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4.1 Vision

To establish a bridge between students and the workplace, to integrate students with the public realm and to close the gap on entering the workplace. In addition, to enhance public opinion of the architectural profession and creative professions in general by exposing the public to the creative process and thereby showcasing the profession as well as the university.

With the manifestation of permeability on the campus of UP in the proposed project, I will focus on eliminating the segregation between the campus and surrounding areas. This will both respond to as well as increase the level of activity around its periphery.
4.2 Problem Identification

4.2.1 Sub Problem 1 - Physical Divide: BOUNDARIES WITHOUT BARRIERS

- Campus is inaccessible and illegible to public
- Student access control causes congestion and impedes natural flow of movement
- Palisade barriers on the perimeter of campus create ‘dead’ edges facing the public, preventing interaction and alienating students from the public
- Public facilities and amenities frequently used by students are badly located and inaccessible
- Northern access gates and movement channels to and from it are not clearly defined
- No path definition across the site
- Limited parking in and around campus
- Students are only active in the area at specific periods during the year
- Student safety and security must be ensured
- Circulation and movement patterns are haphazard and uncontrolled

4.2.1 Sub Problem 2 - Psychological Divide: INCUBATION

- No sense of community present.
- Psychological barrier exist between students and community.
- Only certain sectors of society are informed about tertiary education and opportunities, including career guidance, financing and accommodation.
- Public is unaware of the complexities of the creative process.
- Graduates lack “soft skills”.
- Lack of networking system to help students find jobs, during studies and after.
- No internships and holiday work opportunities available for students in their field of study through coordinated programs with the university.
4.3 The Framework

“In urban design there should be a skilful deployment of architectural energy so that the influence of fine buildings radiates outward, articulating the whole fabric of the city” (Bacon, 1957:18).

4.3.1 Vision Statement:

University & Hatfield Precinct

(As derived from the group Spatial Development Framework)

“TRANSFORMING THE UNIVERSITY OF PRETORIA FROM AN ISOLATED FRAGMENTED KNOWLEDGE PRODUCTION INSTITUTION, TO A UNIVERSITY CITY, A CITY OF INNOVATION.”

In the framework we aim to:

- Transform the University of Pretoria and the Hatfield precinct into a UNIVERSITY CITY, an integrated networked city of innovation and social cohesion, where the public sector interfaces with the private sector, interfaces with the academic sector.
- Remove physical, social and psychological boundaries that are constraining the growth of both the University and Hatfield precincts’.
- Create a social blend that celebrates and empowers the uniqueness, vitality, potential and culture of South Africa’s premiere academic community.

The university of the future is a city of knowledge. To achieve the University of Pretoria’s strategic objective of becoming a world class research institute, the surrounding Hatfield area and the university need to merge from two vibrant, independent, isolated entities to a flourishing coherent, spatially integrated community, without boundaries or borders. There is an intense need to allow the community to enter campus grounds to fully utilise all the facilities and integrate the community and student life.
Fig 4.4 Group Spatial Development Framework - Key Interventions

Fig 4.5 Proposed phasing of the university-city integration
4.3.2 The University-City Integration

The transformation will be a long-term undertaking and will have to be achieved in phases over time. Currently, the university is not ready to be integrated with the city, but needs to be prepared for the eventual merger by restructuring the urban fabric to first function as two separate entities and later as a single mechanism. In the initial phases, the campus will retain its own tangible and definable identity and vitality with clarity of circulation, dominated by pedestrians.

The urban fabric on campus needs to be at human scale, with the buildings serving as nodes of social and academic interaction, and the exterior spaces acting as outdoor rooms for academic discourse and social play. A campus designed to function also at night, offering a vibrant and cultural night life. It should function as a community, working as an inter-related whole, a symbiotic relationship of allied units.

The Hatfield precinct is to be developed into a destination place, a place of continual social, cultural and civic regeneration; a place that defines itself as the vital, multifunctional “body” of the “University City”. Hatfield is to serve as the entrance transition of the “University City” precinct. Hatfield’s continual transformation will be driven by the creation of interdependent nodes including transport, mixed use, culture, commerce and political; allowing a dynamic interface for social expression. Hatfield must become a place for the people, for businessmen, academics, students, professionals, politicians, and workers. Hatfield must be a place for all.

The unification of these two distinct identities must not result in the dissolution of the unique identity of either, but rather reinforce key strengths and opportunities to allow a true city of knowledge to be born, a “UNIVERSITY CITY”.
4.3.3 Key Indicators

• VITALITY
Vitality in the proposed centre will be perceived on different levels of scale. Focus must be given to detail as the facility should provide enough visual stimuli to capture the viewer’s imagination and entice him to enter the campus.

• INTEGRATION
The sense of urbanity is that which, with increasing agglomeration, individuals (groups and communities) can benefit from a greater range of opportunities. Different elements of the city require support from others to perform satisfactorily (DEWAR, 1991: section 3.2).

• DIVERSITY
"By definition, successfully performing urban environments are necessarily complex. They contain a variety of overlapping conditions and activities. They provide opportunities for unexpected, spontaneous things to happen, and they accept conflict" (DEWAR, 1991: section 3.2). "The greatest potential of a city is always at places with the biggest interaction" (DEWAR, 1991: section 3.1).

• ACCESSIBILITY
The building complex must be accessible to all, enriching students and public alike. "The urban environment should promote maximum freedom for individuals to act ... and strive to release the many talents of its users" (DEWAR, 1991: section 3.2). "Social interaction is fundamental to human development and also to urban development." (DEWAR, 1991: section 3.2).

• DENSITY
Compact the city and increase densities. This is necessary to create high performance urban environments. Sprawl causes smaller enterprises to die down due to low demand. Compact dense situations allow for (DEWAR, 1991: section 4):
- Economic diversification.
- Small scale economic growth.
- Higher levels of social and commercial services.
- More possibilities for transportation.
- Lower unit costs of social and other services.
- Social services tend to be less vulnerable.

• EQUITY
Urban environments promote urban activities and processes of urban life through their structure and allow people easy access to the opportunities they generate (DEWAR, 1991: section 3.2).

• IDENTITY
Identity is important for the celebration of societal institutions in the organisation of urban space and for reflection of cultural expression in the making of urban space (DEWAR, 1991: section 3.2).

• CONTROL
The making of positive urban environments requires both freedom and constraint. Environments are never complete entities and one should recognise the dynamic of the forces in operation (DEWAR, 1991: section 4). Keep in mind that:
- Excessive control and restraint cause sterile environments.
- Over-controlled comprehensive plans will try to impose a new way in which life is lived.
- Unrestricted pursuit would be detrimental to performance.
“Freedom only exists in the context of choice, and in turn, is created through constraint. The purpose of the “plan” is to give overall direction to urban growth while creating maximum meaningful manoeuvring space for individuals operating in their own self interest. Controlling actions are actions that constantly control freedom of decision making through restriction” (DEWAR, 1991:section 4).

4.3.4 Transport

The concern of campus should not be the accommodation of vehicles, but rather purposely pedestrianising its facilities.

The introduction of the Gautrain will enhance the accessibility of the campus for people living as far as Johannesburg. Designated green bus stop areas have been identified in the effort to pedestrianise the entire Hatfield precinct.
4.3.5 Roper Street Development

The entire length of the Roper Street spine has no facilities or functions that provide the students with a place to linger and is only a way of getting in and out. Research indicated that many students use Roper Street as the main access to their destinations.

In Pattern Language (1977: Pattern 43), Christopher Alexander suggests that a university should function as a market place. He says: “Make the university a collection of small buildings, situated along pedestrian paths, each containing one or two educational projects. Make all the horizontal circulation among these projects, in the public domain, at ground floor ... Connect all the pedestrian paths, so that, like a marketplace, they form one major pedestrian system, with many entrances and openings off it. The over all result of this pattern, is that the environment becomes a collection of relatively low buildings, opening off a major system of pedestrian paths, each building containing a series of entrances and staircases.”
Fig 4.7  Roper Street East
Fig 4.8  sections through Roper Street
Fig 4.9  Roper Street West
Fig 4.10  Roper Street development
From the theoretical investigation, it was concluded that it would be beneficial to the university as well as the community to allow public onto campus. Within the framework we have identified a need for an access route from the north of campus to the south with many pedestrians currently having to travel around the campus perimeter to reach their schools or places of work.

Therefore, the framework proposes pedestrianisation of the Hatfield precinct, by providing many amenities within walking distance and linking different projects, starting at the Gautrain. The projects follow a clear, safe and distinct route from the Gautrain station, through Hatfield, through the campus via Roper Street and to the amenities beyond. A clear public transport circulation system has been identified and it also requires pedestrians to be able to move easily between the metro rail station in Festival Street and the proposed bus stop at the Lynnwood and Roper Street crossing.
“The life or lifelessness of public spaces depends very much on the quality of the spaces and whether they are welcoming to likely users to walk, stay, sit or otherwise enjoy spaces. Surveys from existing city areas, as well as new towns and new city districts and developments have shown the need for a more systematic and careful treatment of the public realm in order to secure good quality and to ensure spaces are welcoming to users” (Gehl, 1996:23).

“Pedestrian movement systems require interest, variety and impressions of rapid change” (Bacon: 1957:35). According to Paul Klee (Bacon, 1957:114), one should use the structural movement of energy in a city as guide and create “fields of quality” where these movement systems converge.

With this in mind, we propose to develop Roper Street into a high density, pedestrian street accessible to the public. The opening of Roper Street will form part of the first phase of implementing the framework and merging the university with the city.
Fig 4.13 Roper Street problem identification & potential features to be exploited

Fig 4.14 Roper Street development
fig 4.15 proposed Roper Street land-use

fig 4.16 space diagram for proposed development

fig 4.17 Roper Street development process

fig 4.18 final urban design proposal for Roper Street development
4.3.6 Project Identification within the Study Area

From the Group Spatial Development Framework, the following projects fall within the study area:

- Gautrain Surrounding Developments:
  - "Indabox - Giving the People a Voice" by Werner van der Watt
  - "African Dialogue Centre" - Pumlani Khuzwayo

- Arts Precinct in Festival Street:
  - "Visual Arts Centre" Riaan Kotze,
  - "Music Performance Lab" - Servaas de Kock
  - "Knoop: Fashion Design Studio" - Korine Stegmann

- Metro Train Rissik Station restoration: "Adaptive Re-use" - Calvyn Le Roux

- "Bridging the Gap: Interactive Architectural Incubator" - Christine Goosen

- Student Centre rejuvenation:
  - "Social Classroom: Symbol of Function Beyond Programme" - Francois Malan

- Human Sciences Building project:
  - "Re-Connecting Lost Space" - Edward Botha

All these projects support and enable the Roper Street development and reinforce the axis it forms, and continues past the campus boundary across the railway line.

The site selected for this project is ideally situated on the threshold between campus and the core business development in Hatfield, which focuses around Burnett Street. It also provides the opportunity to address access and opens up a gateway to campus, for students and public alike.

The Student Centre will be closely related to the project and will have complementary purposes in programme as well as in function. It will aim to create a transitional flow from public to private by means of the commercial activity spine down Roper Street. The commercial facilities will include:

- Copy centre
- Print shop, including large format printing
- Internet café
- Student travel agency
- Stationery shop
- Book shop, with 2nd hand swap-shop
- Computer shop
- Student loan banking divisions
- Cell phone shop
- Hairdressers
- Coffee shops
- Food stalls
- Pubs

In the first phase of the framework implementation, safety and security will be addressed by providing controlled access points between the commercial activities and buildings lining Roper Street where only students can pass, which can be opened on occasion. The campus perimeter will then be reinforced by the buildings around the spine rather than palisade fences, providing a less obvious yet safe atmosphere.
4.4 The Project

4.4.1 Motivation

Definition of Architecture according to Bacon (1957:21): “Architecture is the articulation of space so as to produce in the participator a definite space experience in relation to previous and anticipated space experiences”.

A designer’s problem, therefore, is not to create facades, but to create an all-encompassing experience, to engender involvement. The way buildings rise up from the earth defines the quality of the entire structure. We have lost our vision and focus as to how a building should interact with people not only with each other. “Our buildings stand as miscellaneous features among areas confused and dehumanised by automobile spaces and by ill-placed and ugly street signs” (Bacon, 1957:27).

“Traditionally, new developments have been planned based on the formula, first buildings, then spaces, then (perhaps) life. In the present-day planning, this formula should be turned about, and the questions should be: what kind of life do we want here, what kind of spaces will be needed for this life, and finally, how can the buildings in this area be placed and formed to support these spaces and the life in this area? In short, the formula must be: first life, then spaces, then buildings” (Gehl, 2004:5).

fig 4.20 panoramic view of site from Festival Street entrance gate
4.4.2 Site Selection

4.4.2.1 Site Criteria & Motivation

The site was chosen based on the following factors:

- location of surrounding facilities and land use,
- hard urban edges such as railway lines,
- existing urban energy and pedestrian networks,
- future planning and development of the Hatfield CBD,
- Gautrain station location and its accompanying energy,
- Movement patterns on campus,
- Structure of urban fabric, and the original urban grid,
- Potential development of activities along Roper Street

4.4.2.2 Strategic Advantages

For the intervention to be successful, it needed a site that was on the boundary between the campus and a diverse commercial hub. Based on these indicators, the site chosen is the existing parking area located in the north-eastern corner of the campus on the corner of Festival and Burnett Streets.

The University campus creates an impenetrable urban barrier of considerable size between the station and several work outlets south of the campus. With the proposed opening of Roper Street to the public, an immediate amount of energy can be diverted to the proposed commercial amenities down Roper Street, as well as provide the project with the vitality it will need to be successful.
4.4.3 Project Description

4.4.3.1 Aim of the Project

The aim of the project is to:

• allow controlled public access to campus
• accommodate public facilities on campus
• move student-only access control points to better suited locations
• prepare the buildings and facilities on campus for the systematic, full integration of the city and campus
• create a platform which will enable year-round public exposure to creative professions
• apply passive safety techniques as an alternative security measure to fences and allocating boundaries without barriers
• set up a networking system which will empower graduates and students by introducing them to people and investors in their respective industries
• provide academics and young innovative graduates with a platform to start new businesses and research possibilities
• enable different but related professions to interact and create mutually beneficial relationships for the future.
• enrich the site and contribute to the establishment of an edge to Burnett Street, creating a gateway onto campus through Roper Street.
• implement the site as a transition zone between public and private space
• accommodate existing vegetation as far as possible.
• acknowledge the vast number of existing and planned people moving next to and through the site
• make use of the scale of the building to promote its user-interface.
4.4.3.2 Building Type

The building will be a multi-functional building with the core focus on exhibition and exposure. It will have a four-fold function as visitor centre, office, workshop and lecturing facility, as well as having a residential component. With the re-establishment of a studio culture, implementing the concept of the vertical studio, it will provide space for multi-disciplinary and multi-school involvement such as ‘The Global Studio’ initiative and other architectural competitions.

The State Centre at the Massachusetts Institute of Technology, designed by Frank O. Gehry (May 2004) was used as precedent for the building type. It houses three main tenants - the Computer Science and Artificial Intelligence Laboratory, the Laboratory for Information and Decision Systems, and the Department of Linguistics and Philosophy. In addition to the functional yet flexible work environment, it also contains lounges and gathering areas that are home to different research groups. A ‘town square’ provides meeting and socializing opportunities; a sky-lit ‘student street’, a public arcade for the MIT community, runs the entire length of the ground floor. There are also a café, a childcare centre for 80 children, a fitness centre, a faculty dining area, and many other related facilities (Haina, et al. 2006:12).

The integration with other related disciplines and professions, such as Construction Economics & Management, Geo-sciences, Quantity Surveying, Engineering, Graphic Design, Animation, Material Sciences, Fine Arts, etc., will be instrumental in providing graduates with a more rounded or systemic approach to knowledge and life.

The building will need to respond to its surroundings on all four sides, with the commercial spine from the south down Roper Street, the pathways from the south-west, Burnett Street and Festival Streets to the north and east and the projects within the precinct beyond them.
Business incubators are organisations that support the entrepreneurial process, helping to increase survival rates for innovative start-up companies. Entrepreneurs with feasible projects are selected and admitted into the incubators, where they are offered a specialised menu of support resources and services (Richards, 2002:72). An example of an incubation facility in Pretoria is the Innovation Hub, which has been described as “a catalyst that will spur the next wave of knowledge-intensive industries in South Africa ... from large corporates and small and medium enterprises to start-ups participating in the incubation programmes” (Architect & Builder, 2005:63).

A Business Incubator is a facility designed to assist businesses to become established and sustainable during their start-up phase. The incubation period for an individual business is normally two to three years. An incubator significantly increases the chances of survival of start-up companies and provides the opportunity to coordinate with the university and its access to vast research.
4.4.4 Accommodation Required

4.4.4.1 Foyers & Entrances
• Must be open and inviting, yet secure and easily surveyed.
• Movement must be clearly demarcated.
• Reception desks can be used as secretarial and/or reception desks during the day and as security stations at night.
• A high level of social interaction spaces should be provided.

4.4.4.2 Exhibition Spaces
• The permanent exhibition spaces, foyers and corridors will be combined to form the platform for an ‘urban campus’ network. The building should be transparent enough in this area to be inviting to the public and visitors. Security control will also be simplified if the public arenas are situated close to the entrances.
• The exhibition spaces will be utilised as a platform for educating, becoming an informal space where exposure to design and its process is the primary function.
• The gallery spaces should be provided with ‘soft light’ and be naturally lit as far as possible.
• The galleries should also function as social interaction spaces.

4.4.4.3 Architecture & Art Studios
• Spaces should be adaptable and flexible to accommodate any type of activity related to the creation of architecture and other creative professions. There should also be a system for safekeeping and lockable spaces.
• Technical support and services should be flexible.
• The studios should have an adaptable plan with generic spaces that can be altered in future to accommodate changing requirements.

4.4.4.4 Library & Bookshop
• The library and bookshop should be incorporated into the public area, spill out into the courtyard, and should accommodate a large extent of shelving and also reading space.
• The reading space will be adjacent to a coffee shop related to the bookshop.
4.4.4.5 Restaurant

- Should provide an informal social space for students, visitors, users and public.
- Should have use of the courtyard.
- The kitchen should preferably have direct access to the outside and service yards on Festival Street.
- Should provide seating for 200 guests
- Should have appropriately sized store rooms, empties storage areas, and cold storage facilities.

4.4.4.6 Offices

- Furnished, flexible offices should be designed with integration between different companies and professions in mind, as well as promote interaction between mentors and students.
- Should as far as possible be naturally lit and ventilated to decrease energy costs and the impact on environment, with sufficient lighting according to the NBR.
- Amongst others, office spaces should be provided for career guidance counsellors with access to meeting rooms for career indicator tests, recruitment agency and mentors. These could be used on a rotating / time-share basis.

4.4.4.7 Career Guidance

Should provide:
- Career indicator tests
- Information on careers and courses offered on campus.
- Database of relevant professors and lecturers in each department
- Collaboration with industry professionals who can assist in career guidance

4.4.4.8 Recruitment Agency

Should include:
- CV workshops
- Interview preparation and coaching
- Interactive database for job seekers and providers
- Internships
- Holiday jobs in students’ profession
- Bursary opportunities

fig 4.24 diagram indicating functional links between accommodation
4.4.4.9 Lecture & Conference Facilities

- Lecture room should be acoustically sound and provide seating for approximately 100 people.
- Audio visual facilities should be incorporated into the lecture hall. Network services should be robust to allow ease of access.
- Should have storage facilities and a technical support room

4.4.4.10 Other Accommodation Required

- Shared conference rooms
- Building security facilities
- Cleaning & maintenance services

Technical support including:
- IT & internet services
- Audio-visual equipment
- Mail services, shipping & receiving
- Photocopier, fax
- Reception services

General and professional business services from the university including:
- Administration services
- Legal matters
- Intellectual property rights advisors
- Accounting
- Book-keeping
- Recruitment & staff selection
- Education & training
- Financing support

Management & business strategy services including:
- Preparation of business plans
- Marketing & business strategy formulation
- Public relations
- Research & development
- Employee relations
- International trade
- Government relations including procurement
- Networking
- Seminars with industry experts

4.4.11 Residential

- Student apartments and residences for visiting lecturers.
4.4.5 Stakeholders

4.4.5.1 Client & User Groups

The client will be the University of Pretoria, who will provide the funding, site and counselling staff. They will in turn benefit from the commercial activities and provide students with the opportunity to run their own shops.

The user groups will include higher grade school children, students, young professionals and entrepreneurs, researchers and academics.

4.4.5.2 Funding Agencies

The University of Pretoria as principle client will be responsible for the capital outlay. Although the initial investment will be high, the return on

4.4.5.3 Interested & Affected Parties

University of Pretoria, surrounding businesses, public at large, students, and surrounding community.
4.4.6 Methodology

The problem has been analysed on three different scales.

4.4.6.1 City-wide Context

Ways of integrating the area with the existing and future urban framework, especially with regards to the new Hatfield revival activities and the Gautrain. Consideration of how the university will be integrated with the city.

4.4.6.2 Local Context

The campus framework done by Holm-Jordaan Architects, the Gautrain Station Hatfield Spatial Development Frameworks, and the University-City proposal framework were used as basis for suggestions on how to improve its accessibility and functioning as a mixed use development that would be used at all times of the day. The appropriate location for the facility within the campus has been identified in accordance with these frameworks.

Key objectives of the University-City campus development framework is the spatial integration and ordering of the disparate areas of the campus; the organization of open spaces, the elimination of vehicle conflicts, and the placement of building sites in the plan designed to achieve a sense of campus integration and order. The integration of the campus will also be accomplished by consolidating academic and administrative activities that are currently segmented, and by creating a wider array of attractive indoor and outdoor gathering places for social and intellectual exchange.

By “infill” development in strategic locations and replacement of buildings that do not effectively utilize key sites, the plan establishes the capability to expand the building areas in the study area on campus, while retaining the essential open space character and low architectural profile as it exists today.

4.4.6.3 Site Context

The site has been selected according to the campus framework and analysed in order to produce an appropriate architectural intervention through the creation of an inclusive built environment.
4.5 Conclusion

The University of Pretoria has a rich cultural history that should be built upon. With the intended densification of campus this heritage should be preserved and enhanced where possible. New buildings should add to the academic ambiance and enrich the intellectual exchanges and solitary inquiries. They should never be a mere personal statement by the architect or a clever display of technical ingenuity or artistic fashion.

The university should draw up a set of design guidelines that list what is essential in its campus architecture, including concern for the three fundamentals: academic purpose, human scale, and a special campus aesthetic. This identity will become especially important once the vision of a “University City” is achieved, clearly distinguishing the university buildings from the urban fabric. Before the campus became an enclosed entity, many buildings on campus functioned as public facilities. I believe this forms part of the historical context which is to be considered and the reasons for it should be revisited.