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**TOWARDS NEW URBANIST STUDENT HOUSING: A COMPARATIVE PRO
FORMA ANALYSIS OF PRIVATE MIXED-USE HOUSING WITH
UNIVERSITY OWNED HOUSING**

By

Smita Rakshit

A Thesis Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Arts

In

Urban Planning

Minnesota State University, Mankato

Mankato, Minnesota

(July, 2013)

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FORMA ANALYSIS OF PRIVATE MIXED-USE HOUSING WITH
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This thesis has been examined and approved by the following members of the student's committee.

Dr. Anthony J. Filipovitch, Thesis Advisor

Dr. Beth A. Wielde Heidelberg, Committee Member

ABSTRACT

The study has compared pro forma of privately owned mixed-use housing and university owned campus residence. The study is an endeavor to find out financial benefits of mixed-use campus residence. Modern planners and advocates of New Urbanism are making effort to encourage compact development in order to address the problems of suburban sprawl. Alarmed by the natural disasters and changing climate, planners have realized that sprawl is a major environmental issue that needs to be changed. Universities have also started building mixed-use residence for students to promote sustainability on campus. The study has focused on the financial aspect of mixed-use campus housing.

The data used for the study have been collected from the authority of Tailwind Group and Department of Residential Life, Minnesota State University of Mankato in 2013. Tailwind mixed-use housing has been determined as profitable because of its proximity to campus. Although Julia Sears' required rent per square feet is high, the building is state owned and therefore it is also financially secured. Assuming Julia Sears was a mixed-use campus residence, rent required per square feet is less than that of Julia Sears as constructed. This study will be beneficial for the Department of Residential Life, as well as the university to consider implementing new urbanist design principles on campus.

This work is dedicated to my parents who made sure their daughter could come to this country for her higher studies; and to my father and mother in-law, thank you for inspiring me and having faith in me. Saiket, I dedicate this work to you, too. Without you, it would not have been possible for me to finish this. You mean the world to me and I am lucky to have you in my life.

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1. PROBLEM AND RESEARCH DESIGN

1.1 Introduction:

Planning for the built environment can be undertaken in two ways- developing and redeveloping urban areas. In an attempt to discourage people from moving further into suburbs and pushing development into the agricultural landscape, redevelopment of cities and existing suburbs is being promoted to create a sustainable built environment. In most American cities, about 20% of the land is undeveloped (Daniels and Daniels, 2003). The problem is greater in suburbs. This means there is scope for redeveloping older and vacant structures, blighted areas and brownfield sites before extending into farmland. In order to overcome the limitations of traditional rigid zoning, mixed-use development is becoming increasingly popular among the developers as well as the policy makers.

Universities are one of the most important urban elements which have a social and fiscal impact on society. In America, some towns are born around university campuses that are called College Towns (Gumpercht, 2003). Thousands of students leave home for their college every year to pursue higher degrees. Therefore the demand for student housing in college towns is always a matter of concern. University authority provides residence for students in the form of dormitories, housing areas for students and even subsidized housing. Nowadays universities are trying to promote sustainable development by taking new measures in land-use planning, transportation for students, energy- efficiency etc.

Minnesota State University Mankato (MSU) provides on-campus residences (Crawford, McElroy, Julia Sears, and Margaret R. Preska) and one apartment complex (Stadium

Heights) for students to facilitate on-campus housing. Several privately-owned housing projects have been developed to provide housing for the large student community, most of them being apartments and townhomes. In order to encourage high-density residential development, the concept of mixed-use housing adjacent to the university is becoming popular. Successful operation of University Square Village and the ongoing construction of a new mixed-use development by Tailwind group are the examples of the growing popularity of this kind of housing for students.

In America some universities have already adopted mixed-use housing for students successfully. Some of the examples are South 40 Village of Washington University (St. Louis), University of Pennsylvania, and Ohio State University. This research is an endeavor to study the prospect of adopting mixed-use housing for students on the MSU campus.

1.2 Research Statement, Goals, and Objectives:

Universities generally provide dormitories and apartment complexes for student housing. This research will explore economic feasibility of mixed-use campus residence in MSU and whether the benefits of providing mixed-use housing for students will exceed that of dormitories.

The research statement is ‘Mixed-use housing is economically feasible for Minnesota State University Mankato.’

1.3 Research Hypothesis:

Hypothesis (H1): Mixed-use campus residence is economically feasible for Minnesota State University Mankato.

Null Hypothesis (H0): Mixed-use campus residence is not economically feasible for Minnesota State University Mankato.

1.4 Research Goal:

The research goal of this study is to establish best practices in university housing, and the conditions which support their success.

1.5 Research Question:

1. Is privately owned mixed-use housing for students economically feasible?
 - a. Rent required per square feet for the new Tailwind's mixed-use to pay off the loan is low in the Acquisition based pro forma.
 - b. Debt coverage ratio and default ratio indicates the security of the project.
2. Is University owned campus residence economically feasible?
 - a. Rent required per square feet for Julia Sears to pay-off the bond is low in the 'Acquisition based' pro forma.
 - b. Debt coverage ratio and default ratio indicates the security of the project.
3. Assuming Julia Sears was mixed-use; will university owned mixed-use housing be economically feasible?
 - a. Rent required per square feet for Julia Sears to pay-off the bond is low in the Acquisition based pro forma.
 - b. Debt coverage ratio and default ratio indicates the security of the project.

1.6 Methodology:

1. Research Design:

The research will be designed as case study of Minnesota State University Mankato's student housing. This approach allows examination of data within a specific context. It will investigate MSU's student housing to allow comprehensive study of the application of mixed-use housing principles for student residents.

2. Research Process:

The research will have following stages:

- First stage will analyze the pro forma of ongoing project of Tailwind Group on Warren Street to determine if it is economically feasible.
- Second stage will analyze the pro forma of Julia Sears campus residence of Minnesota State University Mankato to determine if it is economically feasible.
- Third stage will analyze the pro forma of 'Tagore' Residence Community which is assumed to be mixed-use with equal gross area of Julia Sears to determine if it is economically feasible.

2. LITERATURE REVIEW:

2.1 Introduction:

Alarmed by continuing natural disasters around the world, planning professionals have raised their voices to encourage environmentally friendly development. Every industry is adopting sustainable practices to lessen the environmental damage to the planet. This has been reflected in profiles that include endorsements such as LEED certification and energy star ratings. Colleges and universities have not stood apart from these efforts. They play an important role preparing students to be future leaders in environmental awareness. Campus housing is a vital element for enriching the experience, not just of the residential students who live there but of everyone who comes on a campus. Although many institutions have already adopted some measures to develop environment-friendly housing for students, there is ample scope for further work in this area. To this point, most of the efforts toward sustainable student housing has focused on recycling, using recycled and environmentally responsive materials, installing ‘green’ building components, and reducing energy use. But only a few institutions have thought “outside the box” (of individual residence halls) and applied the principles of new urbanism to create mixed-use residential areas for students. The principles of new urbanism are a modern trend guiding the development of built space by addressing issues such as ground-cover, increased density, and transit and pedestrian oriented development. This essay considers the advantages of adopting new urbanist principles for residential housing in higher education institutions.

2.2 Rise of Sprawl: In the book *The Suburban Nation: The Rise of Sprawl and Death of American Dream*, Andres Duany, Elizabeth Plater-Zyberk and Jeff Speck (2010) discusses two different development pattern: traditional organic development, fundamental form of European settlement, represented by mixed-use, pedestrian-friendly communities and the suburban sprawl which is initiated by architects, engineers, and planners and promoted by developers. Sprawl is a result of a number of policies to encourage urban dispersal. Sprawl was led by Federal Housing Administration and Veteran Administration loan program after World War II that offered mortgage for 11 million new homes with cost less than paying rent. The author describes sprawl as artificial and unsustainable as it does not pay for itself financially and land is consumed at an alarming rate. But the system is popular for its simplicity and homogeneity in components. The authors discuss five components that occur independently.

The first component is housing subdivision, also known as cluster and pods. It consists of residences, developers call them villages, towns and neighborhoods. The second component is 'Shopping Center' also called strip center, shopping mall, and big-box retail. The size varies according to their location and there is no accommodation for walking. The development lacks housing and the building is characterized by single story construction with a parking lot between the building and roadway. The third component is office park or business park which has been derived from the modernist architectural vision of a freestanding building in a park. These are places for work that maintain a quality of isolation but are surrounded by highways more than countryside.

The fourth component is civic institutions or public buildings (town halls, churches, schools) where people gather for communication and culture. Traditional neighborhoods considered these buildings as focal point of the development. But in the suburban sprawl, their location is not significant and they are surrounded by large parking lots with no consideration for pedestrian access. Schools are designed based on the assumption of massive automotive transportation. The fifth component is roadways and the miles of pavements that are necessary to connect first four isolated components. These pavements are necessary to support all the daily activities. People have to spend a lot of money and time to travel from one place to another. The traffic situation is worsening as the cars carry a single occupant. One of the consequences of sprawl is that a large amount of pavement is required for even a small building. Lower density development requires greater length of infrastructure to distribute utilities. Therefore municipalities find it very difficult for the new development to pay for its costs at an acceptable level of taxation.

One of the social impacts of sprawl is that it provokes segregation by income. Before the development of suburban sprawl, cities like Georgetown, Washington D.C. had shown a mix of housing types. Availability of diverse housing choice increases the opportunity of interaction among people. Apartments above stores not only add population to space which could otherwise be empty and unsafe in a single-use zoning district, it also adds height to the commercial buildings. It can also serve as a 'live/work unit' which homeowner can use for both home and business. Suburban sprawl limits interaction among people of varied ages, races, and beliefs.

2.3 Mixed Use Development in response of sprawl: In the history of urban development, mixing different land uses such as residential, shopping, office, entertainment, lodging in a distinct area is as common as providing them in separate areas (Schwanke, 1987). Ancient Greek cities, compact medieval cities, and today's dynamic London and Paris provide examples of mixed-use developments. Even New York and Manhattan had a high degree of integration of different land uses before the advent of automobile (Schwanke, 1987). The Urban Land Institute (ULI) issued its first publication on mixed-use in 1976, *Mixed-Use Development: New Ways of Land Use*. The publication describes the central concepts of mixed-use developments. Although the concepts are not rigorously defined, they set some parameters which help understand the concept of mixed-use-

- Three or more significant revenue-producing uses (such as retail, office, residential, hotel/motel, entertainment/ cultural/ recreation) that in well-planned projects are mutually supporting;
- Significant physical and functional integration of project components (and thus a relatively intensive use of land) including uninterrupted pedestrian connections;
- Development in conformance with a coherent plan (frequently stipulates the type and sale of uses, permitted densities, and related items).

Schwanke (1987) has listed several advantages of mixed-use developments which should be considered over other zoning types:

- Mixed-use is feasible in redevelopment, blight and transitional areas. It can act as catalyst for further improvements in the surrounding area.
- Mixed-use facilitates higher densities which may not be possible in traditional 'Euclidean' zoning.
- Mixed-use increases the potential of a site's development by providing a number of uses and a faster absorption schedule.
- Innovation in design and provision for superior amenities is encouraged through aggregation of individual uses.
- Infrastructure is shared in mixed-use developments and thereby economy in scale of development is possible.
- Mixed-use helps the local economy as higher rents and higher occupancy is possible for the convenience of on-site amenities. In operation scale, many developers expect operating economy of up to 15-20%. It also increases tax base.
- It can achieve greater long-term appreciation in land and property value by creating a special place of a mix of a variety of use.
- Development scale and attendant activity can be realized to promote revitalization which may be unlikely in traditional zoning.
- Local government can have better fiscal and environmental control over development.
- It can provide attractive transition between varied land uses.

2.4 New Urbanism Design Principles: In 1993, a group of architects came together to form the Congress for New Urbanism (CNU). Their goal was to counter the post-World War II emphasis on sprawl and low density with high quality design that emphasized neighborhood, community, pedestrian-oriented places that conserved the natural and built environments (CNU, 2012). One of the definitive works of this movement was Peter Katz's *The New Urbanism* in 1993. In this book, Peter Calthorpe focused on urban development at the regional level, Andres Duany and Elizabeth Plater-Zyberk focused on the neighborhood and district level and Elizabeth Moule and Stefanos Polyzoides focused on the street, block and building level.

Peter Calthorpe noted that elements such as diversity, pedestrian scale, public space and structure of bounded neighborhoods should be applied in metropolitan areas, suburbs and new growth areas. The region should also be designed according to similar principles. The first application has been relatively easy at city levels but less so in the suburbs. New Urbanism helps to achieve the urban quality in suburbia with its relationship between architecture and public space, spatial hierarchy and connectedness. Calthorpe also says that the city, suburb and natural environment should be treated as a whole socially, economically and ecologically to minimize disintegration. A few factors to keep in mind are having defined edges for growth boundaries, encouraging pedestrian circulation with an emphasis on transit, preserving major open spaces and accommodating diverse population. Calthorpe discusses some factors to consider at the regional level that have not been addressed in suburban development-- the crisis of growth, taxonomy of growth, infill and redevelopment, new growth and satellite towns.

Andres Duany and Elizabeth Plater-Zyberk noted the neighborhood, district and corridor level as the most fundamental organizing element of New Urbanism. Duany and Plater-Zyberk list the following principles for designing a neighborhood--

- The neighborhood has a center and an edge-- center is the locus of the neighborhood's public buildings and the edge is characterized by natural (forest, river) or man-made (infrastructure) features
- Optimal size of a neighborhood is a quarter mile from center to edge-- the distance is determined by five-minute walk at an easy pace.
- It has a balanced mix of activities such as dwelling, shopping, working, schooling, worshipping and recreating. This principle encourages walking and public transportation and decreases the dependence on automobile.
- Structures are connected by a network of streets--this principle diffuses traffic congestion by providing multiple routes. Various traffic calming methods are also possible to implement.
- It gives priority to the public space and to the appropriate location of civic buildings-- public spaces and the street network together will create a hierarchy of space in the neighborhood.

The district, on the other hand is a functionally specialized urban area. Modern districts includes a number of activities such as a theatre district which includes restaurants and bars, a tourist district which includes hotel, retail, entertainment etc. The third element, corridor, can work as both connector and separator. It can be of both natural and man-made elements. Corridor is an urban element that is characterized by its visual continuity

and defined by its adjacent neighborhoods and districts. Examples of corridor include heavy and light rail, continuous green edge, trails etc.

Authors Elizabeth Moule and Stefanos Polyzoides describe the street, block and building as the form of New Urbanism. These are interdependent and they individually contain some ingredients of the others. The elements can be addressed as a whole by design. Streets should not be designed merely as connecting lines. They should have pattern, hierarchy, figure and detail. Blocks should be of certain size, varied configuration in depth and width, grounded to the street, present a streetwall to provide visual character, reduced and hidden parking, and landscaped to enhance the aesthetics. Buildings' configuration and placement shapes the character of the neighborhood. Use should be diversified, density should be regulated independently and form should address both urban fabric and monumentality.

While the Congress for the New Urbanism (CNU) Charter lists 29 principles, they have been consolidated into 10 main principles, 6 based on design, 3 expressing the implications of the design principles (increased density, green transportation, and sustainability), and the final one—quality of life—which is the net effect of the 9 previous principles. The six design principles (New Urbanism, 2012) are:

- Walkability

For a place to be walkable, most of the necessities for daily living should be within a 10-min. walking radius (1,000-1,200 yards; about 1,000 meters). Designs should be “pedestrian friendly.”

- Connectivity

The space should be stitched with an interconnected street grid, with a hierarchy of roads from boulevards to streets to alleys/walkways.

- Mixed-Use and Diversity

Within the neighborhood, there should be a mix of shops, offices, apartments, and houses.

- Mixed Housing

The mix of housing in a neighborhood should include a range of sizes and prices to encourage a diverse mix of people living in and using the neighborhood.

- Quality Architecture and Urban Design

The physical space should generate a sense of place and a feeling of beauty.

- Traditional Neighborhood Structure

The space should be designed so there is a recognizable center and edges, with public space at the center and a range of densities within a 10-minute walk. The highest densities should be toward the center, and natural habitats should be connected and integrated into all of the spaces.

2.5 Organizations Promoting Sustainability on Campus- Following the publication of “Our Common Future” by the Brundtland Commission in 1987, 20 university presidents and chancellors formed an association to carry the principles of environmental

sustainability into the academic environment. The result was the formation of the Association of University Leaders for a Sustainable Future (ULSF), which issued the Talloires Declaration in 1990. The ULSF grew to more than 350 members twenty years later (ULSF, 2012). The Declaration is a ten-point call to action and includes such principles as “practicing institutional ecology,” “creating an institutional culture of ecology,” and “educating for environmentally responsible citizenship.” In the United States, the American College and University Presidents’ Climate Commitment (ACUPCC) in 5 years has gathered commitments from more than 650 higher education institutions to develop plans to reduce greenhouse gas emissions and, in the long run, to achieve climate neutrality (ACUPCC, 2012). They also commit to publishing their action plan, inventory, and progress reports on the web-based ACUPCC Reporting System.

Campus housing has the potential to be an important element of an educational institution’s contribution to institutional sustainability. The Association of College and University Housing Officers-International (ACUHO-I) has declared that sustainability is “deeply embedded expectative for campus operations and buildings” (Torres-Antonini and Dunkel, 2009). To address this, a growing number of educational institutions are adopting environment-friendly residences which reflect the institution’s commitment to encouraging campus sustainability. The Society for College and University Planning (SCUP) organizes webcasts and seminars to help promote sustainability in institutions (ACUHO-SCUP, 2008). ACUHO-I and SCUP has organized webcast on December 3, 2008 on “Trends In Campus Housing: Data and Core Concepts from Design Innovations.” This allowed listening via telephone and web during the question and

answers period (ACUHO-SCUP, 2008). The presenters included Planner Sue Gott from University of Michigan, Cynthia Parish Bologh, Principal investigator ABUHO-I Construction and Renovation Survey, and Jim Curtin, principal architect of Solomon Cordwell Buez Architects.

2.6 Traditional Campus Housing:

It was not until 19th century that the importance of campus housing was recognized by American colleges. Although Oxford and Cambridge long had a residential college structure, it was Thomas Jefferson who designed the University of Virginia as an “Academical Village.” Soon other university presidents began to observe the educational and political advantages of campus housings (Dober, 1996). By the 1950s, the impact of low-quality student housing on the ability to attract students was seen as an educational crisis. The Higher Education Facilities Act of 1963 and subsequent legislations allowed educational institutions to construct buildings as per their requirements. But often campus housing was compelled to compromise program objectives and design quality due to inadequate financing (Dober, 1996). This led to construction of typical high-density multi-storied buildings with limited amenities. Most of them had double-loaded corridors connecting single or double rooms. Dober describes this as an architectural mistake that needed to be addressed. For example, Washington State University was compelled to build 6-8-story high-density shelter-model dormitories, most of them with no design relationship to other campus buildings, and was placed along the perimeter of the university. Some institutions labored under this problem for 30 or more years of limited maintenance and an administration concerned about filling the structures.

In reaction to this situation, institutions began constructing better-planned housing for students on their campuses in the 80's. But they did this by focusing more on rehabilitation and improvement of existing buildings and sites. For example, Harvard spent \$75 million, Brown University spent \$35 million and University of Connecticut spent \$25 million to rehabilitate and modify existing structures (Dober, 1996). In the mid-1990's universities began to realize the importance of campus housing as an important academic experience. Campuses such as University of Miami, Florida were making efforts to make the campus housing more domestic in scale by reducing density and eschewing barrack-style housing. Energy conservation, ADA (American Disability Act) compliance, and safety and security of the housing were also being addressed by the universities in this era.

Some students chose to live off-campus to take advantage of greater variety in housing choice and the perception that off-campus housing would be cheaper than on-campus housing. As a result, housing officials now are focusing on diversifying the choices in dormitories to satisfy a wider range of students. For example, Cabrini College designed its student housing to look like single-family homes (but different in material, plan and siting) and they are close both to an adjacent residential area and to the campus recreational facilities. This permitted the college to rent space to the community should enrollment decline. Kutztown University built an additional wing to its existing 400-bed dormitory, a 20-bed unit that looks like a house. Harvard University converted a motel into a law school dormitory and Massachusetts Institute of Technology transformed an industrial building into a graduate student housing.

Dober, in his book *Campus Architecture* (Dober, 1996), categorizes current campus housing as falling into three models:

- Shelter model

The baseline “shelter model” is a unit that is less than 150 square feet of area per student with limited amenity and minimal space for social gathering.

- Campus-life model

A campus-life model is based on units of 150 to 200 square feet per students with amenities like laundry, snack bar, game-room, fitness center, isolated group-study spaces etc. and a few spaces for social gathering.

- Academic model

The academic model is based on larger units of 200 square feet per student with all the amenities and a combination of formal and informal gathering spaces for students. It may also have space for faculty in residence, tutor offices, a library, and multi-purpose spaces. This model is particularly popular for graduate students and executives who enroll for short-term training.

Dober also notes that smaller cafeterias with or without outdoor sitting space are becoming popular since they provide not only greater dining choices but also create opportunities for informal learning through social interaction.

2.7 Categories of Sustainable Campus Housing:

While Dober describes shifts in campus housing due to market pressures and pedagogical objectives, Maruja Torres-Antonini and Norbert W. Dunkel in 2009 look at changes in design and use of campus housing in response to environmental and sustainability concerns. They studied 87 self-identified and self-reported sustainable campus housing initiatives created by colleges and universities in the United States. They identified three categories of sustainable campus housing:

- Green campus housing-

These are the energy-efficient housing structures that use energy, water and materials most efficiently and ensures elimination of negative impacts on environment throughout the life-cycle of the structure. They have confirmed the quality of their efforts through LEED certification, energy star ratings, and other environmental standards. These campuses are focused on the environmental impacts of their structures and do not necessarily have an educational program focused on sustainability.

- Sustainability-themed living-learning communities

These are the communities that meet the requirements of “residential learning communities”-- “a residential education unit in a college or university that is organized on the basis of an academic theme or approach and is intended to integrated academic learning and community living” (Midden, 2008). In this case, the learning communities are focused on issues of sustainability, both as learned in concept and as lived in practice. They may or may not be associated with formal academic programs, but they encourage environment-friendly lifestyle.

- Campus housing sustainability hubs

These are the residential complexes that combine the characteristics of both green campus housing and sustainability-themed living-learning communities. They provide ample opportunity to experience sustainability principles and lifestyle in their living environment. They also encourage interaction and participation in the community to obtain knowledge and results in positive attitudinal and affective change (Cross 1998).

This categorization marks a transition to an era of campus housing that is environment-friendly and sustainable. Many universities are also trying to integrate New Urbanist principles to achieve highest performance.

ACUHO-I's 21st century project has laid its focus on the following topics-

- Students
- Space
- Sustainability
- Learning
- Technology

Students- The topic of students focuses on the increasing enrollment of the non-traditional students. Students are more diversified based on race, age and prior experience. The enrollment rate of female students is also increasing compared to male students. Universities will face the challenge to address diversified students, consensus across issues such as accessibility to low-income students and maintaining male enrollment.

Space- As the enrollment goes up, the issue of space becomes critical. To meet the increasing enrollment, housing officers are building more with state-of-the-art facilities, amenities and new technologies. Private developers are offering inexpensive housing close to campus which is making the student-housing market competitive. University budgets are constrained that put pressure on the housing officer.

Sustainability- As all the public and private agencies are leaning to sustainability practices, 1990 Talloires Declaration enables universities to adopt sustainability practice. But the declaration does not specify detail aspects of sustainability. Therefore the principles of sustainability differ in colleges and universities.

Learning- Besides the traditional goal of providing a safe and comfortable place to live and study for students, the emerging trend of accommodating learning environment is becoming important. As discussed earlier, 50 years of experimentation has led to creation of different living-learning communities. This includes residence-based study groups, in-residence classrooms, and resident faculty, structured occasions for students to meet faculty outside class. Colleges and universities are creating more intimate environment to smooth the transition of new students and create a sense of home. Architectural elements can play a very important role to create intimate space to encourage learning experience.

Technology- Technology is another very important factor in college and university housing as the students of 17-23 year old cohort has been using computers their whole lives. Today's students come to colleges with their own laptop, tablet, and smartphones

and expect wireless environment. So the challenge of the housing officers is to balance in online and in-class learning.

These trends have been developed in response to current trends and incorporating some of the elements of the future. Decision-makers and housing officers must respond to the changing trends and how they may reshape the society. Futurist Glen Hiemstra's presentation in the 21st century Summit of ACUHO-I has led to some ideas of the future trends in college and university housing. They are categorized into Probable and Possible Developments of which Probable Developments encompass the trends that are already underway and Possible Development includes the less-likely and less-immediate but highly possible trends. Both the trends address the climate-change and energy issues. The 2006 report *The Greenland Ice Sheet and Global Sea-Level Rise* by Julian A. Dowdeswell in the journal *Science* discusses how the climate change will affect local heating and cooling which had been discussed in the Summit to build more sustainable campus housing.

The Summit discussed on the physical features of the Residential Experience in order to create a successful learning environment for the students. Key elements that should be incorporated in future campus residences are:

1. A sense of place
2. Design of the school community
3. Sustainability
4. Technology integration

5. Use of spaces

2.7.1 A sense of place- The key element of designing campus residence is enhanced sense of place. The traditional setting of a residence hall in its periphery has sometimes failed to recognize the residence hall as an integral part of the campus. Large or small, urban or non-urban, vertical or horizontal--whatever the design is, the residence should be linked to both academic and non-academic public sphere of the campus. A sense of place can be achieved if the following factors are included in the design:

- Proximity and relationship
 - Consolidation of uses (mixed-use)
 - Indoor-outdoor
 - 24-7
 - Accessibility
 - Security
- **Proximity and relationship-** Campus residence should also be an integral part of the community. In compact urban neighborhoods, the residences should be integrated with the surroundings and land uses either on a defined campus or on a series of individual building sites. In non-urban neighborhoods, the residences should be integrated with the community respecting the scale, history and regional aesthetics.
 - **Consolidation of uses (mixed-use)-** Sense of place and proximity should be achieved by mixing uses. Residences should include mixed-use spaces on the lower levels or the building should be situated among various uses such as public, private,

commercial, professional, retail, residential, recreational, and government land uses. The location should be such so that all the amenities (retail shops, eatery, groceries, library, exhibition centers, entertainment centers, businesses, daycares, senior center, religious facilities, transit nodes) provided by the school or others are conveniently accessible. In non-urban campuses, residences are sited close to the amenities offered by the campus.

- **Indoor-Outdoor-** Campus residence extends well beyond its indoor space, utilizing its outdoor space to the fullest. Outdoor furniture and landscaping elements make the outdoors lively and makes the outdoors a part of the residences. Residence lobbies play an important role in creating a playful and interactive indoor-outdoor environment by providing access to the outdoors, restaurants and cafes, amphitheater, and student activity areas. Outdoors are designed to encourage activity, interaction among students and faculty, group discussion and recreation as well as site for environmental demonstration.
- **24-7-** Campus residences should be lively and active 24 hours a day, 7 days a week. The activities will allow diverse lifestyle and efficient use of resources.
- **Accessibility-** Campus residences and the amenities and facilities it offers should be accessible to everyone. It should address the needs of diverse and differently able population.
- **Security-** High-density principles and mixing of uses challenge the security of the campus. Therefore access to the residences should be controlled to maintain safety and security. Authorization to access the selected spaces and free access to the retail

and amenities can ensure interaction with community as well as a safe campus environment.

2.7.2 Design for the School Community- Campus residence should promote community experience for the students, faculty and staff. Instead of restraining the residence as well as the campus from the rest of the town, it should be an essential part of it. The factors that will help to achieve this element are-

- Town-gown
- Subdivision of community
- **Town-gown-** By integrating the campus and community, the opportunity of benefitting each other increases. Students, faculty, staff and local citizens living near the campus have easy access to the amenities. The town provides students with jobs, research opportunities, internships, network with people, political, civic and social linkage. Local citizens will be served by the school administration with its revenues. Besides the incorporated environment will help them educationally. The campus helps the community by providing mixed-use, various events, staff jobs, and student life.
- **Subdivision of community-** the residences should be designed and built according to the scale of the surrounding neighborhood. Where large buildings are inevitable for economic or other reasons, they can have smaller wings or be less architecturally monumental. Community experience is ensured when the design is based of human experience at village, neighborhood, block and home level.

Village- The village experience can be achieved by clustering a number of residence halls. It can accommodate a population of 500 to 1000. Villages generally have a village center where interaction among people is encouraged by landscape elements such as benches, pedestrian walkways, gardens, plazas etc. This level of interaction is primarily public which includes frequent nodding and face recognition.

Neighborhood- Neighborhood experience occurs within the residence halls and includes a population of 150 people of mostly students and sometimes faculties and staffs. They can enjoy common amenities and neighborhood spaces such as lobby, café, retail shops, postal facility, concierge and common announcements. Name and face recognition in this level is high and frequent. A combination of neighborhoods with one or more central commons forms a village.

Block or street- Block experience occurs at the floor, wing, or pod levels. Population of the block may vary from 15 to 50 depending on building's architecture, age and grade level of the students. Resident advisor is assigned to every block and relationship is face-to-face.

The home- Home experience occurs in a one or two person room where personal level interaction is possible.

2.7.3 Sustainability- This is the most important and broad in its scope and the housing officers have tried to incorporate the sustainability principles to bring consensus on the definition of sustainability. The factors that should be considered

are planning the building, orientation, materials, energy use, pedestrian access, lighting and landscaping.

Planning the building- Concerns related to planning the building ranges from reducing environmental footprint created by extraction, process and transportation of construction materials to maximization of utilizing environmental benefits, future rehabilitation cost and energy self-sufficiency. It also should consider commuting to and from residence halls and assigning students in the design team. The following aspects should be reflected in the building design:

- **Building orientation-** The building should obtain the maximum benefit of natural light and ventilation in order to minimize energy cost. The building should be able to passively control the indoor climate in varying weather and consider any active solar system or alternate wind energy source. Outdoor spaces are another important factor in selecting appropriate building orientation. The building also may impact the neighboring properties which can be a deciding factor in orientation.
- **Selecting building material-** Environmental cost of extracting, processing and transporting the building materials should be assessed in selecting building materials. Summit participants have proposed to use local materials, recycled and re-used materials which can make a significant difference.
- **Non-vehicular circulation-** Pedestrian-friendly design is highly recommended in the Summit. The participants had consensus on visioning compact, mixed-use design to alleviate pressure on vehicular circulation and

reduce the environmental cost of constructing impervious surface by new roads and parking lots.

- **Landscaping-** Landscape should be used to strengthen indoor-outdoor relationship. Landscaping elements should not only serve the aesthetic purpose but also create a functional outdoor space. It should also connect the neighborhood with the residence.
- **Green roofs-** It is a part of landscaping which is also very effective in reducing indoor insulation. Green roofs are also used for gardening native species and alternative energy installation.
- **Building management system-** Building management system should optimize environmental performance and address study environment. Students, faculty and staff should act interactively to be more concerned about the environmental impact of the management system.
- **Planning for adaptive reuse-** Future campus residences should be open to adaptive reuse. The process should be inexpensive and easily adaptable. Older residences may be converted to different use keeping the original design.
- **Alternative energy source-** The buildings should be self-sufficient in energy. Renewable energy sources such as solar, wind, biomass etc. are highly desirable as fuels can be scarce in near future.

Building operations- Future campus residences should demonstrate sustainable building operations such as recycling, technology, materials and supplies, energy management and efficient water use.

- **Recycling-** Building features and operating practices should encourage recycle and reuse of materials. Electronic correspondence instead paper can contribute significantly in saving green. Recycled and reused items can be utilized instead of disposable ones.
- **Materials and supplies-** Environmental cost of materials used should be assessed while using in residences. Recycled, easily replaceable and locally manufactured materials should be preferred.
- **Energy management-** Energy can be provided on as-needed basis. Using daylight can be used to reduce the load on energy.
- **Efficient water use-** Water should also be used conserved by using recycled water and efficient shower, toilet and lavatory fittings. A good way to use recycled water is to use it in landscaping.

2.7.4 Technology Integration- Future campus residence should maximize the use of technology in teaching and learning as well as community interaction and social life. Examples are as follows-

- **Virtual classroom-** virtual classrooms can help students take classes offered around the world and minimize the necessity of commuting long distance. Future technology can enhance the experience of being in a real classroom.
- **Personalization of space-** technology will also be used in personalizing the space by using advanced lighting system. Space should be easily convertible.

- **Connectivity of devices and media-** digitization of important and historical documents will help students access the necessary information from anywhere around the world. There should be balance between student's dependency on technology and conservation of energy.
- **Intranet system-** Colleges and universities should use technology to balance academic and social life. School-sponsored intranet directories, message centers, chat rooms, blogs, social networking can help building networking among the people related to the campus.
- **Control points-** Another important use of technology will be maintaining the security of the campus. Advanced technology will strengthen the security of restricted areas to control access.

2.7.5 Multipurpose and Flexible use of space- Final element in philosophy of future residence hall is functional integration and flexibility. Campus residence will act as a place for teaching and learning, socialization, recreation, interaction, counseling besides merely providing shelter. Therefore the spaces should be flexible in use to accommodate all the functions. Instead of having dedicated space for each function, sharing the use can generate dynamic space and promote interaction. Multipurpose use can be observed in each division of the community-building, floor, and unit.

- **Building-** it is the neighborhood level where the challenge is to separate public use to more restricted private use.

- **Reconfigure/ modify space-** Large multipurpose spaces can be divided with movable walls into public spaces for holding exhibitions, graduation, celebration and seminars as well as small meeting rooms for classes and group discussion.
- **Nano materials-** using new nano-materials for walls and partitions, light and acoustics of the flexible spaces can be enhanced.
- **Neighborhood level space and amenities-** large spaces can also be used as cafés, dining area, data center, library, fitness center, and faculty and staff offices. In graduate student housing, spaces can be used for student and faculty correspondence, research facilities etc.
- **Allow interaction-** small meetings can be provided near classrooms, elevator, and stair to encourage interaction among the students.
- **Floor-** Floors should accommodate flexible spaces for campus housing residents. Consideration should be given to the following factors-
 - **Resident identity-** floor should have some unique features that can enhance the resident identity such as freshmen, married students, resident faculty, elders, ethnic diversity, behavioral affiliation etc. The features can be reconfigured by changing room size, suite population, common area ration, kitchen and bathroom size etc.

- **Block level space and amenities-** Although the focus of socialization is on neighborhood level, block can have smaller spaces to facilitate interaction in block level. Community kitchen, space for vending machine, laundry, guest spaces etc. can be located in block level.
- **Unit-** Privacy is desired in ‘home’ level. The flexible spaces may vary according to the room occupancy. One-person room can open up to the corridor itself but a multi-person room can have shared space with expected privacy. The factors that should be considered in designing flexible space in this level are-
 - **Adjustable boundaries-** Individual rooms can be open to the common space of the suite or enclosed by partitions as the occupants wish.
 - **Stowable furniture-** Furniture that can be folded, broken down or stowed away, can maximize the flexibility of space and accommodate high-density development.
 - **Privacy-** Flexibility should ensure the privacy of the occupants.

2.8 “New Urbanist” Campus Residences

Federally funded Urban Renewal projects in the United States in the 1960s resulted in sprawl in suburban areas depopulation in the city cores, and blight in traditional cities. The Federal government also funded highways nationwide that drove people out of the

city cores and encouraged them to commute long distances every day to work from home.

Yet some universities in these older cities are successfully adopting new urbanist principles for student housing. Examples include Ohio State University (Burnett, 2009), University of Pennsylvania (Allen, 2009), and Washington State University, St. Louis (Madsen, 2001). They are at the forefront of rethinking campus housing for students.

2.8.1 Ohio State University- South Campus Gateway

Ohio State University has initiated a mixed-use residence for students to revitalize the areas around the perimeter of the campus. 'High Street,' which is an important street on the east edge of the campus, was dilapidated along with the surrounding area. This in turn led students move further away to find 'safe' off-campus housing. Desiring to bring the students back close to the university, the university decided to create a mixed-use development called South Campus Gateway to spruce up an undesirable neighborhood. Master Planner David Dixon in 2005 recognized the problem and decided to go for public-private partnership to build the proposed mixed-use development.

The project extends to four blocks on each side of the High Street. Designed by renowned architectural firm Elkus Manfredi, it is comprised of 890,000 square feet of which 580,000 square feet are devoted to residential space for graduate students, faculty and visiting professors; retail, and entertainment space and a parking structure account for the remaining 310, 000 square feet. It provides 184 apartments dedicated to the students and

affiliates, 12 restaurants, one 8-screen cinema, a university bookstore, and a 1200-car parking garage to support retail businesses. (Allen, 2009).

The university's Campus Partner's president Terry Foegler described this project as a 'Signature Project' for revitalizing the campus area and the corporation invested \$151 million for this redevelopment. The president also indicated that shortly after the initiation of the project, it was successful in attracting students and (perhaps more importantly) retail businesses in an area surrounding the university that had been facing decline (Wolf, 2006). A number of both local and chain restaurants with diversified flavor are now in operation. Student enrollment in the university has gone up and a large number of those students have chosen South Campus Gateway for housing. One of the most important consequences is that the project has improved safety in the area (Gebolys, 2010).

Ohio is an outstanding example of incorporating new urbanism design concepts for campus housing and successfully implementing it. It has been able to attract a number of retail businesses, both small and large, within a confined area of 4 blocks. This implies that the students living in that area are getting a number of facilities within 10 minutes walking distance. All the restaurants have included outdoor seating and one 2-story restaurant even has a balcony that enhances the indoor-outdoor relationship (Wolf, 2006). One of the main objectives of the project has been to create a center of activity with diverse uses in the area. South Campus Gateway is an exemplary redevelopment project that successfully executes new urbanism principles.

2.8.2 University of Pennsylvania- Sansom Commons

The University of Pennsylvania in Philadelphia was founded by Benjamin Franklin in 1749 and is located in an inner-city neighborhood of West Philadelphia, known as 'University City'. Although one of the most prestigious institutions in the United States, the University of Pennsylvania experienced decline in student population and deterioration in its surrounding neighborhood beginning in the 1950's through 2000 (Rodin, 2005). Alarmed by the worsening situation, the university began West Philadelphia initiatives beginning in 1994. The principle strategies were:

- Stimulating the housing market
- Clean, safe and attractive neighborhood
- Attracting retail development
- Encourage economic development
- Improving public schools

The Sansom Commons was developed as part of a strategy for attracting retail development in the area adjacent to the university. The 300,000 square-foot project encompasses six city blocks and includes 37,000 square feet of retail and restaurants, a 190,000 square foot hotel which is named as The Inn, and a 56,000 square-foot Penn Bookstore. At the center of the project is a public square, developed as a vital connection between the campus and the neighborhood (Burnett, 2005).

The university has played the role of both a developer and subsidizer, stimulating the housing market by renovating abandoned properties in that specific neighborhood and selling them to public (Rodin, 2005). The targeted retail activities were apparel, groceries, dining and entertainment. Both local and chain retailers are running their businesses profitably. The success of Sansom Commons have led to \$370 million of private investment in West Philadelphia including a mixed-use complex of 282 market-rate apartments for mixed-income people including students, new retail businesses and banks (Rodin, 2005).

University of Pennsylvania's Sansom Commons is also an example of how new urbanist design principles can transform a deteriorated area into an urban center. The project has encouraged pedestrians to walk around in the area in a safe, healthy environment. It has successfully attracted students, visitors and residents with its retail and cultural amenities. the design also incorporates Fredrick Law Olmsted's idea of integrating public space with retail space to create enjoyable streets and provide opportunities for diversified people to come together (Rodin, 2005).

2.8.3 Washington University in St. Louis- South 40 Village

South 40 Village of Washington University in St. Louis is another example that has recognized the advantages of mixed-use development and brought together uses such as residence halls, new food services, retail shops, auditorium, student activity space and a fitness center. The complex was designed by Mackey Mitchell Architects and has created

an area incorporating all the residence halls in the university. The complex encompasses an area of 40 acre.

The project is located at the intersection of two major streets of Washington University's residential community. Mackey Mitchell architects describe the project as creating a European-style streetscape that would encourage a pedestrian-friendly environment. The pedestrian 'spine' connects the South 40 residential campus to the central academic area of the university. The residence halls are arranged on both sides of this spine. Lower levels of these halls consist of uses such as café, retail businesses, shops and entertainment with outdoor dining areas. The upper stories are dedicated for students' residences.

A significant feature of this complex is the green roof over the commissary kitchen and the loading dock. The 7,500 square-foot roof enhances the quality of the area. The project is LEED certified. The architects were aiming to create a space that would encourage social interaction and group gathering (Madsen, 2001).

South 40 Village is an attempt to incorporate New Urbanist design principles for the university's redevelopment project. The project created a link between the academic and the residential parts of the university. The outdoor spaces have successfully increased the communication among the students and have encouraged pedestrians to use the link.

2.9 Summary

The Literature Review section has discussed various concepts of mixed-use development, their advantages, and how different universities have implemented the concepts in their

campus residences. The concepts vary according to researchers and the context in which they have applied the principles. But all the concepts share one common aspect-encouraging compact development to address the issues of suburban sprawl. As universities have great impact on society, they can set good example by incorporating mixed-use development on campus. Commercial development around campus residence will not only help generate revenue that can be used by the university but also help promote sustainable development.

3 METHODOLOGY

3.1 Introduction

This chapter describes an overview of the methodology and the procedures used for a pro forma analysis of the new on-campus student housings of Minnesota State University Mankato and the new mixed-use project of the Tailwind group which is now under construction. The data analysis procedure has been also included for justification.

3.2 Community profile-

Mankato is located in the southwest of the state of Minnesota in Blue Earth County. It is 80 miles south of Minneapolis and sits by the Blue earth river. The city has been ranked 25th best small place for business and careers by Forbes magazine. The city is picturesque with a number of lakes and other natural features. Mankato is home to Minnesota State University Mankato (MSU), one of the major universities in the state of Minnesota. MSU is one of the members of Minnesota State Colleges and Universities (MnSCU).

The city of Mankato has a population 36,240 with a contiguous population of 45,210 (City of Mankato, 2012). MSU has enrolled more than 15,000 students including more than 600 international students in the 2012-13 academic year. On-campus housing is a popular housing choice for the freshmen students. MSU's on-campus residences house more than 2,600 students. However, 80% of students live in off-campus housing and many of those choose to stay in rental properties within 2 miles of campus. Department of Residential Life of MSU provides on-campus housing for students.

MSU offers five residence communities for living on-campus. They are:

1. Crawford
2. McElroy
3. Julia A. Sears
4. Margaret R. Preska
5. Stadium Heights Apartments

Gage Towers were the oldest of the residence communities which have been demolished on June 29th, 2013 as a part of the Residential Life's 20 year master plan. Gage was closed in 2012 and to accommodate students, the department has rented Stadium Heights apartments. Residential Life has planned to bring all the residence communities together in time.

3.2.1 Crawford- This residence community is situated on the north side of the campus accommodating 725 residents. There are four halls (A, B, C and D) which include some basic units and some remodeled units.

3.2.2 McElroy- McElroy is also located on the north side of the campus and accommodates 800 residents. This community also has four halls (E,F,G and H) with basic and remodeled units.

3.2.3 Julia A. Sears- Accommodating 608 students, Julia Sears was opened in 2008 and is centrally located. This residence community is different from Crawford and McElroy in room orientation and architecture. It includes modern semi-suites orientation- that is two bedrooms with a full bathroom. Semi-suite option is available for one, two or four persons.

3.2.4 Margaret R. Preska- Margaret R. Preska is the newest residence community of MSU. It was opened in 2012 and has demonstrated a change in the trend of residence communities at MSU. It accommodates 500 students in semi-suite type room orientation. The suites are for four students and only a few are for single students. The first floor of Preska includes community classrooms, office of New Student and Family programs and gathering spaces. Preska's architecture breaks the trend of residence communities in MSU by including public functions even more and shows a direction to mixed-use housing.

3.2.5 Stadium Heights- This community has a total of seven apartments which are fully furnished. Residential Life has started to manage Stadium Heights after Gage community was closed.

3.3 Statement of the problem

Minnesota State University Mankato has observed the importance of on-campus housing as it encourages interaction among students and enhances the college experience. The university also says that students living on-campus tend to show higher academic performance. Therefore to accommodate as many students as possible on campus, the university is providing five residence communities. These residence communities accommodate approximately 3,000 students on campus. Stadium Heights is different from other residence communities as the university leases the apartments to the students.

The older residence halls are traditional rooms accessed by corridors. But the recently constructed Margaret R. Preska and Julia Sears have changed its design to 'Suite' type

where two students share one room with a common living area and a bathroom. The Residential Life's 'Renewal of the Residence Communities' plan includes replacing the existing Carkoski Commons Dining hall and Student Health Services with a new Residence Hall and relocating the Dining Hall and Health Service. The new residence hall is supposed to incorporate principles of mixed-use housing with students living on second, third and fourth floor and 'public functions' on first floor. Public functions includes convenience store, grill, Student Leadership Resource Center, Crawford Residence Hall's front desk, and Residential Life Office. Although the Residential Life is shifting towards mixed-use concept of student housing slowly, more uses can be incorporated along with the uses mentioned above.

Including more uses not only will enhance the campus environment but also it can bring revenue to Residential Life more than the traditional 'Suite' type student housing. Therefore it is important to determine whether increase in revenue earned will be significant with mixed-use housing for students over traditional dormitories. This study compared the pro forma of a privately owned mixed-use housing and one of the new residence halls on campus. The privately owned housing is now under construction and is being done by Tailwind group. For existing on-campus housing, Julia Sears has been chosen.

Minnesota State University Mankato is has undertaken a major planning and construction plan for Residential Life for next 20 years. The plan has been divided into three phases:

- Phase 2A- Margaret Preska residence community

- Phase 2B- Dining and health Services
- Phase 2C- New four stories residence hall that will include some public functions in the first floor and student living on second, third and fourth floor. The phase will also provide full indoor connection with other residence communities- Carwford, McElroy, Preska, and also Dining and Health Service.

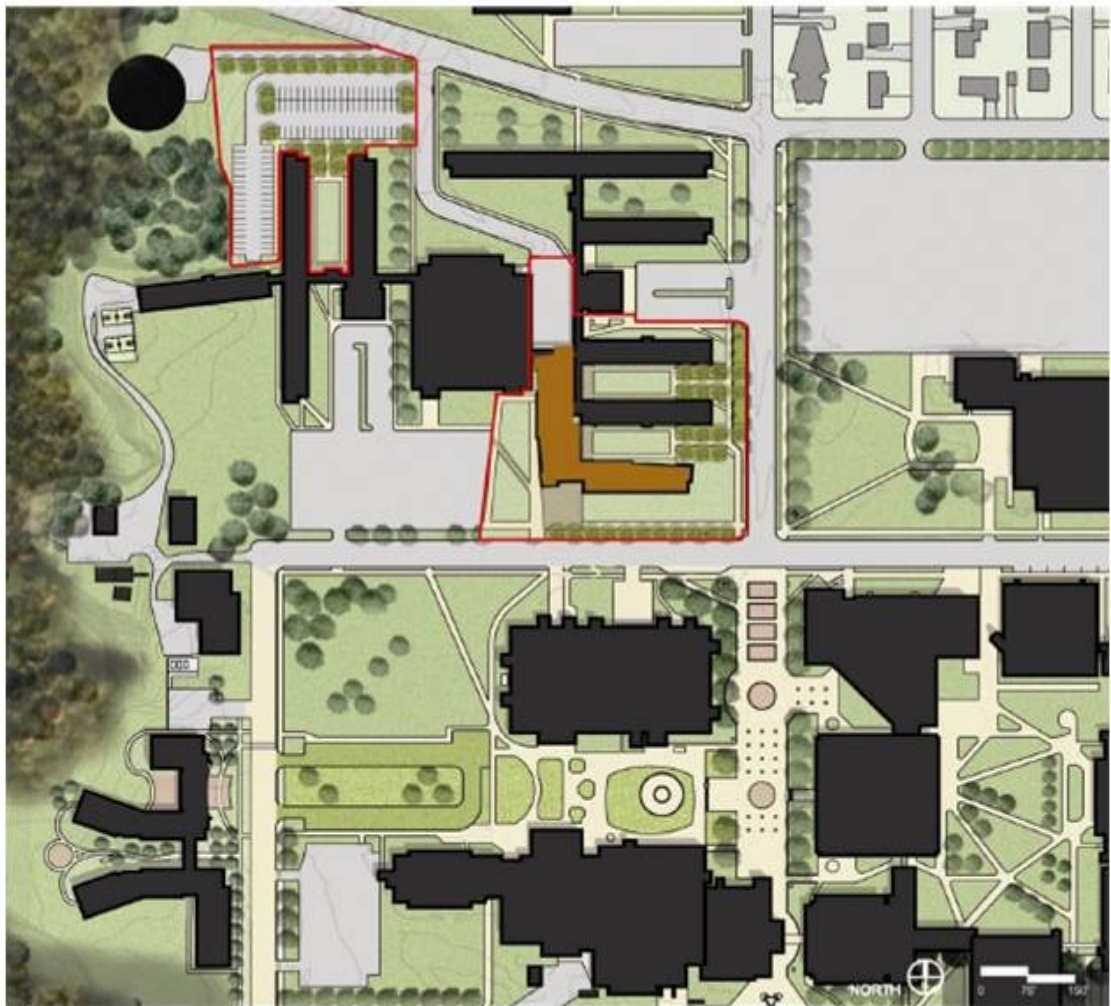


Figure 1: Renewal of the Residence Communities- Phase 2A- Margaret R. Preska

(http://www.MSU.edu/reslife/construction/renewal_of_the_residence_communities.html)



Figure 2: Renewal of the Residence Communities- Phase 2B- Dining and Health Services

(http://www.MSU.edu/reslife/construction/renewal_of_the_residence_communities.html)



Figure 3: Renewal of the Residence Communities- Phase 2C- New Residence Hall

(http://www.MSU.edu/reslife/construction/renewal_of_the_residence_communities.html)

Minnesota State University Mankato's plan reflects its enthusiasm to incorporate new urbanist design principle by including limited commercial activities in the planned future residence. But the scale is still inadequate to define it as a mixed-use student housing. Simultaneously privately owned housing around the university is leaning more to mixed-use housing as it allows high density residence and the developers can maximize their revenue by the retail uses. Students also prefer these residences as they are close to campus and they get the convenience of getting restaurants, bar, salon, courier etc. The university can look at the trend in the private housing for students and decide to bring variation in the current residence communities.

The research hypothesis was that there is significant financial benefit in mixed-use housing for students over traditional dormitory type housing.

3.4 Limitations

The research has several limitations. The first limitation is that the study is a comparative analysis between only two student housing units- one privately owned mixed-use student housing and the other a university owned suite-type student housing. Another limitation is that it does not consider other apartment type student housing. There are several apartment type student housing which provide housing to a large portion of the total student population. It also does not consider other types of residence halls.

3.5 Research Questions

4. Is privately owned mixed-use housing for students economically feasible?

- a. Rent required per square foot for the new Tailwind's mixed-use to pay-off the loan is low in the 'Acquisition based' pro forma.
 - b. Debt coverage ratio and default ratio indicates the security of the project.
5. Is University owned current residence hall economically feasible?
- a. Rent required per square foot for Julia Sears to pay-off the bond is low in the 'Acquisition based' pro forma.
 - b. Debt coverage ratio and default ratio indicates the security of the project.
6. Tagore residence community, assuming Julia Sears was mixed-use, will university owned mixed-use housing be economically feasible?
- a. Rent required per square foot for Tagore to pay-off the bond is low in the 'Acquisition based' pro forma.
 - b. Debt coverage ratio and default ratio indicates the security of the project.

3.6 Methodology

The study is based on pro forma analysis of Mankato-based developer Tailwind group's new mixed-use housing and University-owned Julia Sears residence community. An acquisition based Pro forma analysis was performed. The methodology of this study can be described in three steps:

1. An acquisition based pro forma has been performed for privately owned mixed-use housing or the Tailwind's project.

2. An acquisition based pro forma has been performed for MSU's campus residence Julia Sears.
3. An acquisition based pro forma has been performed for 'Tagore' residence community, to examine a case where a Julia Sears type residence is developed as a mixed-use campus residence.

Among all the University owned residences, Julia Sears was selected for the following two reasons:

- It is one of the two new residences
- The residence hall does not have many common functions other than a small dining hall.

The pro forma analysis has been done using an Excel Spreadsheet. The steps followed are described below:

- First step is to calculate the cost items. Cost items include acquisition cost, improvement cost, indirect cost and debt service. The acquisition cost refers to cost of acquiring land and existing buildings. Area refers to the gross square footage of the building. Leasable space ratio is calculated by subtracting the circulation area from total area. Improvement cost refers to the cost incurred by demolition of unwanted structures, improving existing structures and constructing new structures. Indirect cost refers to the costs that are not associated with the square footage of a property. Indirect cost includes architect and engineers' fee,

legal and accounting fees, leasing fees and cost associated with construction loan.

Total capital budget equals the sum of all costs.

- The next step is to determine total annual cost. It includes annual debt service, operating expense and real estate taxes. Debt service is the annual payment necessary to retire the principal and accumulated interest on a loan. Annual debt service can be obtained by multiplying loan principal to debt service rate. Debt service rate is determined by the following formula according to *Handbook of Real Estate Mathematics* (Kleeman, 1978).

$$\text{Debt Service Rate} = \text{Interest Rate} / (1 - [1 / \{1 + \text{Interest Rate}\}^{**n}])$$

n= number of years to repay the loan

- Third step is to obtain Return on Equity and Net Operating Income. Net operating Income is the income of a project after operating expenses are paid. That means it is the profit that is generated by a project. Return on Equity is the ratio of Net Operating Income to Owner's Equity. Gross Potential Income is also determined for calculation.
- Finally, Rent Required is obtained from the gross potential income and Net Leasable Space. This value shows how much the project has to charge per square feet.
- Debt Coverage ratio is also determined to estimate the security of a project. It is calculated by the ratio of Net Operating Income before Debt Service by debt Service. Debt Coverage Ratio is very important to the financial institutions.

- Default Ratio helps estimate the security of a project from owner's perspective. It is the ratio of Operating Cost and Gross Effective Income.

The steps described above have been followed for the three projects- Tailwind, Julia Sears and Tagore- for the purpose of this study.

3.7 Data Collection

The data required for the analysis has been collected from the authorities that are in charge of the projects. Private mixed-use housing data has been collected from Mr. Kyle Smith, Director of Strategic Development of the Tailwind Group. The data of Julia Sears have been collected from Minnesota State University Mankato's Residential Life Director Cynthia Janney and Budget Officer April Hornemann.

The Tailwind's project is under construction. Therefore the data they have provided are based on anticipated rent from retails and apartments. They have a construction loan of \$4,360,000 with an interest rate of 4.5% over the year of 20 years. Total construction cost is \$5,360,000.



Figure 4: Tailwind's mixed-use housing (Photograph- Smita Rakshit)



Figure 5: Julia Sears Residence Community (Photograph- Smita Rakshit)

The data of Julia Sears consist of data from both before after construction. Residential Life of MSU is the authority to facilitate campus residences. MSU is a member of Minnesota State Colleges and Universities (MnSCU) which authorizes bond for Campus residences, thus different from privately owned, developer built housings. For the construction of Julia Sears, MnSCU had issued a bond of \$34,840,000 for 20 years with an interest of 4.94%. Construction cost is approximately \$30,000,000. But the loan also covers debt service, capital interest etc.

3.8 Data Analysis

The data analysis of this study has been done by the researcher. Data were collected form authority with their permission to use them for this research. Confidentiality of the retailer's data provided by Tailwind group was maintained as requested.

Research question 1 has been designed to find the economic feasibility of the private mixed-use housing in Mankato. Question 1(a) finds out the required rent per square footage and the determined rent per square footage for profit. Question 1(b) determines if the project is secured by finding the debt coverage ratio and default ratio.

Research question 2 has been designed to find the economic feasibility of the Julia Sears hall in MSU. Question 2(a) finds out the required rent per square footage and the determined rent per square footage for profit. Question 2(b) determines out if the project is secured by finding the debt coverage ratio and default ratio.

Research question 3 has been designed to find the economic feasibility of a residence community assuming Julia Sears hall is mixed-use with retail facilities on the first floor

and student accommodation in upper floors. The gross area and the layout of the perceived residence have been assumed same as Julia Sears. The name has been perceived as 'Tagore Residence Community' for the purpose of study. Question 3(a) finds out the required rent per square footage and the determined rent per square footage for profit. Question 3(b) determines out if the project is secured by finding out the debt coverage ratio and default ratio.

3.9 Summary

This chapter is a description of the methods that have been utilized for pro forma analysis of Tailwind group's mixed-use housing and MSU's Julia Sears to find out what a mixed-use residence by MSU will perform.

4 DATA ANALYSIS

4.1 Introduction

The research is an endeavor to find out how a mixed-use campus residence performs in the current condition of Minnesota State University Mankato. In order to obtain the result, three research questions were examined:

1. Is privately owned mixed-use housing for students economically feasible?
 - a. Rent required per square foot for the new Tailwind's mixed-use to pay-off the loan is low in the 'Acquisition based' pro forma.
 - b. Debt coverage ratio and default ratio indicates the security of the project.
2. Is University owned current residence hall economically feasible?
 - a. Rent required per square foot for Julia Sears to pay-off the bond is low in the 'Acquisition based' pro forma.
 - b. Debt coverage ratio and default ratio indicates the security of the project.
3. Assuming Julia Sears was mixed-use, will university owned mixed-use housing be economically feasible?
 - a. Rent required per square foot for Julia Sears to pay-off the bond is low in the 'Acquisition based' pro forma.
 - b. Debt coverage ratio and default ratio indicates the security of the project.

4.2 Calculation

As mentioned earlier, the data used in the analysis has been collected from the authority in charge of the projects. The data of the assumed mixed-use campus residence, Tagore, have been derived from the data of Tailwind and Sears. For all three models, leasable space ratio has been set as 90% of the total area. This implies that 10% of the total area of a project is for circulation.

4.2.1 Pro forma model 1: Tailwind

Pro forma model 1 determines the rent required for profit in Tailwind's private mixed-use housing. The calculation is described as follows:

Gross Square Footage = 58,690 square feet

Leasable Space Ratio = 90% of the gross square feet (Standard circulation area 10%)

Mortgage Amount = \$4,360,000

Mortgage Loan Duration = 20 years

Mortgage Interest rate = 4.5%

Total **Construction Cost** of the project = \$5,360,000

Loan to Cost Ratio = $(4360000/5360000) = 0.08134$

Operating expense is the cost that is incurred to receive rent from a property. Operating expense include utilities such as electricity, water, heat etc., maintenance,

leasing fees etc. Real estate tax is the cost that a developer has to bear whether or not the property is generating income.

Operating Expenses = \$162,363.20

Real Estate Taxes = \$14,000

Expected vacancy rate = (Gross rental/Vacancy) = $421920/10548 = 0.025$

Required Return on Equity = 0.185

The acquisition cost of this model takes into account acquisition of existing retail, car wash and their closing costs. The costs are as follows:

Car wash- \$275,000

Retail Acquire- \$700,000

Closing Cost- \$15,000

Total Acquisition Cost = \$990,000

Improvement cost includes the cost of site improvement to build this project. Items in the improvement cost are:

Tear down car wash- \$25,000

Parking lot- \$100,000

Retail 1- \$100,000

Retail 2- \$65,000

Retail 3- \$\$225,000

Remainder retails- \$3,335,000

Total Improvement Cost = \$3,850,000

Indirect costs associated with the project-

Tenants Allowance = \$50,000

Leasing Commissions = \$30,000

Architect/ Engineer fee = \$125,000

Contingency = \$50,000

MRCI Move Money = \$30,000

Developer Fee = \$150,000

Total indirect cost = \$435,000

Indirect cost ratio = (435000/5360000) = 0.08

Acquisition costs	990000
Improvement costs	3850000
Indirect costs	308000
Total capital budget	5148000
Loan principal	4187383.2
Debt service rate	0.0769

Annual debt service	321909.875
Operating expenses	162360.2
Real estate taxes	14000
Total annual costs	498270.0752
Return on equity	177714.108
Net operating income	675984.1832
Gross potential income	692883.788
expected vacancy	0.025
net leasable space	52821
Rent required	13.118
Debt coverage ratio	2.01
Default ratio	0.719

Table 1: Model 1- Pro forma analysis of Tailwind project

Rent required for per square footage is \$13.12 for Tailwind. It implies that the project requires charging \$13.12 to cover its expenses. Debt coverage ratio between 1.10 to 1.5 is assumed to be acceptable to call a project secure. For Tailwind, debt coverage ratio is 2.01 which is high and shows the security of the project. Investors look for 8-12% return on a project. Tailwind project shows a return of $(100-71.9) = 20.9\%$ which solidifies the security of the project.

According to their data, Tailwind has set the rent \$18.70 per square feet which makes it a very profitable project.

4.2.2 Pro forma Model 2: Julia Sears

Pro forma model 2 is the analysis of Julia Sears residence community.

Gross Square Footage = 150275 square feet

Leasable Space Ratio = 90% of the gross square feet (Standard circulation area 10%)

MnSCU Bond Amount = \$34,840,000

Bond Duration = 20 years

Bond Interest rate = 4.94%

Total **Construction Cost** of the project = \$29,869,940

Bond amount from MnSCU is greater than the actual construction cost. The reason is that the bond amount covers debt service reserve, capitalized interest and cost of issuance. As the loan amount is equal to the total cost of the project,

Loan to Cost Ratio = 1.0

Department of Residential Life maintains the financial pro form for the entire residence community as a whole, not by separate communities. Therefore the operating expenses have been calculated based on the percentage of total area of residence communities.

Residence Community	Area	%
Crawford	241406	34%
McElroy	208763	29%
Sears	150375	21%
Preska	109773	15%
Total	710317	100%

Table 2: Percentage of area of Residence Communities of MSU

Operating expenditure			
	Employee services	4453789	935295.69
	Dining services	6292492	1321423.32
	Communications	826435	173551.35
	Fuel & utilities	1238218	260025.78
	Supplies & Equipment	477835	100345.35
	Other expenditure	658034	138187.14
	Total	13946803	2928828.63

Table 3: Calculation of Operating Expenditure of Julia Sears

Operating Expenses = \$2,928,828.63

Real Estate Taxes = \$0

As Julia Sears is a state property, it does not have to pay real-estate taxes.

Expected vacancy rate = 0.04

Residential Life assumes a vacancy rate of 3-4% for the whole which has been applied to Julia Sears.

Required Return on Equity = 0

Total Acquisition Cost = \$34,840,000

Total Improvement Cost = \$0

Total indirect cost = \$0

Indirect cost ratio = 0

Acquisition costs	34840000
Improvement costs	0
Indirect costs	0
Total capital budget	34840000
Loan principal	34840000
Debt service rate	0.079834867
Annual debt service	2781446.77
Operating expenses	2928828
Real estate taxes	0
Total annual costs	5710274.77
Return on equity	0
Net operating income	5710274.77
Gross potential income	5938685.77
expected vacancy	0.04
net leasable space	135247.5
Rent required	43.90976365
Debt coverage ratio	2.052987256
Default ratio	0.961538462

Table 4: Model 2- Pro forma analysis of Julia Sears

Rent required for per square footage is \$43.91 for Julia Sears. It implies that the project requires charging \$43.91 to cover its expenses. Debt coverage ratio is 2.01 which is high. Julia Sears project shows a return of $(100-96.1) = 3.9\%$ which is very low and they do not have to pay to any other organization other than MnSCU from the surplus.

4.2.3 Pro forma Model 3: Tagore

Pro forma model 3 is the analysis of assumed residence community Tagore. Tagore residence community is assumed to be the same gross area and number of floors as Julia

Sears. First floor is dedicated for retail and second, third, and fourth floor is dedicated for student living.

The analysis for Tagore has been in two steps: Tagore Residential and Tagore Commercial. The data of Residential model has been collected from Julia Sears and the ones of Commercial model has been collected from Tailwind. That means 75% of Julia Sears' hall is assumed as Residential use and 25% is assumed as commercial use.

Gross Square Footage = 112706.25 square feet

Area is 75% of the gross square footage of Julia Sears

Leasable Space Ratio = 90% of the gross square feet (Standard circulation area 10%)

MnSCU Bond Amount = \$34,840,000

Bond Duration = 20 years

Bond Interest rate = 4.94%

Mortgage loan duration and interest rate have been assumed same as Julia Sears.

Loan to Cost Ratio = 1.0

Operating Expenses = \$2196621

Operating expense is 75% of that of Julia Sears

Real Estate Taxes = \$0

Expected vacancy rate = 0.04

Required Return on Equity = 0

Total Acquisition Cost = \$26,130,000

75% of the acquisition cost of Julia Sears

Total Improvement Cost = \$0

Total indirect cost = \$0

Indirect cost ratio = 0

Acquisition costs	26130000
Improvement costs	0
Indirect costs	0
Total capital budget	26130000
Loan principal	26130000
Debt service rate	0.079834867
Annual debt service	2086085.077
Operating expenses	2196621
Real estate taxes	0
Total annual costs	4282706.077
Return on equity	0
Net operating income	4282706.077
Gross potential income	4454014.32
expected vacancy	0.04
net leasable space	101435.625

Table 5: Calculation of Items of Tagore- Residential

Tagore commercial takes into account 25% of Julia Sears and 33% of tailwind data for its calculation. 33% refers to data of commercial uses of first floor.

Gross Square Footage = 37568.75 square feet

Area is 25% of the gross square footage of Julia Sears

Leasable Space Ratio = 90% of the gross square feet (Standard circulation area 10%)

Bond Duration = 20 years

Bond Interest rate = 4.94%

Mortgage loan duration and interest rate have been assumed same as Julia Sears.

Loan to Cost Ratio = 0.8134

Loan to cost ratio is assumed same as Tailwind

Operating Expenses = \$53578.87

Operating expense is 33% of that of Tailwinds

Real Estate Taxes = \$4620

Real estate tax is 33% of Tailwind

Expected vacancy rate = 0.04

Required Return on Equity = 0.185

Same return on equity as Tailwind

Total Acquisition Cost = \$26,130,000

25% of the acquisition cost of Julia Sears

Total Improvement Cost = \$0

Total indirect cost = \$0

Indirect cost ratio = 0

Acquisition costs	1698840
Improvement costs	0
Indirect costs	0
Total capital budget	1698840
Loan principal	1381836.456
Debt service rate	0.079834867
Annual debt service	110318.7298
Operating expenses	53578.866
Real estate taxes	4620
Total annual costs	168517.5958
Return on equity	58645.65564
Net operating income	227163.2514
Gross potential income	236249.7815
expected vacancy	0.04
net leasable space	33811.875

Table 6: Calculation of Items of Tagore- Commercial

Following is the Pro Forma of Tagore residence community:

Acquisition costs	27828840
Improvement costs	0
Indirect costs	0
Total capital budget	27828840
Loan principal	22635978.46
Debt service rate	0.079834867
Annual debt service	1807140.331
Operating expenses	2250199.866
Real estate taxes	4620
Total annual costs	4061960.197
Return on equity	960679.3856
Net operating income	5022639.583
Gross potential income	5223545.166
expected vacancy	0.04
net leasable space	135247.5
Rent required	38.62211994
Debt coverage ratio	2.779330136
Default ratio	0.77762517

Table 7- Model 3- Pro Forma Analysis of Tagore Residence Community

Rent required for per square footage is \$38.62 for Tagore residence community. It implies that the project requires charging \$38.62 to cover its expenses. Debt coverage ratio is 2.01 which is high. Julia Sears project shows a return of $(100-77.8) = 22.2\%$ which is low and ensures the security of the project.

The calculation shows that if Julia Sears was built as a mixed-use campus residence, it could save $(43.91-38.62) = \$5.29$ per square feet. That brings additional revenue of \$794954.75 to the Department of Residential Life.

4.3 Analysis:

The calculation of the pro formas returns very interesting results. Tailwind requires charging \$18.00 per square feet to cover their operating expenses, debt service as well as profit. On the other hand, Julia Sears has to charge \$43.91 per square feet to meet operating expenses and the MnSCU bond. Required rent is high for residence communities because it has to include dining services and employee services. The Tailwind project does not have to include these services. In addition, the Tailwind project is of woodframe construction, while the Sears residence is poured concrete and brick—a more expensive, but also more durable, building.

In the case of Tagore, the residential part of the assumed mixed-use residence shows that rent per square feet is \$43.91 which is same as Julia Sears. On the other hand, commercial part of Tagore requires only \$38.62 per square feet which is extremely low. This means that Residential Life can construct a mixed-use campus residence with very low cost and pay the bond amount more quickly. Alternatively, the profit generated from the retail can be used by the Department of Residential Life or the university administration to subsidize other projects.

Answers to the research questions are discussed based on the calculation of the pro forma analysis:

1. Is privately owned mixed-use housing for students economically feasible?
 - Yes. The Tailwind group will charge \$18.00 per square feet on average for paying of their loan as well as to bring profit. Rent from retail ensures the

economic feasibility of the project. The project is still under construction and a number of restaurants have already leased. Yu's Chinese has started operating. Massad's and Subway have leased and their name is on the outdoor sign stand. The project is very close to campus and other off-campus housing. It can be predicted that many other restaurants will be interested in leasing space in the building. The University Square, an existing mixed-use structure, has 20 retail shops in operation which makes it successful.

- a. Rent required per square foot for the new Tailwind's mixed-use to pay off the loan is low in the 'Acquisition based' pro forma
 - Required rent per square feet is \$18.00 which is sufficient for paying off the construction loan of the project.
- b. Debt coverage ratio and default ratio indicates the security of the project
 - Yes. The debt coverage ratio of Tailwind is 2.01 and default ratio is 20.1% which indicates the security of the project.

2. Is University owned current residence hall economically feasible?

- Yes. Although rent required per square feet is \$43 it is still feasible because property is state-owned and MnSCU bond covers debt coverage. Residential Life provides significant services in the buildings which is one of the reasons for the rent per square feet being high.
- a. Rent required per square foot for Julia Sears to pay off the bond is low in the 'Acquisition based' pro forma

- Yes. Although required rent per square feet is high, it pays off the bond and interests.
 - b. Debt coverage ratio and default ratio indicates the security of the project
 - Debt coverage ratio is 2.01 and default ratio 3.9% shows the security of the project ensures the security of the project.
3. Assuming Julia Sears was mixed-use, would university owned mixed-use housing be economically feasible?
- a. Rent required per square foot for Tagore to pay off the bond is low in the ‘Acquisition based’ pro forma
 - Rent required for per square foot is \$38.62 for Tagore- residential and commercial combined. This is 12% less than the rent per square foot currently required.
 - b. Debt coverage ratio and default ratio indicates the security of the project
 - Debt coverage ratio is 2.78 and default ratio of 77.76% which ensures the security of the project.

The primary focus of this study is to analyze the Tagore Residence Community. The analysis shows that leasing the first floor to the retails can bring significant change in the university’s economy. The rent generated from retail can be used by Residential Life or the university as a whole. The rent required for the commercial use is less but it can influence the economy of the university and student life significantly.

There are some benefits from the rent generated from mixed-use that the Department of Residential Life can consider when planning for the next residence community. The benefits are described below:

- Providing commercial use in the first floor will be convenient for the students. Commercial use can include coffee shop, book store, local and chain restaurants, convenience stores, small grocery store, pharmacy etc. Having these commercial uses downstairs will save them time and provide greater amenity.
- Getting the commercial uses on campus will reduce the need to drive to these uses. This, in turn, helps reducing carbon-dioxide in the air. Thus Residential Life can help contribute to campus sustainability.
- Revenue generated from the retail can go to a Residential Life fund which can subsidize the room and board fee of the students. The lower room and board fee can attract a number of students to live on campus and thus bring more revenue to Residential Life.
- Mixed-use encourages compact development. Constructing a mixed-use campus residence will promote compact development on the campus.
- Residential Life's 20 year plan includes connecting the campus residences which will promote walkability. Mixed-use residence will promote walkability on campus. Thus it aligns perfectly with Residential Life's mission.

- Commercial uses of the mixed-use residence will be convenient for the off-campus students, too, as they can meet daily needs on campus.
- Commercial uses will encourage activity around the area. This will enhance interaction among the residential and commuter students.
- Increased activity will ensure security of the campus.
- Commercial uses will also generate more on-campus jobs.
- To summarize, mixed-use campus housing will ensure better quality of life.

4.4 Summary

The pro forma analysis has demonstrated that mixed-use campus residence is economically feasible in Minnesota State University Mankato. With a very low investment in commercial uses, the Department of Residential Life can bring change to the university that can be beneficial to the campus and the community. Besides having financial benefits, the mixed-use can help the university campus become more sustainable, vibrant, interactive and secure. It will help promote walkability and thus decrease dependence on the automobile for daily needs and recreation. Residential Life has already started to lean toward mixed-use housing by building Margaret Preska Residence Community with few common functions on the first floor. This analysis can help the department to bring more New Urbanism principles into campus.

5. RECOMMENDATION AND CONCLUSION

5.1 Introduction:

The analysis has given positive result as expected. Mixed-use campus residence would perform wonderfully at Minnesota State University Mankato. The university has a number of residence communities which have state-of-the-art facilities and plans to build new residence communities in the future. The 20 year master plan by Residential Life includes another building accommodating 320 students with a number of public functions on the first floor. The functions include convenience store, grill, a Student Leadership Resource Center, Crawford residence's front desk and Residential Life office. The residence is expected to be completed by 2020. The plan clearly indicates the intention to incorporate New Urbanist principles on campus. This will bring all the residence halls together in a central location and enhance the character of the campus. Gage Residence Community, which was considerably removed from the other residence communities, has been demolished with an intention to bring all the residence communities together and promote a higher quality academic environment for the students. Margaret Preska Hall has already incorporated some public functions on first floor such as classrooms, offices and gathering spaces with accommodations on the second, third and fourth floor. Therefore a mixed-use residence community is unquestionably the future residence style that the Residential Life will consider in future. Bringing more commercial uses will be not only economically beneficial for MSU Mankato but also will help the community as a whole with a more vibrant campus.

5.2 Implication of the Study

The study will be helpful for the Department of Residential Life for determining future residence halls for Minnesota State University Mankato. Residence halls are state properties and are granted MnSCU bonds to construct new on-campus residences. The bond not only covers the construction cost but also covers debt service, capitalized interest and cost of issuance. Residential Life also ensures state-of-the-art facilities in the residence communities and long life for its buildings. Therefore, mixed-use residence will have huge impact on the community. As the department is considering placing public functions on the first floor of the new residence communities, this study will help them to realize the financial benefit that will be possible with mixed-use residences. The additional revenue will be valuable for lowering fees related to on-campus living and enrollment fees.

Mixed-use residences will also pave the way for public-private partnership on campus by allowing retailers to run businesses there. Minnesota State University Mankato only has few chain businesses running on campus. For example, Barnes and Noble Bookstore, chain restaurants such as Chic-fill-a, Taco Bell and private Chinese restaurant Mein Bowl. Mixed-use will encourage more business to come into the campus for the students' convenience as well as build strong public-private partnership. The advantages of having commercial uses in the complex of campus residences will serve the students living on campus, commuter students, and the whole community.

5.3 Recommendation for Further Study

This study only considers two different student housing residences for comparing financial data to determine the feasibility of mixed-use residence for students on campus. The study affirms the financial feasibility of new urbanist residence. Investment in commercial uses will bring positive change to character of the campus and will make it more vibrant. But there is scope for further research in this area.

The concept of having mixed-use campus residence is comparatively new and the large universities have started to adopt this style of housing. A few examples have been discussed in the ‘Literature Review’ section such as Ohio State University, University of Pennsylvania, South 40 Village of Washington University in St. Louis. The University of Nebraska Lincoln has adopted plan to build mixed-use student housing. Minnesota State University Mankato is following that trend to infuse public functions in the new and upcoming residence communities. Residential Life can study these examples to make a successful new urbanist campus residence.

- The study only focuses on the financial analysis of mixed-use housing for students. In addition to that mixed-use housing has a number of environmental benefits which have been discussed in the ‘Literature Review’ sections. A next step of the study could focus on the sustainability and impact on environment.
- Compact development is one of the most important aspects of mixed-use. Compact development encourages land conservation by reducing building footprint and the dependence of automobile by providing uses close to living

areas. Future study can also bring out how land can be conserved by having mixed-use housing.

- Minnesota State University Mankato has expanded its existing bus route to serve the maximum number of students. Bus service is free for the enrolled students and has proven to be the most efficient way to travel to and from the campus within Mankato. This trend also indicates the University's endeavor to promote sustainability on campus. Mixed-use campus housing will certainly contribute to sustainability on campus.
- Another scope of the study remains in assessing the satisfaction of the students living in privately owned mixed-use housing and current residence halls. Further surveys can also search for the uses that the students would like to see on campus. The study will give direction to which uses are preferred and which are not on campus. By doing this, Residential Life can determine student's desired uses on campus to make a successful new urbanist campus residence.
- Affordability is an important consideration for Residential Life. Future study can determine how much the revenue generated from the commercial uses can subsidize fees associated with on-campus living. This will be a very important aspect of the mixed-use campus residence that can benefit the student community.

5.4 Conclusion

Although the study has some limitation, it is relevant to Residential Life at Minnesota State University Mankato. New urbanism is the movement that the United States is trying to follow to address sprawl and promote more compact development. Big cities are encouraging people to adopt transit to reduce the pressure on individually occupied automobiles and to commute by bus, light rail and other transits. Mixed-use developments are being encouraged around transit lines and becoming successful. Universities are also following this trend and trying to promote sustainability by taking a number of energy-saving measures. The next step is to adopt principles of new urbanism in planning the campus and making sustainable choices.

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APPENDIX A

DATA OF TAILWIND

TAILWIND group

Property Location	University - Monks and Stadium Road
Type	Mixed use
Units	
Configuration	Retail / Multifamily

REVENUES

		<u>Yr 1</u>				
Gross Rents						
Retail	SF	Rate		% of Rev.	Per BR	Per BR / Month
	2,187	\$ 20.58	\$ 45,008.46	7.07%		
	2,371	\$ 18.00	\$ 42,678.00	6.70%		
	3,000	\$ 16.50	\$ 49,500.00	7.77%		
	2,421	\$ 19.45	\$ 47,088.45	7.39%		
	1,759	\$ 20.00	\$ 35,180.00	5.52%		
	11,738	\$ 18.70	\$ 219,454.91	34.46%		
			\$ 6,000.00	0.94%		
Apartments						
1 BR	1	\$ 700.00	\$ 8,400.00	1.32%	8,400.00	700.00
2 BR, 2 BA	8	\$ 550.00	\$ 52,800.00	8.29%	6,600.00	550.00
3 BR, 3 BA	36	\$ 515.00	\$ 222,480.00	34.94%	6,180.00	515.00
4 BR, 3 BA	24	\$ 480.00	\$ 138,240.00	21.71%	5,760.00	480.00
Gross Rental	69		\$ 421,920.00	66.25%	6,114.78	509.57
Vacancy / Concessions			\$ (10,548.00)	-1.66%		
Total Rental Revenue			\$ 636,826.91	100.00%		
CAM	11,738	\$ 3.54	\$ 41,500.00			
Net Revenue			\$ 678,326.91			

EXPENSES

CAM ITEMS						
Real Estate Taxes		\$	45,000.00	7.07%	652.17	54.35
Insurance		\$	14,000.00	2.20%	202.90	16.91
Rubbish		\$	12,000.00	1.88%	173.91	14.49
Snow Removal		\$	10,000.00	1.57%	144.93	12.08
Management fee		\$	2,000.00	0.31%	28.99	2.42
Total CAM		\$	83,000.00	13.03%	1,202.90	100.24
Management fee		\$	16,876.80	2.65%	244.59	20.38
Parking Rent		\$	6,500.00	1.02%	94.20	7.85
Electric		\$	2,400.00	0.38%	34.78	2.90
Water-Sewer		\$	1,200.00	0.19%	17.39	1.45
Internet		\$	10,900.00	1.71%	157.97	13.16
Cleaning		\$	3,600.00	0.57%	52.17	4.35
Maintenance-Repairs		\$	20,028.80	3.15%	290.27	24.19
Leasing Comissions		\$	12,657.60	1.99%	183.44	15.29
Reserves		\$	5,200.00	0.82%	75.36	6.28
TOTAL EXPENSES		\$	162,363.20	25.50%	2,353.09	196.09
NET OPERATING INCOME		\$	515,963.71	81.02%	\$7,477.73	623.14

1ST Mortgage annual P+I	\$	\$331,002.15
DSCR 1st Mortgage		1.54X
Excess Cash Flow	\$	184,961.6

Bank Loan To Value

Mortgage Amount:	4,360,000
Interest Rate:	4.50%
Amortization (Years):	20
Market Value	\$ 6,879,516.1
LTV	63.38%

TAILWIND
group**Source and Use**

Source		
Tailwind Group	\$	250,000
Limited Partners	\$	750,000
Bank Financing	\$	4,360,000
Total Sources of Funds	\$	5,360,000
Use		
Total Cost	\$	5,360,000
Total Uses of Funds	\$	5,360,000

TAILWIND group

Project Cost

Acquisition	SF	Per SF		
Car Wash			\$	275,000
Retail Acquire			\$	700,000
Closing Costs			\$	15,000
Total Acquisition Costs			\$	990,000
Construction				
Alliance Bid				
Tear down Car Wash			\$	25,000
Parking Lot			\$	100,000
Yu's			\$	100,000
Massads			\$	65,000
White Box			\$	225,000
Remainder of Bid			\$	3,335,000
Total Alliance (Improvement)			\$	3,850,000
Tenants Allowance			\$	50,000
Leasing Commissions			\$	30,000
Architect / Engineer			\$	125,000
Contingency			\$	50,000
MRCI Move Money			\$	30,000
Developer Fee			\$	150,000
Interest Reserve			\$	85,000
Total			\$	4,370,000
Total Construction Cost			\$	5,360,000

TAILWIND group

REVENUES	8/13-7/14	8/14-7/15	8/15-7/16	8/16-7/17	8/17-7/18	8/18-7/19	8/19-7/20
Net Revenue	\$ 678,327	\$ 685,110	\$ 691,961	\$ 698,881	\$ 705,870	\$ 712,928	\$ 720,058
TOTAL EXPENSES	\$ 162,363	\$ 184,980	\$ 186,830	\$ 188,698	\$ 190,585	\$ 192,491	\$ 194,416
NET OPERATING INCOME	\$ 515,964	\$ 500,130	\$ 505,132	\$ 510,183	\$ 515,285	\$ 520,438	\$ 525,642
1ST Mortgage annual P+H	\$ 331,002	\$ 331,002	\$ 331,002	\$ 331,002	\$ 331,002	\$ 331,002	\$ 331,002
Excess Cash Flow	\$ 184,962	\$ 169,128	\$ 174,130	\$ 179,181	\$ 184,283	\$ 189,436	\$ 194,640

Tailwind Holdings II, LLC	
- Percent of Project Cash Flow	25.00%
	\$ 46,240.4
	\$ 42,282.1
	\$ 43,532.4
	\$ 44,795.2
	\$ 46,070.7
	\$ 47,358.9
	\$ 48,660.0

Preferred Return Potential	
Investment	\$ 150,000
Cash Flow Return	\$ 13,500
- 9.0% Preferred	\$ 3,274
- 10% Potential Additional	\$ 2,878
Total Return	\$ 16,774
Annual Cash Flow ROI	11.18%
	10.92%
	11.00%
	11.09%
	11.17%
	11.26%
	11.34%

Project Value (7.5 Cap Rate)	\$ 6,879,516	\$ 6,668,406	\$ 6,735,090	\$ 6,802,441	\$ 6,870,465	\$ 6,939,170	\$ 7,008,561
Debt	\$ 3,850,000	\$ 3,714,000	\$ 3,583,000	\$ 3,447,000	\$ 3,317,000	\$ 3,156,000	\$ 3,014,000
Original Equity	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000
Total Project Gain							\$ 2,994,561
Potential Gain on Sale							\$ 449,184.22

Internal Rate of Return (8 year sell)	24.09%
--	---------------

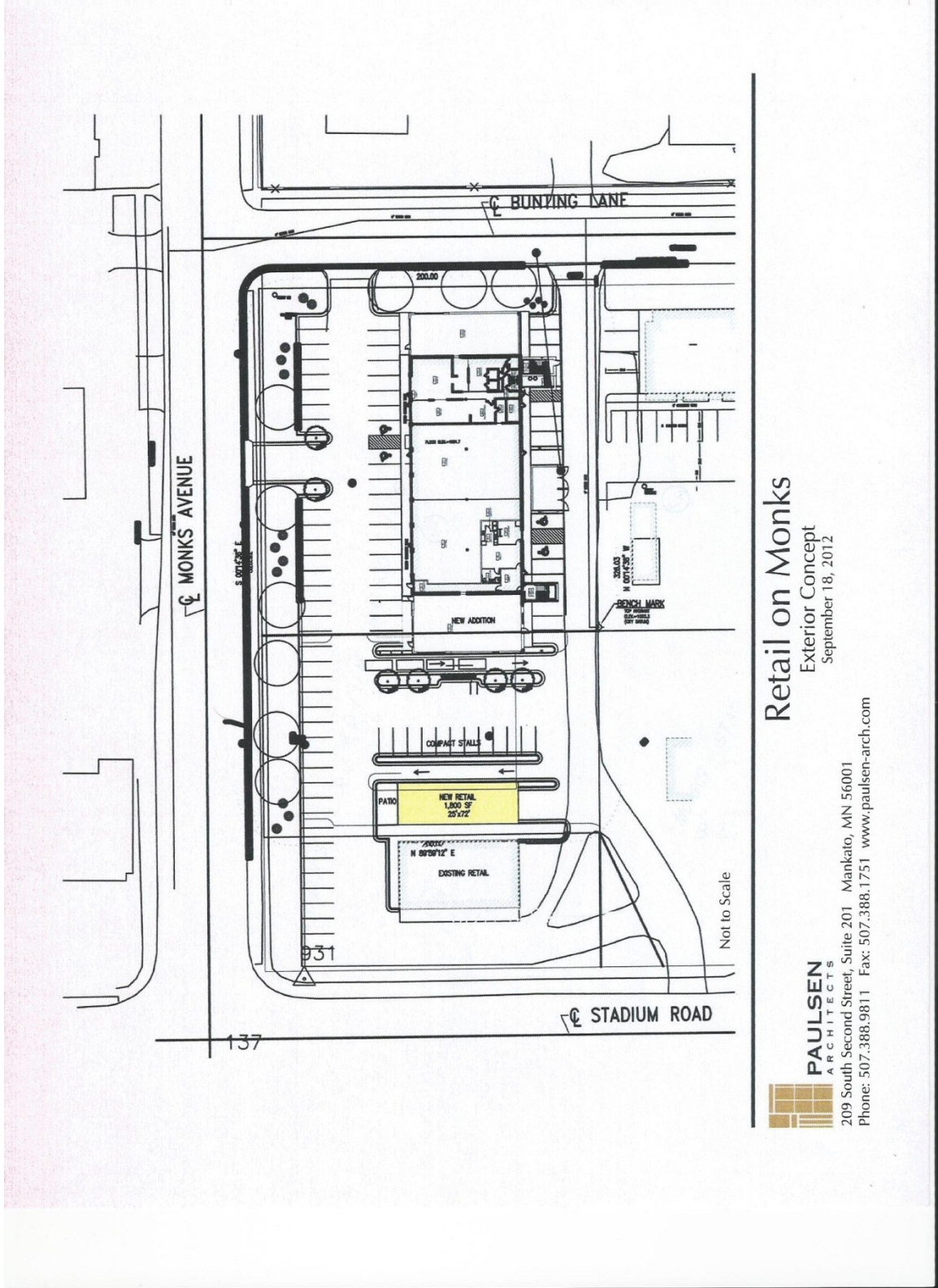
*The information contained herein has been obtained from reliable sources, and has been completed with the utmost interest of complete accuracy. However, Tailwind Group makes no warranty or representation as to its accuracy or completeness. Reader must review and make informed decision regarding the accuracy of this investment summary.

Tailwind Group • 530 South Front Street • Suite 100 • Mankato, MN 56001 • www.thetailwindgroup.com

TAILWIND group

REVENUES	8/13-7/14	8/14-7/15	8/15-7/16	8/16-7/17	8/17-7/18	8/18-7/19	8/19-7/20
Net Revenue	\$ 678,327	\$ 685,110	\$ 691,961	\$ 698,881	\$ 705,870	\$ 712,928	\$ 720,058
TOTAL EXPENSES	\$ 162,363	\$ 184,980	\$ 186,830	\$ 188,698	\$ 190,585	\$ 192,491	\$ 194,416
NET OPERATING INCOME	\$ 515,964	\$ 500,130	\$ 505,132	\$ 510,183	\$ 515,285	\$ 520,438	\$ 525,642
1ST Mortgage annual P+I	\$ 331,002	\$ 331,002	\$ 331,002	\$ 331,002	\$ 331,002	\$ 331,002	\$ 331,002
Excess Cash Flow	\$ 184,962	\$ 169,128	\$ 174,130	\$ 179,181	\$ 184,283	\$ 189,436	\$ 194,640
Dahl Cash Flow - 50 % of project Cash Flow	\$ 92,480.8	\$ 84,564.1	\$ 87,064.8	\$ 89,590.4	\$ 92,141.4	\$ 94,717.8	\$ 97,320.0
Dahl Potential Return Investment	\$ 500,000						
Cash Flow Return	\$ 92,481	\$ 84,564	\$ 87,065	\$ 89,590	\$ 92,141	\$ 94,718	\$ 97,320
Annual Return	\$ 92,481	\$ 84,564	\$ 87,065	\$ 89,590	\$ 92,141	\$ 94,718	\$ 97,320
Annual Cash Flow ROI	18.50%	16.91%	17.41%	17.92%	18.43%	18.94%	19.46%
Project Value (7.5 Cap Rate)	\$ 6,879,516	\$ 6,668,406	\$ 6,735,090	\$ 6,802,441	\$ 6,870,465	\$ 6,939,170	\$ 7,008,561
Debt	\$ 3,850,000	\$ 3,714,000	\$ 3,583,000	\$ 3,447,000	\$ 3,317,000	\$ 3,156,000	\$ 3,014,000
Original Equity	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000	\$ 1,000,000
Total Project Gain							\$ 2,994,561
Potential Gain on Sale Dahl (50%)							\$ 1,497,280.73
Internal Rate of Return (8 year sell)	27.33%						

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Retail on Monks

Exterior Concept
September 18, 2012



209 South Second Street, Suite 201 Mankato, MN 56001
Phone: 507.388.9811 Fax: 507.388.1751 www.paulsen-arch.com



Retail on Monks

Exterior Concept
September 18, 2012



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ARCHITECTS

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Retail on Monks

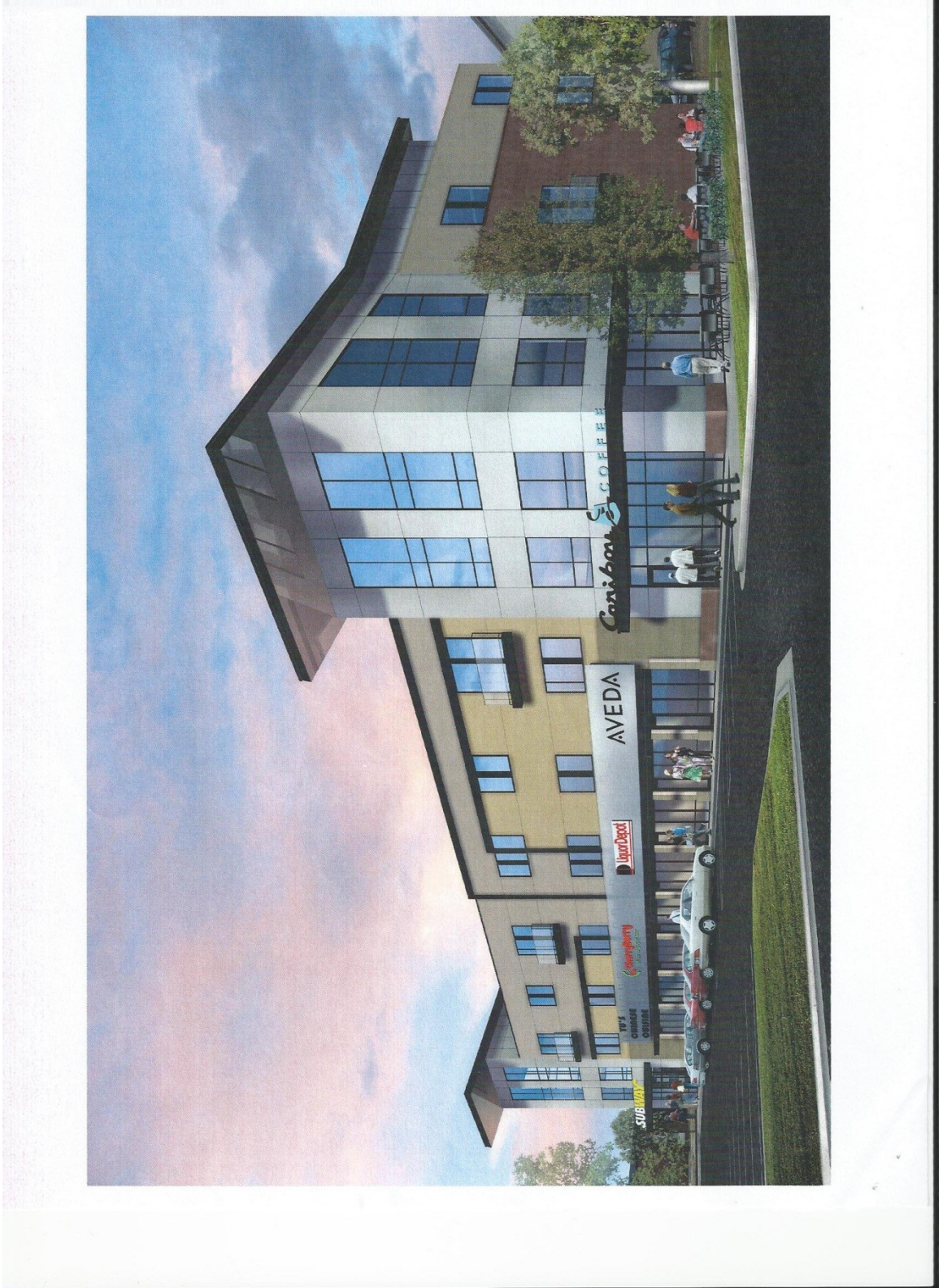
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APPENDIX B

DATA OF JULIA SEARS

Minnesota State University, Mankato
Residential Life
Master Plan - Financial Proforma
Phase II

	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22
OPERATING REVENUE													
Board	13,353,999	15,068,506	15,688,685	12,490,463	13,101,399	13,725,069	14,281,278	14,861,126	15,474,105	16,115,182	16,803,188	17,550,053	18,322,856
• Privatized Housing Operations	5,899,267	6,594,138	7,032,760	5,162,427	5,474,618	5,744,618	6,033,029	6,335,628	6,652,408	6,985,740	7,335,615	7,694,594	7,643,775
Reinbursements	0	0	0	0	0	0	0	0	0	0	0	0	0
Commissions	511,117	43,496	38,276	29,473	30,664	30,664	31,277	31,903	32,541	33,191	33,855	34,532	35,223
Summer Conferences	107,959	51,865	34,807	22,713	20,774	19,550	18,274	17,049	15,874	14,700	13,576	12,501	11,477
• Other Revenue	376,081	390,238	314,807	320,297	327,213	333,257	338,341	343,473	348,645	353,857	359,110	364,405	369,740
Capitalized Interest & Transfers	1,540,475	1,540,475	1,540,475	1,540,475	1,540,475	1,540,475	1,540,475	1,540,475	1,540,475	1,540,475	1,540,475	1,540,475	1,540,475
Interest Income	242,116	259,486	292,568	271,961	277,400	1,044,641	1,010,299	1,016,071	1,021,959	1,027,964	1,034,090	1,040,338	1,046,710
• Other	882,858	966,656	82,858	75,906	79,239	85,231	88,238	92,578	96,408	100,417	97,094	100,576	104,119
Capitalized Interest & Transfers	0	0	0	0	0	0	0	0	0	0	0	0	0
• Other	2,446,594	22,656,811	32,638,010	30,310,483	31,209,711	24,984,233	25,962,969	24,780,048	23,805,274	26,678,352	25,988,762	26,020,020	27,869,302
TOTAL OPERATING REVENUE													
4,453,328	4,453,328	4,453,789	4,453,789	4,453,789	4,453,789	4,453,789	4,453,789	4,453,789	4,453,789	4,453,789	4,453,789	4,453,789	4,453,789
5,588,333	5,588,333	5,588,402	5,588,402	5,588,402	5,588,402	5,588,402	5,588,402	5,588,402	5,588,402	5,588,402	5,588,402	5,588,402	5,588,402
796,964	796,964	807,634	807,634	807,634	807,634	807,634	807,634	807,634	807,634	807,634	807,634	807,634	807,634
1,062,445	1,062,445	1,062,445	1,062,445	1,062,445	1,062,445	1,062,445	1,062,445	1,062,445	1,062,445	1,062,445	1,062,445	1,062,445	1,062,445
533,886	533,886	533,886	533,886	533,886	533,886	533,886	533,886	533,886	533,886	533,886	533,886	533,886	533,886
637,675	637,675	637,675	637,675	637,675	637,675	637,675	637,675	637,675	637,675	637,675	637,675	637,675	637,675
13,098,987	13,098,987	13,098,987	13,098,987	13,098,987	13,098,987	13,098,987	13,098,987	13,098,987	13,098,987	13,098,987	13,098,987	13,098,987	13,098,987
64,08%	64,08%	64,08%	64,08%	64,08%	64,08%	64,08%	64,08%	64,08%	64,08%	64,08%	64,08%	64,08%	64,08%
7,541,607	7,541,607	7,541,607	7,541,607	7,541,607	7,541,607	7,541,607	7,541,607	7,541,607	7,541,607	7,541,607	7,541,607	7,541,607	7,541,607
2,564,342	2,564,342	2,564,342	2,564,342	2,564,342	2,564,342	2,564,342	2,564,342	2,564,342	2,564,342	2,564,342	2,564,342	2,564,342	2,564,342
110,056	110,056	110,056	110,056	110,056	110,056	110,056	110,056	110,056	110,056	110,056	110,056	110,056	110,056
200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
899,000	899,000	899,000	899,000	899,000	899,000	899,000	899,000	899,000	899,000	899,000	899,000	899,000	899,000
3,773,398	3,773,398	3,773,398	3,773,398	3,773,398	3,773,398	3,773,398	3,773,398	3,773,398	3,773,398	3,773,398	3,773,398	3,773,398	3,773,398
3,568,309	3,568,309	3,568,309	3,568,309	3,568,309	3,568,309	3,568,309	3,568,309	3,568,309	3,568,309	3,568,309	3,568,309	3,568,309	3,568,309
8842,452	8842,452	7,671,504	4,912,021	7,988,311	4,128,873	3,355,727	4,636,637	7,338,721	6,255,404	6,540,150	5,982,226	5,392,421	4,713,077
3,568,309	3,568,309	5,270,217	5,961,053	7,483,113	4,128,873	2,280,910	2,702,084	3,833,177	5,254,249	6,540,150	7,744,552	9,132,894	10,622,232
(1,817,664)	(1,817,664)	(1,996,753)	(1,833,578)	(2,132,802)	(2,194,453)	(2,263,444)	(2,339,691)	(2,398,804)	(2,471,183)	(2,546,881)	(2,624,474)	(2,704,804)	(2,789,542)
0	0	0	0	0	0	0	0	0	0	0	0	0	0
(3,341,896)	(3,341,896)	(699,947)	(2,288,426)	(2,213,016)	(2,000,000)	(1,000,000)	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0
6,188,501	6,188,501	5,011,288	5,722,056	7,992,981	1,162,273	2,373,193	5,009,120	4,356,600	4,068,965	3,435,345	3,176,634	2,416,293	2,139,540
13,88%	13,88%	14,12%	13,15%	15,82%	15,68%	15,56%	15,42%	15,29%	15,16%	15,04%	13,86%	13,57%	14,03%
2,86	2,86	4,55	3,78	1,41	1,51	1,57	1,57	1,48	1,37	1,18	1,19	1,26	1,32
0,87	0,87	1,01	1,15	0,80	0,86	1,24	1,29	1,08	1,13	1,18	1,19	1,26	1,32

v69 includes health services-updated cost
Gauge Demo: \$4,867,215; Rick covering \$2 million. Res. Life Reserves \$1 Million. Res. Life bonding balance.
5/29/2013

separate income from housing rental

Mankato Residential Life Financial Planning
February 7, 2013
Page 1

Mankato Residential Life Master Plan Executive Summary

The goal of the Mankato Housing Master Plan is to create a housing system that is capable of satisfying the needs of the 21st century student, re-invests in that system in a responsible manner, supports the institution's enrollment management goals, and addresses a historic backlog of maintenance.

This narrative describes implementation of Phase 2A (light orange) and 2B (mid orange) and should be read in conjunction with proforma v59 Res Life Dining & Health 20 yr.

New Construction & Demolition Cost Summary

Project	Square Feet	Online	Estimate	Escalation to midpoint	Total project cost	Construction cost	Construction Cost per	
							SF	Bed
<i>version 59</i>								
Julia Sears 608 beds	150,275	Fall 2008	Actual	--	29,869,940	25,665,939	171	42,214
Preska 300 beds & FYE	118,964	Fall 2012	--	--	29,925,000	25,795,670	182	
Gage Demo	(272,788)	Summer 2013	6,041,000		6,041,000	--	--	--
<i>Res. Life Dining & Health 20 yr.</i>	<i>Assuming 20 year bonding</i>							
Res Life Dining 20 yr	60,614	Fall 2017	26,664,406	4,135,649	30,800,055			--
Phase 2B Health	13,006	Fall 2017	5,849,394	907,241	6,756,635			--
V59 Res Life Dining & Health 20 yr Total	73,620	Fall 2017	32,513,800	5,042,890	37,566,690	30,380,978 (escalated)	413	--
<i>Res Life Dining Health + 2C 20yr</i>	<i>future planning not modeled</i>							
Carkoski Demo	(78,890)		1,061,000	Included below	Included below	Included below	--	--
Res Life Dining & Health + 2c 330 beds & Res Life	124,192	Fall 2020	38,679,100	16,144,656	54,823,756	\$42,254,678.	340	

* Demolition estimate from Paul Corcoran on February 20, 2012, Mankato, in 2012 dollars.

Cindy

MSU, Mankato – Sears Hall
Financial Narrative

*more some
3 project
budget
proceeds*

*Budget 1
2
3
4 (Dec 2006)*

Capitalized Interest – the money borrowed to pay interest on bond payments prior to completion of the project. This money earns interest. The interest is projected to be \$205,000.

Project Fund – the money that was bonded for the project, based on the flawed original capital submission plan (plus \$1 million contribution from Res Life, Mankato). This fund earns interest. *(The \$31.7 million project cost on the flawed capital submission plan reconciles w/ the bonding request of \$30.7 million and Res Life contribution of \$1 million shown on the final post sale summary sheet for 2005 bond proceeds.)*

“Construction interest” is currently \$1,753,134 (as of March 5, 2007) and is projected to total \$3,108,000. This money is to be expended on the project (verbal confirmation from Board Council per MnSCU.) The money was not planned as revenue or expenditure. The interest payments are being recorded in the system as they are received on campus.

Construction Interest Plan

	<u>Expenses</u>	<u>Revenue</u>	<u>Balance</u>
FY07	839,281	1,700,000	860,719
FY08	1,664,000	1,036,000	232,719
FY09		536,000	768,719

Debt Service Reserve = One year of debt service payment, \$2,492,407, to be held by the trustee for the life of the debt service. This reserve can be used for the final debt service payment in 2032. This fund earns interest annually.

Debt Service Reserve Interest – The annual interest projection is \$123,000. Sieglinde proposes that the interest stays at OOC, paying the annual Mankato fund assessment fee, which is currently \$100,000. Mankato proposes that the \$123,000 flows to Mankato annually through 2032, and that we continue to pay the assessment as a separate transaction.

April 2008 Interest Payment of \$839,281 due from Mankato to OOC on March 2007. This was not planned for payment by the campus until April 2008 due to Springsted's documents not reflecting the bond covenant requirement of one year advance payment. This payment was made from the construction interest.

October 2008 Debt Service Payments = \$800,000 (Principle); \$839,281 (Interest)

March 2009 Debt Service Payments = \$825,281 (Interest)

Principle of \$800,000 to be paid out of Res Life Operating Funds in FY08

Interest of \$1,664,562 to be paid out of construction interest in FY08

Residence Hall Disbursement Schedule – created by Facilities. Budget submitted on campus to bond cost center 895076 based on the totals.

ALL FUNDS

<u>Expenses</u>		<u>Revenue</u>	
\$29,600,000	Project Budget #4	\$30,700,000	Project Fund
<u>2,503,843</u>	Interest Pymts	3,108,000	Construction Interest <i>Anticipated</i>
		<u>205,000</u>	Interest on Capitalized Interest <i>Anticipated</i>
\$32,103,843		\$34,013,000	TOTAL

\$1,909,157 not planned

*4/1/08
10/1/08
4/1/09* *Interest payments - paid out of construction interest fund.*

Final

\$41,930,000

Minnesota State Colleges and Universities
Revenue Fund Bonds Series 2005A
October 20, 2005

Post Sale Summary

Dated 10/20/2005 | Delivered 10/20/2005

	MSU Mankato net \$30.720	St. Cloud State net \$4.7	Winona net \$2.0	Issue Summary
Sources Of Funds				
For Amount of Bonds.....	\$34,840,000.00	\$4,865,000.00	\$2,225,000.00	\$41,930,000.00
Revolving Premium.....	1,740,227.25	282,917.80	73,826.80	2,276,973.85
Total Sources.....	\$36,780,227.25	\$5,127,917.80	\$2,298,826.80	\$44,206,973.85
Uses Of Funds				
Deposit to Project Construction Fund.....	30,720,000.00	4,700,000.00	2,000,000.00	37,420,000.00
Deposit to Capitalized Interest (CIF) Fund.....	3,268,534.20	-	-	3,268,534.20
Deposit to Debt Service Reserve Fund (DSRF).....	2,492,407.52	388,579.08	280,763.40	3,161,750.00
Gross Bond Insurance Premium.....	122,236.20	14,505.64	5,256.16	142,000.00
Costs of Issuance.....	93,288.70	12,503.05	5,718.25	111,510.00
Total Underwriter's Discount (0.236%).....	82,120.48	11,467.17	5,244.49	98,832.14
Rounding Amount.....	1,640.15	862.96	1,844.50	4,347.51
Total Uses.....	\$36,780,227.25	\$5,127,917.80	\$2,298,826.80	\$44,206,973.85

Flow of Funds Detail

State and Local Government Series (SLGS) rates for.....				
Date of OMP Candidates.....				
Primary Purpose Fund Solution Method.....	Gross Funded	Gross Funded	Gross Funded	Gross Funded
Total Cost of Investments.....	\$30,720,000.00	\$4,700,000.00	\$2,000,000.00	\$37,420,000.00
Total Draws.....	\$30,720,000.00	\$4,700,000.00	\$2,000,000.00	\$37,420,000.00
Capitalized Interest Fund Solution Method.....	Gross Funded	Gross Funded	Gross Funded	Gross Funded
Original Bond Proceeds.....	3,268,534.20	-	-	3,268,534.20
Accrued Interest.....	-	-	-	-
Total Draws.....	\$3,268,534.20	-	-	\$3,268,534.20
Debt Service Reserve Fund Solution Method.....	Gross Funded	Gross Funded	Gross Funded	Gross Funded
Total Cost of Investments.....	\$2,492,407.52	\$388,579.08	\$280,763.40	\$3,161,750.00
Total Draws.....	\$2,492,407.52	\$388,579.08	\$280,763.40	\$3,161,750.00

PV Analysis Summary (Net to Net)

Net Present Value Benefit.....	-	-	-	-
Net PV Benefit / - Refunded Principal.....	-	-	-	-
Net PV Benefit / - Refunding Principal.....	-	-	-	-

Bond Statistics

Average Life.....	17.071 Years	11.745 Years	5.785 Years	15.965 Years
Average Coupon.....	4.3435194%	4.9078156%	4.2724752%	4.0233256%
Net Interest Cost (NIC).....	4.1338557%	4.4196312%	3.7578118%	4.6101637%
Bond Yield for All Usage Purposes.....	4.1670167%	4.1670167%	4.1670167%	4.1670167%
Total Interest Cost (TIC).....	4.4677147%	4.1413693%	3.1307710%	4.4482276%
All Inclusive Cost (AIC).....	4.7170781%	4.1327715%	3.7348971%	4.4712597%

Springsted

College Planning & Management magazine

College Planning & M
Annual Residence I

*Cindy
There are 2008
cost based
on units from
843076.
→
JM*

Name of College/University:

Residence hall identification (Name) Julia Sears

1. The residence hall was (will be) opened what year? 2008

2. How many students will be accommodated? 610

3. What is the size of the building? 150275 (Sq. ft.)

4. What is the cost of the project?

a. Construction contract cost? a. \$ 25,645,739

b. Furniture, furnishings and equipment? b. \$ 1,530,961

c. Fees, site, prepaid incidentals? c. \$ 2,673,040

d. Other significant costs (identify) d. \$ _____

e. Total cost of project (a+b+c+d = e) e. \$ 29,849,740

5. Will the following amenities be included?

a. Kitchen for student use a. Yes No

b. Fitness Center b. Yes No

c. Dining Hall c. Yes No

d. Laundry Facilities d. Yes No

e. Vending Machines e. Yes No

f. ATM Machines f. Yes No

g. TV Room g. Yes No

h. Study Room h. Yes No

i. Computer Center i. Yes No

j. Classrooms j. Yes No

k. Card Access to Building k. Yes No

l. Card Access to Individual Rooms l. Yes No

m. Interior Video Surveillance m. Yes No

n. Exterior Video Surveillance n. Yes No

- o. Student Rooms Carpeted
- p. Student Rooms Air Conditioned
- q. Other significant amenities (please identify)

- o. Yes No
- p. Yes No

Thank you for your help.

Please e-mail to intelled@aol.com If you have any questions, contact Paul Abramson at 914-834-2606

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