities. The building still allows for ample views to the public depressed park as well as the main entrance of the station. From this point a sloped ground plane takes you up into the building or you can go down to the depressed plaza. The sloped ground plane takes you to the upper levels of the building. There is a secondary entrance into the station from the second floor of the building. This access to the station leads you to the concourse level of the station which will also allow you to access the other side of Farrington Highway through a pedestrian bridge. The integrated bridge connection creates a secondary circulation of a different user group on the second floor of the building. This added circulation group increases the opportunity for social interaction on the upper levels of the building.

Within the building there are two forms of vertical circulation. The main access of the building is made up of a series of ramps that take you up to the different half levels. These ramps frame the central depressed park forming a central courtyard effect. The main circulation of the building around a central plaza consolidates social interactions to occur within one central space. There is also a secondary circulation tower with an elevator and stairs to access every half level. This central tower is easily accessed from the vehicular parking and from the main access node by walking up one set of ramps to go up half a level. The two different circulation options allow for users to have a choice between a more direct route or a longer more engaging path. The easy access of the ramps are meant to encourage a wider range of users to explore the upper levels of the building. On the other hand the circulation tower is geared to the regular users that access the space on a regular basis.

There are many informal gathering spaces and seating opportunities located along the main ramped circulation path. These spaces give people a semi private space to gather while being connected to the main public realm. These spaces are all located around the central depressed park. This secondary seating spaces help to extend the public realm and activity zone to the upper floors of the building. These secondary gathering spaces border both the central gathering space and the circulation paths creating the opportunity for social interactions between them.

Integrated experience...

The last principle looks at how these different elements relate to one another to create a complete experience throughout the entire site. When defining the experience of a space it is important to look at elements at the large scale as well as the human scale. This section will analyze the spaces in the building at both scales that bridge the public realm with the building and how that can promote social interactions. On the large scale the building features a central organizing idea with a central gathering space that plays a key role in forming a relationship with the surrounding elements. On the human scale this section will analyze three specific conditions to understand the relationship between building and public space on a personal level.

One of the key elements in the design to unite the public realm is the central gathering space that is framed on three sides by the facade of the building. The space is enclosed on the fourth remaining side by the facade of the transit station. The space is framed by these four facades and circulation space creating a space similar to a courtyard. This is important because it creates a visual relationship between the building, the public gathering space below and the station. The same visual connection applies to a lesser extent to the station platform that runs parallel to the site but from a greater height. Activity within the building and station will be directed in towards the central gathering space. The entry plaza that feeds the station and bus stop will also flow into this central courtyard space.

Retail connection

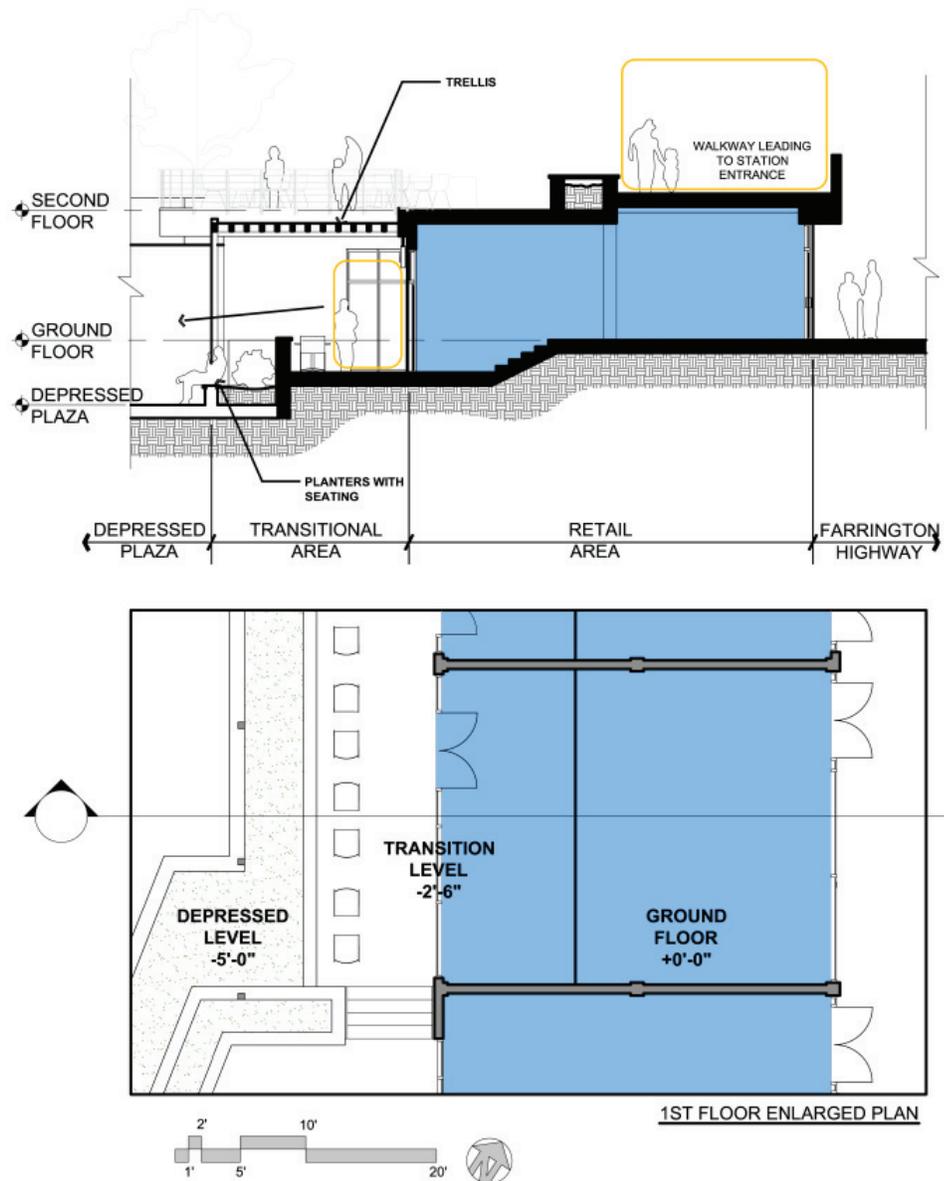


Figure 12.19 - Enlarged plan and section for retail element.

To promote social interactions it is important to consider the relationship between retail store fronts and the surroundings. This condition looks at the relationship between the store front along Farrington highway and along the depressed

gathering space. In this case a transparent storefront is important to establish a relationship that stretches through the building. This condition is unique because the facade on each side are on different levels. To bridge this elevation an intermediate level was established that allows you to access the retail space or depressed plane. This intermediate level also creates



Figure 12.20 - Rendering looking at seating opportunities in central gathering space

the opportunity for seating from both the depressed and retail level. This space is semi-private because of the change in elevation but is open to the public realm. This dual quality allows for people to feel comfortable within a space while being connected to the public realm. The space is further defined by the trellis overhead. The trellis serves as both a dividing and connecting element between the depressed level and level above. Physically the trellis divides the space but helps to break down the space into the human scale. The transparency of the trellis prevents the space from becoming alienated between levels. The end product is a personal space within the larger open gathering space while maintaining a strong connection to the surrounding public elements.

Transit connection

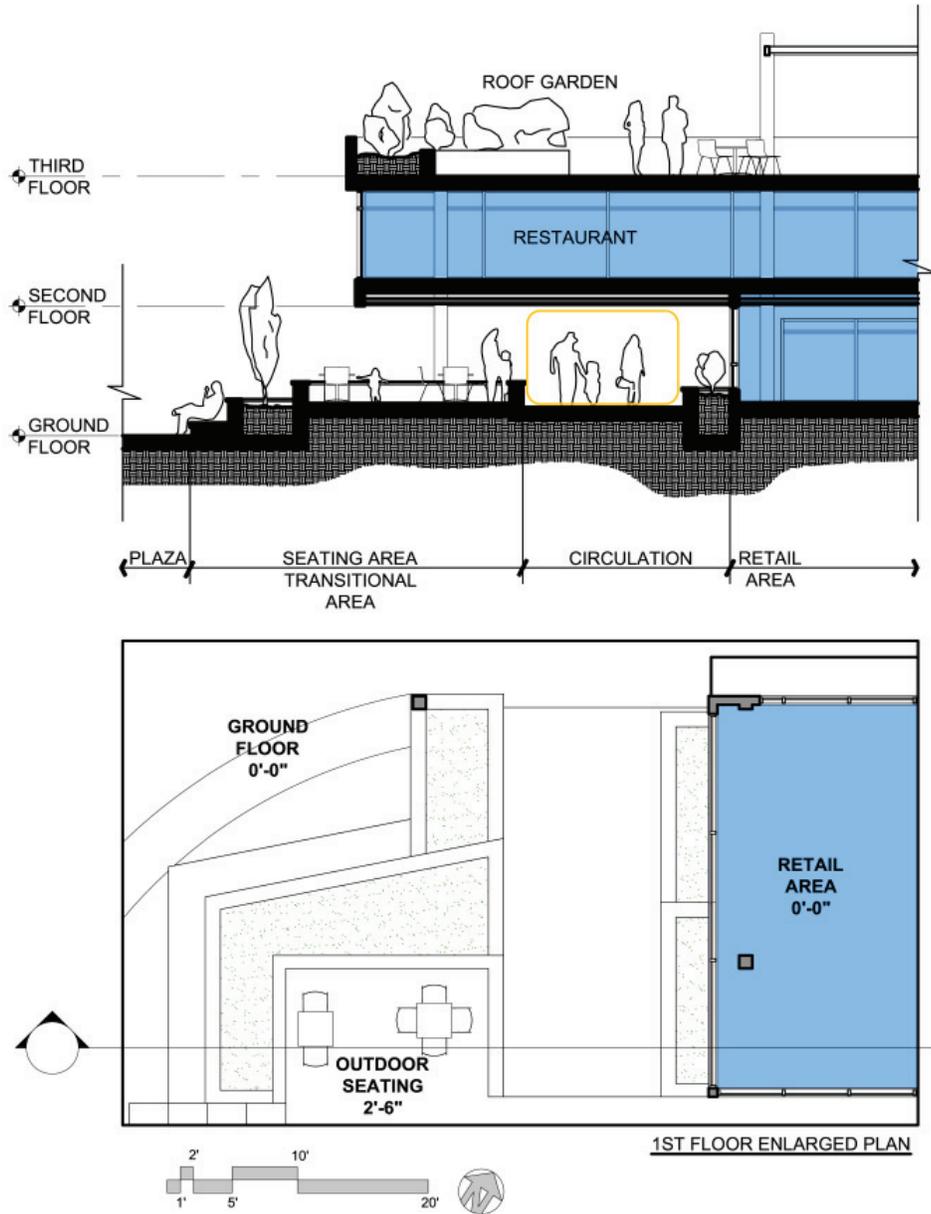


Figure 12.21 - Enlarged plan and section for transit connection

An important connection in the design is located at the north west corner of the design that acts as a major node in the development and the entrance to the building and public gathering space. The corner of the building should be open to be visible to those passing by while creating some interest to entice users to enter the space. Here

the space should be accessible to both the depressed gathering space and the upper floors of the building.

At this corner the building extends out over the sloped ground plane to create a dynamic relationship between building and public realm. The overhang forms a covered seating area with planters to divide it from the circulation space. The low overhang forms a very personal space in a very public intersection. The height of the space is eight feet at the lowest point which almost allows the user to touch the bottom of the floor above. The low floor height creates a sense of compression as you approach the space from Hikimoe Road that opens up as you enter towards the central gathering space.



Figure 12.22 - Rendering from Hikimoe Street looking back to site.

This corner is important connection to transit station and the bus stops. The area acts as a queue to enter the station as well as an informal bus stop. The design attempts to integrate the two elements within one space to create a transitional space between these elements and the development that lies adjacent to it. Planters in the area can provide ample seating that can act as seating for the bus as well as provide shading with trees. A similar planter design can create visual continuity that extends into the building creating a fluid transition of space.

Level connections

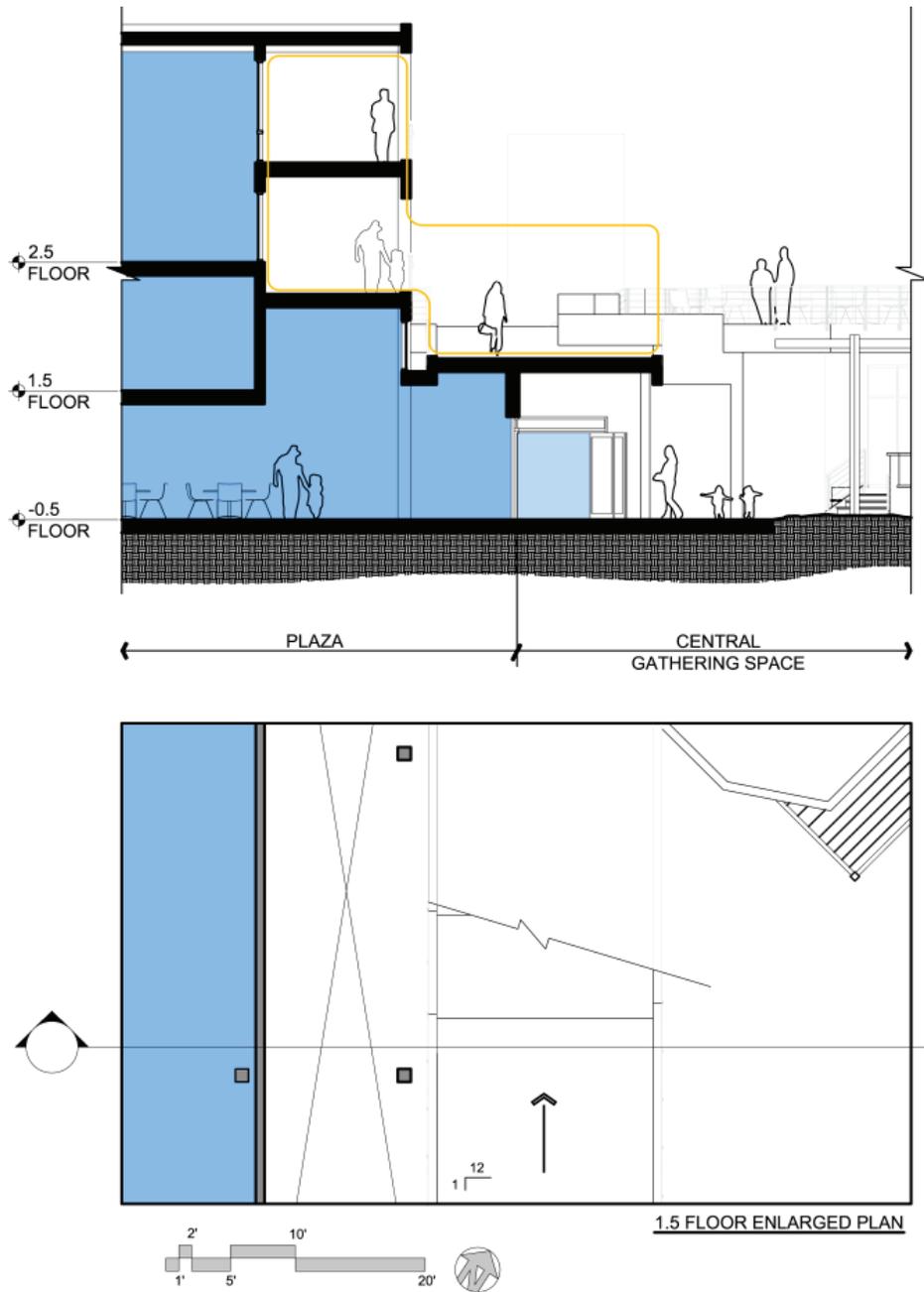


Figure 12.23 - Enlarged plan and section for food court and ramp.

The last condition that was analyzed was the relationship between the upper floors of the building and the depressed gathering plane. The circulation elements line the upper floors and frame the space below to reinforce the courtyard atmosphere. The ground floor will act as an open food court by utilizing accordion style doors that have

the ability to open up the space. This will allow the public space to flow seamlessly in from the outdoor gathering area in through the building. The open character of the interior space creates a dynamic relationship between outdoor and indoor space.

The small food court is located on the bottom floor. The folding doors allow the space to open up to the central gathering space and become one fluent space. The ramp system above becomes the overhang for the space below while allowing for varying ceiling heights because of the different levels.



Figure 12.24 - Rendering in central gathering space.

Social Interaction Diagrams

The last section of the design chapter focuses on analyzing various spaces throughout the design to understand how the different spaces can influence social interactions. The same methodology that was applied in earlier research to spaces around Waipahu and Honolulu will be used again for the new design. In the previous research photographs were used to analyze how each space was being used. In this section renderings were used to depict a possible scenario on how the spaces can be used. While all scenarios are hypothetical they can provide an image of how the spaces will function and interact with the users. Each rendering is paired with a floor plan that depicts the circulation patterns. The floor plan is shown to understand the relationship between the built form and the human experience.

The diagrams are divided into three types that each describe a different type of social interaction that was identified earlier in the research. The three types are casual interactions, random interactions and planned interactions. Each category features three instances within the design that promote the specific type of interaction. It is important to provide a range of spaces that allow for different types of interactions.

Casual Interactions

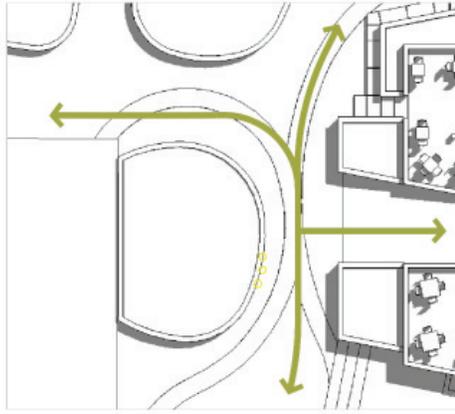


Figure 12.25 - Render and plan for casual interactions 1.

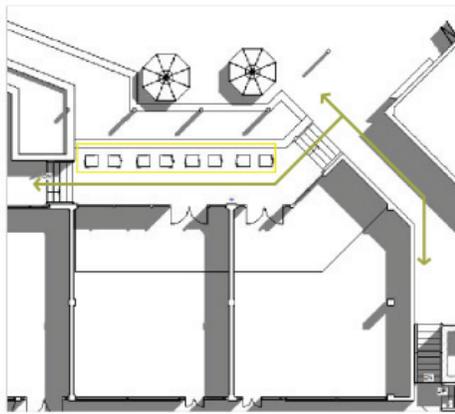


Figure 12.26 - Render and plan for casual interactions 2.

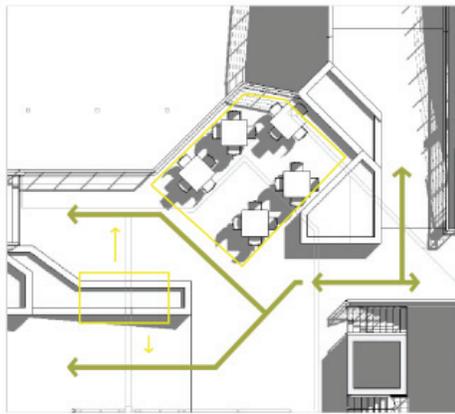


Figure 12.27 - Render and plan for casual interactions 3.

Random Interactions

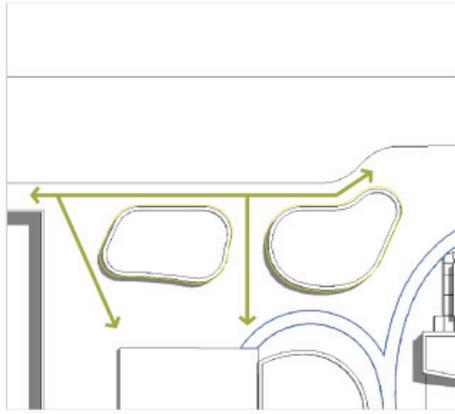


Figure 12.28 - Render and plan for random interactions 1.

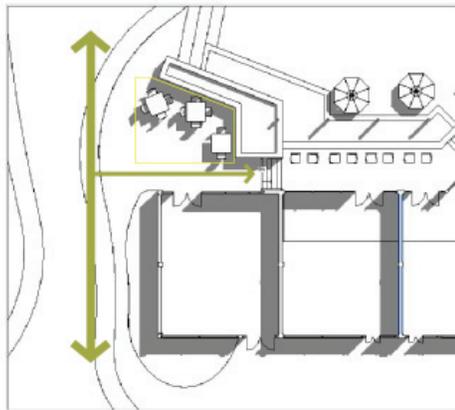


Figure 12.29 - Render and plan for random interactions 2.

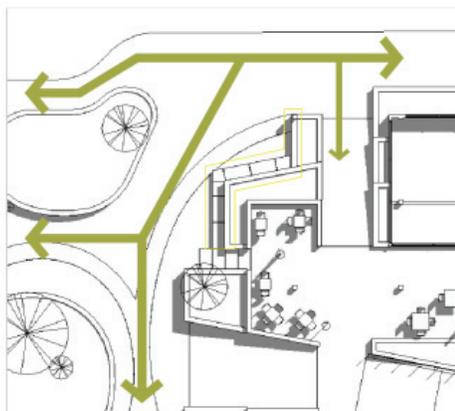


Figure 12.30 - Render and plan for random interactions 3.

Planned Interactions

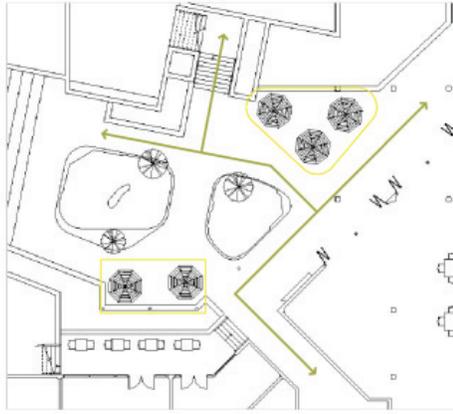


Figure 12.31 - Render and plan for planned interactions 1.

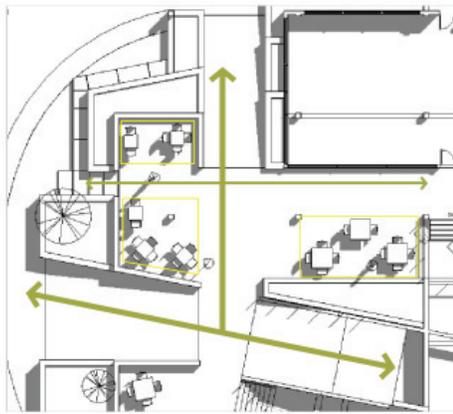


Figure 12.32 - Render and plan for planned interactions 2.

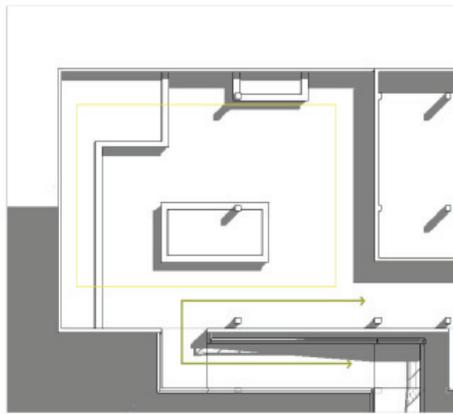


Figure 12.33 - Render and plan for planned interactions 3.

Each instance that is displayed before is not limited to that particular type of interaction but is used as an example because it has the potential to promote that specific type of social interaction. Many of the spaces may promote multiple types of interactions but for analysis purposes each instance is analyzed for one specific interaction.

XIII. Conclusion

Areas of Future Study

There have been many studies focusing on how the built environment can shape the public realm to foster lively spaces as illustrated by the numerous entries of research. There has also been a great deal of research into the idea of transit oriented development. The continued development of the intersection of these two ideas can help to create more successful interventions around the transit station. Understanding that these developments are more than a mixed use building can help to create more dynamic designs that respond to its surroundings.

One area that can be improved in the research was the lack of community based feedback on design issues. The community plays a key role in the direction and character of the area and should be consulted with to get a better understanding of the direction the project should take. Community meetings and other forms of outreach like surveys can serve as valuable feedback for large scale developments such as this one. But research like this requires much more resources and time than was available in this project. But regardless of community feedback design ideas are still relevant to understanding how this development can spur social interactions.

Research in the field was an important part of this study to understand the different implications of the built form on social interactions. Further research in the field may also be beneficial to understand the relationship around a transit station. Areas of existing stations with developed areas surrounding them can provide further insight into how these spaces function within the larger space. Existing developments provide the opportunity to observe people and actual interactions that are influenced by the transit station and the users that inhabit these spaces. Further research into social interactions specifically around a transit station can help to establish a more focused idea of social issues specific to the areas around a transit station.

Concluding Remarks

The introduction of a new transit station into a community can become a catalyst of growth and help to revitalize an area. This research is focused on understanding how a new station can promote social interactions in the community. Social interactions are an important element to establish the station as a node within the community. The research helps to identify a variety of issues that contribute to designing an integrated station that can foster social interactions. Understanding the different factors that influence social interactions within the built environment.

The idea of promoting social interactions is one that stretches over all scales of design. This project looked at one area in Waipahu in an attempt to understand how an area can be affected by the introduction of a new transit station. The design then attempts to create a place for the community by promoting social interactions within the public realm. It may be impossible to understand the true success of promoting social interactions without a built end product to observe. But research has shown that these ideas have a positive correlation with promoting social interactions.

The design of the multifunctional building serves as one example of how the research can be translated into tangible design solutions in the built form. Because design can often be subjective the design solution portrayed here is not the only solution but one interpretation of the research. Key to understanding how the built environment can shape social interactions is to focus on the underlying factors that influence the character and the function of the space.

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