A School can be more than Education

Schools for the future

The functional integration of public, community and students within an educational facility
“A school can be more than Education”

Schools for the future

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Master Thesis Explanatory document

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A research Project submitted in partial fulfilment of the requirements for the degree of Masters of Architecture Professional, Unitec, Institute of Technology, 2013.
“Good architecture is the outcome of integrated design”

Babbage Consultants Ltd
This research project, schools for the future, explores how a school and a community could coexist sharing resources and various facilities.

Our current population is rapidly growing, and not just expanding, but increasing in urban density. The increase within the local population causes greater pressures to expand into our valuable parks and bush terrain.

Urban density also causes traffic congestion when resources are not within close proximity of residents. The increase in population within a community places a huge demand for larger schools, libraries, leisure centres and road ways.

Instead of increasing our parking lots and high ways for people to travel to schools or leisure facilities, could we not design a multi purpose building within the heart of the community serving for a greater purpose?

Each community would have differing needs, but which facilities could be shared in our sample study, Oteha Valley Primary School and its local growing community currently facing this increase in density. To what extent could this be achieved in terms of a building’s flexibility?
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1.0 Introduction

1.1 Research Question

Research Question

How can we combine the needs of the local community with the needs of a school into one educational and leisure facility including a focus on future adaptability?

Could a primary school work collaboratively amongst the public whilst maintaining a sense of security and belonging throughout the traditional school hours, but then be publicly open afterhours? This collaboration explores the flexibility within the architecture to adapt to the needs of the occupants whether for educational flexibility or as publicly required.
Auckland is a rapidly growing city with an average estimated increase by one person every seven minutes and four seconds.\(^1\) New Zealand statistics estimated a population growth with up to two million residents within the next 20 years, when nearly four out of ten New Zealanders will call Auckland its home. Auckland had passed the 1.5 million population mark in June 2011 putting the New Zealand population at 4.4 million. It is expected that New Zealand will reach 5.19 million by 2031.\(^2\)

This thesis explores the concept of a community sharing facilities beneficial to both public and the school. If schools already contain many of the facilities the public use on a regular basis, why not make these more accessible to the public? A school has many specialised buildings such as a library, gym, auditorium and a large amount of class room spaces. The design proposal aims to present an architectural solution which will enable the public and school to coexist. I am aware that some schools have already taken the initiative of opening their doors to the public which creates community involvement and integration. However they are not open to the public during school hours for various reasons of security, program and design. The advantages of their coexistence include a more sustainable building through the ongoing use, and support of various other facilities which will support each another financially.

The project aims to bring the community together through a multipurpose facility acting as a community hub, specialised for learning and exploration to all generations. The intentions of the project aim to provide a solution which will benefit a community, as well as providing an example of how we could provide buildings which are more economically sustainable by increasing their annual usage.

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The traditional school offers great opportunities through its already existing facilities. However schools operate on an 8:30am to 3:30pm basis, and are closed through the school holidays. The current school terms consists of 191 days total, which leaves the school empty for 174 days of the year.\textsuperscript{3}

This project encourages schools to expand on their traditional purposes and provide the community with educational facilities and various leisure facilities.

To contextualise this investigation, I will first explore the existing conditions and current situation within our New Zealand communities and then outline the intentions of the project as a whole.

The main question is constant throughout the research and design phases, revolving around adaptability and finding various connections between the public and school. The project challenges the ways our current educational facilities function on an annual basis, encouraging schools to serve as a community centre. The project will explore a solution to a particular school on the North Shore, however the concept could be developed to schools anywhere. Oteha Valley Primary School will be used to demonstrate the findings and analysis of the research project.

Although some schools do offer after school activities such as sports practice, after school care, and the possibility of swimming lessons if they have a pool, these activities and facilities are usually only available to children attending the school. In order to open a building to the community, maintaining the security of the children would need to be kept at a high priority. Classrooms and other spaces throughout a school should serve for more than just children. “Buildings should be designed in mind of future occupants who are likely to re use the spaces other than their original purposes. Therefore it is sustainable to design with adaptability and flexibility from the beginning.”\textsuperscript{4} Albany senior high is just one school which offers flexible educational spaces which are adaptive with future reuse in mind.

\textsuperscript{3} http://www.minedu.govt.nz/theMinistry/EducationInNewZealand/SchoolTermsAndHolidays/SchoolTermsArchive.aspx accessed 13/02/13

\textsuperscript{4} Planning and Designing Schools, Perkin & William Brubaker, 1998, Pg34
Robert Venturi states in his book “complexity in Architecture,” “Architecture benefits from some sense of order or a system so that it can react. Because systems cannot accommodate every circumstance, architecture should strive to defy order or create a new order.” Venturi is stating that design cannot adapt to every circumstance, but this is only the beginning of the challenge. Where a new system arises, the architecture must react in a way to deal with the challenges in the brief. I believe that Stewart Brand’s analysis on low road buildings provides promising principles of how buildings such as schools could serve to be flexible and adaptive. In his book How buildings learn he states, “Most buildings that are designed by architects to look radical wind up pretty conservative as time levels them out. The best approach is to start conservative and sensible and then let the building become radical by being responsive to its unique life. Free to fashion it can become honest and interesting on its own terms.” Through Stewarts analysis he suggests that buildings should be designed with simplicity allowing the design to adapt whilst the structure remains. This could be compared the human figure, changing our cloths to suite our needs.

“Education can use flexible spaces just as business and government offices use it.”

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1 Ibid Pg33

5 Robert Venturi, Complexity and Contra-diction in Architecture, 1997, pg

6 Stewart Brand. How Buildings Learn documentary, BBC TV, Presenter: Steward Brand, Producer: James Runcie, 1997 Pg.28
The challenge is to provide a design that delivers a school which will meet future requirements and expectations offerings a positive environment that supports learning and teaching. Architects are always confronted by the question, how can we build spaces that are appropriate for the first year of occupancy, while anticipating the needs of the future when we don’t know the programs of tomorrow? The design should take into account of any potential future developments within the school and supporting facilities. The focus of the project involves the design of a building to serve a variety of users within a community, specifically a school with the ability to adapt and to cater for a variety of needs.

FOCUS AND CHALLENGE

The challenge in design is within the relationships between the users and the administrative periods throughout the day.

The outcome of such a design has the potential to maximise and inspire community engagement, but they must be designed sensitively to work with each other. This is the beauty of design, an opportunity to discover and explore ways that might enhance our communities. A building which aims to provide a place for people of all ages, sharing a facility which will enrich their personal growth and experiences. A building which attempts to serve, provide and bring together.
Flexibility and adaptability

- Can the design be easily adapted to cater for future changes of use, or expansion or contraction of facilities?
- Does the design allow for flexibility in the use of teaching and social spaces?
- Has the design of shared spaces been adequately considered to prevent unsatisfactory compromises, for example, in multi-use spaces?
- Is the design sufficiently flexible to promote and accommodate community use?

Sense of place, external landscaping and social integration

- Do the school buildings and their external spaces provide an attractive setting which contributes positively to the local community?
- Have the external spaces and landscape design been considered as an integral part of the project from the outset?
- Does the design provide for a variety of attractive external spaces, which relate well to each other and provide links to internal spaces?
- Do the scale and form of the buildings contribute positively to the neighborhood and surrounding community?
- Do the external spaces provide a range of learning opportunities, such as ecology and nature studies and creative activities?
Several case studies of existing schools and relevant precedents will be analyzed. The design will further evolve through contextual influences such as community needs, spatial design, security, and location.

The process of defining a concept begins with analyzing the existing context, the needs of the school and community, and the analysis of precedents.

My research will evaluate local schools, school attempting similar concepts, and all relevant facilities considered within the scheme. This requires consideration in requirements of each facility and how do they normally operate on a daily basis.

Most of this research can be sourced from The New Metric Handbook 8 describing guidelines and requirements to specific facilities.

In terms of sustainability and adaptability, the book “How buildings learn” by Stewart Brand has become a great inspiration in what makes a building work and grow in time. “Some buildings seem to flow with time, they flow with us.” 9

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8 David Adler, New Metric Handbook second edition, 1999
2.0 Existing Knowledge
2.1 Literature Survey

Structure

How Buildings learn, what happens after they’re built

Great insight can gained on analysis of various building types and how they have stood through the test of time. Research concludes that buildings constantly adapt and re-shape according to their occupants. Buildings have been classified into three main categories namely “The High Road” “The Low Road” and “Magazine architecture”.

Where the high road buildings end up as monuments and magazine architecture only satisfies the trends of its time, the low road buildings (meant to be temporary structures) proved to stand the test of time due to ease of adaptability.¹

Further analysis into what makes a building last and why we value certain buildings even though others don’t care about them, helps put perspective into why buildings should be adaptable even if they have been designed for a specific purpose originally.

Cheshire Architects have done some amazing examples within New Zealand such as the Y&RNZ, The Global Boutique.² The redundant warehouses have been transformed into an exotic cafe with a unique environment. Situated comfortably within the city context, the cafe makes an example of the possibilities in re use architecture.

² http://cheshirearchitects.com/projects/city-works-depot/, Accessed 15/01/14

Another example of temporary structures, which are bound to become more permanent than originally anticipated, due to their sentimental value are the quick make shift structures assembled in Christchurch after the 2012-2013 earthquakes. Temporary container structures are used as shopping outlets for various businesses.\(^3\)

Most of the world’s work is done in low road buildings. Even in rich societies the most creative people come to buildings like these because they feel like they can manipulate the space to their desires. The sheer malleability of a space affects whatever you are working on in an inspiring way.

\(^3\) Google / Images / Christchurch Container shops
Similarly, after World War II, throughout Germany, England and many other countries military sheds became transformed warehouses as business outlets, studios, radio shacks and anything else where people required large spaces. A great example where a building lasting its time, is the history of Station Square in Pittsburgh. Originally it was designed as a rail road, but motor traffic and airways took over passenger business, leaving the station redundant. In 1976, the huge forty acre complex was developed into an adaptive, reuse, mixed development complex with urban planning principles in practice.

The key principal in these low road buildings is that more is invested in structure, and less on finishes. Buildings which stand the test of time are those which adapt with us, and do not hinder our cultural development.

Stewart states:

“Almost no buildings adapt well, they’re not designed to adapt; also budgeted not to adapt and financed not to, regulated and taxed not to, and even remodel not to. But all buildings (except monuments) adapt anyway, however poorly, because the usage in and around them are changing constantly.”

An adaptive building has to allow some flexibility between the different systems within a design. The site, structure, skin, services, space plan and what we put inside, all of which should provide the ability to remodel to an extend. Remodel in the sense of temporary. “Temporary is permanent, and permanent is temporary.”

The things which make a building ‘learn’, is the physical involvement of the people inside. It seems that most buildings are designed by architects to look radical and attempt to create a fashion statement or an art form. These styles are trends, they tend to come and go, appreciated by some and loathed by others. However over time the radical becomes melllowed out and seem conservative to some newer development. Referring again to the examples of the Christchurch containers, the most basic shape of the rectangular containers offer (similar to lego blocks) people the ability to easily reconstruct spaces.

4 http://www.stationsquare.com/info/history, Accessed 15/01/14


The alternative is best to start conservative and sensible, and then let the building become more radical being responsive to its unique life, determined by its occupants. It will even become adaptable to trends over time and become honest and interesting on its own terms. A building should not be something you finish, but something you start.

So how do you design a building and hand it over as an educational facility without ever finishing it? Spending more on structure and less on the finish, your building should be capable of standing up to 300 years or for the full lifespan of the structural materials used. This proposes that a slight adjustment in ways you invest into your building, you could gain an enormously higher long term yield.  

But their core reason for lasting as long as they did was due to their flexibility. Rooms which are modest in size and unspecified to function, each has its own windows, access to a corridor and opens to an adjoining room. With the amount of circulation, and movement within the space, the options for uses in any particular rooms are numerous.

So in relation to designing a multipurpose facility, it is important to look back into structures which have managed to stand time, and analyze how they have done so. A design principle is to build with change in mind, because you never know what the future will bring. Allow the building a structure which will allow for change.

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Christopher Alexandra, The Timeless way of Building, 1979
Fig 2.1.7 Old Customs House

Old Customs House

This building, built in 1888, originally accommodated the offices of Lands & Survey, Native Land Court and Customs. Government use ceased in 1973.

In January 1982 the Old Customhouse re-opened as a retail and entertainment centre. The building was restored and upgraded in 1997, re-opening as DFS Galleria at Customhouse, an international retail complex.
2.2 Education

Education as a social function becomes an import idea of education and society. “Education is thus a fostering, a nurturing, a cultivating process.” A community or social group sustains itself through renewal, taking place by means of educational growth of the younger members. However the “disposition necessary to the progression of life within a society cannot take place by direct conveyance of beliefs, emotions and knowledge. It takes place through the intermediary environment.”

The environment within which a child is nurtured in, will ultimately affect the child’s character, development and personal growth.

Books and conversations can provide a great deal of influences toward a child’s education; therefore schools require greater opportunities for conjoint activities with the older generations. This is so that they may acquire a social sense of their own abilities, influences and of materials and appliances used.

“An individual must actually try, in or work, to do something with material in carrying out his own impulsive activity, and note the interaction of his energy and that of the material employed. This is what happens when a child first begins to play and build with blocks, and it is equally what happens when a scientist in his libatory begins to experiment with unfamiliar objects.”

Weather young or old, we continually learn through our experiences and this is why the first approach to any subject in school if not aroused by words, should be as unscholastic as possible. To realize what an experience, or empirical situation means we have to call to mind the sort of situation that presents itself outside of school, the sort of occupation that interest and engaged activity in ordinary life. There are several suggestions to methods of learning which involves the active state of observation, recall, read and discussions contributing to the understanding and development.

“The educator’s part in the enterprise of education is to furnish the environment which stimulates responses and directs the learner’s course.”
Play is a form of experience and learning, and psychologically the defining characteristics of play are not for amusement or aimlessness. Rather the aim of play should be developed in the same line as the educational goals that are to be achieved. Activities grow more complicated and add more meaning by greater attention to specific requirements as children grow and their personal learning curve develops.

“Experience has shown that when children have a chance at physical activities which bring their natural impulses into play, going to school is a joy, management is less of a burden, and learning is easier.”\(^{13}\)

Education is then gradually developed from play into work, and both are equally experienced.

It becomes clear that education and development are two in one. The behavioural characteristics of a child are ultimately affected by their interactions with others, and how they learn. Their learning environment should be filled with experiences for both children and adults where they can play and explore. The physical environment should be open and free, to allow for flexibility and opportunities. In the youtube link as referenced below, glass has been used to demonstrate the possibilities of adaptability using new technologies. With the current growth and aspirations for near future technologies, it is possible to visually transform entire rooms.\(^{14}\)

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\(^{13}\) Ibid Ch 15

Looking ahead into our future of educational venues, traditional classroom designs may suit some teachers, but a survey carried out by AC Neilson for the Ministry of Education indicated that teachers want spaces that enable a variety of teaching and learning practices to be used. This involves a variety of furniture and layouts where students are able to work in numerous ways depending on the task, weather on their own, in small groups or as a class. Several case studies, such as the Silverstream Kindergarten, have been identified where such classroom designs have been implemented within schools which have had positive results. Preschool spaces are open, designed for play, exploration and learning. It is from primary to college where classrooms where traditionally confined by four walls and one teacher, but for the past few years schools have trialed the open classroom working environments of the open office typography with the exploration and learning environment of the preschool. The Albany Senior high school is a recently completed college with this typography in mind. Primary schools such as the Remarkables in Queenstown offer similar potential work/learning environments through its open construction and layout.
Buildings with this type of structure also offer future reuse alternatives. The large block like structures offer non load bearing internal walls allowing adaptability and flexibility of spaces.

“Flexible learning spaces are designed to be multidisciplinary and communal spaces which can be configured in a number of ways for specific learning experiences.”

This means spaces are providing opportunities for people to work together in new ways. Several schools in Australia have already trialled the open classroom concept allowing the Ministry of Education to publish their findings.

Teachers have felt a positive influence by the open classroom offering choices in ways they interact with students which they may not have had before.

“Everything is open and we’re learning from each other. I’ll often be sitting in my work space and I’ll hear another class going on and I’ll see someone doing something, and I think, ‘Oh that’s a great idea’.” (Teacher)

Teachers are forced to work with each other in the same ways they expect their students to. Students also learn to deal with multiple teachers within their learning group increasing their interaction and growth.

18 Department of Education and ECE Development, Making the most of flexible learning spaces, 2001, Pg1
19 Department Education and Early Childhood Development PDF 2010

20 Department of Education and ECE Development, Making the most of flexible learning spaces, 2001, Pg1
Scotland’s Department of Education has also investigated the integration of community and schools. My investigations revealed that the need has already been recognised for community schools to offer more than education. The idea of community schools is being escalated to another level with its diversity and integration engaging the community by serving with its facilities. The engagement offers learning opportunities for individuals, sports and clubs, the availability of equipment, and voluntary organisations providing local services not to mention the provision of local jobs and on the job training.

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Fig2.4.1 Community School links - C.William Brubaker
This may bring us into the field of a mixed use development. In a broad sense it is any suburban development which blends the combination of residential, commercial, cultural, institutional or industrial uses, where the facilities are integrated providing pedestrian connections. A mixed use facility will bring numerous advantages to an educational building when offering better efficiency and sustainability whilst enriching a community.  

The income derived from a facility such as a swimming complex could for instance aid library financially with new books or technologies. The facilities within a centre are able to subsidise each other. This kind of diversification has an urban component which keeps the space occupied as people come and go throughout the day.

With the advantages of shared resources and facilities, it only makes sense to bring people into a school where everything can be shared and supported. The benefits include smarter compact developments with a strong neighborhood character, the reduction in need of transport and the efficiency in diversity. Students, teachers and the community can flourish when worlds separated in the past come together.

Grouping different businesses and facilities together brings more foot traffic past their doors and has a promotional effect on people who would otherwise not have visited those businesses and facilities. This can be seen in shopping malls where a person would go to buy clothing might also buy a coffee or pick up lunch without previously planning to have done so. A lot of businesses rely on increased business through unintended or impulsive shoppers.

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22 The Challenges and Benefits of mixed-use Facilities, 11/04/09

23 Ibid
Technology is a constant and rapid evolving resource. The vision for schools designed within the 21st century commonly seek to provide large amounts of electronic links and facilities. Schools have recognized the influence of technology and want to take advantage of the possibilities it has to offer.

With technology evolving as quickly as it is, buildings should be adaptive in order to accept changes in technology. This relates to Stewarts ideas of a building that learns as it coexists with us in time being able to evolve as it accepts change. The degree of flexibility is what will make these buildings last, not their iconic nature as produced by designers often referred to as “starchitects”.

The future is on our doorstep and educational facilities are eager to grasp more efficient ways of teaching. The future of glass is showing some very exciting near future technologies involving windows which become smart boards, screens or tinting to brighten or darken a room. Films or other portable devices all linked within the classroom and educational system recording progress data for each child whilst providing new ways of exploration. Torbay Primary School on the North Shore is but one school which has taken a technological initiative called BYOD, (Bring Your Own Device). Children are encouraged to bring their own devices and connect to the schools educational system where they will find the class activities and programs. They can access their work from home and complete any outstanding work and submit it online. Research by the Ministry of Education have found supporting evidence of positive outcomes with interactive one to one technological engagement. There have been a few programs and apps designed for this very purpose, and and why should we not offer the same opportunities to parents and the community.

24 http://www.youtube.com/watch?v=X-GXO_ur-Mow

Specialized technology such as holographics and smart boards with a teacher for assistance should become open to children and the public. Night classes could be taught in a similar manner. Various learning games have already existed for a number of years, but only recently it has been brought into the classroom. Children are exploring and learning in untraditional ways. Several games and Apps have also been created for children with dyslexia, called learning without words. Apps like this have proven to be greatly beneficial to certain students who had struggled in the past. Games can now be tailored to suit various children depending on what works for them.

With the proven benefits of technology and its future possibilities, it is clear that the architecture needs to be designed and built in a manner to support the new ideas in education as well as providing the ability to adapt in future.

26 http://www.youtube.com/watch?v=7odhYT8y-JUM
What are the positives and negatives of shared mix-used spaces?

What are the positives and negatives of shared mix-used spaces?

There are both positive and negative examples of architecture with mixed used spaces. The issue is overcoming the boundaries between the users. What belongs to whom or does it belong to anyone at all? Do some user groups have priority over other groups for right of use? Are there any risks involved in allowing different user groups to mix while using these shared spaces?

This analysis aims to find suitable facilities which share similarities in their characteristics of space. There is also an attempt to find the relationships between differing programs, which programs work in harmony and which may not. This would determine organization of programs and the use of utilities on site. The main objective of this thesis is finding ways in maximising usage. The following precedents will analyze the success or failures within each design in relation to their intentions.
3.0 Precedence
Precedent 1

3.1 Albany Senior High School

- Location: Albany, North Shore, New Zealand
- Budget – 60M
- Client – Arrow International / Ministry of Education

Awards
- NZIA Auckland Award 2011 for Public Architecture
- Resene Total color awards 2011: color award – education, colour master – nightingale award (top award)
- DINZ Best awards 2011
- Best awards Silver – Public and institutional spaces

Key team members
- Architects: Jeremy Bennett, Hamish Boyd, Roy Block,
- Landscape Architect: Joseph Muir
The recently established Albany Senior High School which opened in 2011, has restructured the modern day classroom. The school educates years 11-13, treating students as adults within a working environment similar to the typography of an office. The brief given to the architects at Jasmax, required the design to respond to the site’s characteristics and constraints by building on the unique qualities of the site to fit the rapid changing nature of the surrounding area.¹

The office typology provides an open plan environment with spaces flexible enough to serve a variety of teaching possibilities. The open plan merges approximately four classrooms into one. Although the idea may seem chaotic in theory, students are encouraged to be respectful amongst each other and work collaboratively. Within the learning group there are several teachers who lead the day’s program, they liaise between students or groups aiding in advice or discussions. This type of pedagogical learning environment encourages students to learn by either observing others and/or inspiring or leading others. Theoretically students who engage collaboratively on a subject will have a deeper understanding and greater awareness. It is however also recognised that not all students feel comfortable within a collaborative discussion, therefore provision has been made for alternative learning spaces such as “break-away” rooms. These rooms are designed for private discussions or self study pods. Each student chooses his or her preferred and most effective method of study.

¹ http://www.jasmax.com/#/Portfolio/Albany_Senior_High_School
The students and staff all share certain facilities such as the toilets, the library and cafeteria. Even though most of the facilities are shared, there is still a staff room adjacent to the administration offices. The staff room is important because it provides a break-away area for teachers to relax and escape, converse with their fellow teachers, or prepare their class in privacy.

The office typology has allowed the traditional classroom to break free of its four wall constraints, creating opportunities for a more diverse and flexible teaching space.

Through my observations during a visit to the school, I could clearly see groups of students working respectfully amongst each other as if they were adults in an office. Teachers taught between groups opening discussions based on the topic, explaining and developing ideas where areas students had issues. However, there were also a few students distracted from work, converging in social matters, and some even took advantage of the breakaway rooms to escape from work. Students work more freely and at their own pace within this kind of environment, but this is particularly troubling for some students who lack motivation, responsibility or whom are easily distracted.

Originally the high school intended to open various spaces to the public, but due to security and administration issues, it was decided that the school would not be opened to the public unless by appointment programs. This aspect of Albany senior is one I am particularly interested in as it contributes to my own principals and goals of bringing the public into the school. Facilities required by the public should be easily accessible without wandering numerous corridors and private spaces. Albany Senior has been an experimental design as it is the first of its kind in New Zealand. The flexible spaces and shared facilities have proven their usefulness but it lacks the public integration I wish to achieve.
Fig 3.1.9 Albany Senior House Plans
Pro’s

• Larger spaces allow a greater diversity of activities, types of users and programs.
• Classes become groups or teams.
• Students and teachers work together to understand a subject opening group discussion which provides in depth learning.
• Break away rooms provide relief from the large spaces allowing students self study based on their learning preferences. This is helpful for when students feel they’re being held back by others or need to be alone to concentrate.
• Breaking away from traditional school design, this design allows this building to adapt for future reuse as an office building.

Con’s

• The freedom of such as open space requires students to be self motivated.
• Break away rooms could also become rooms for retreat from work itself and exclusion from a class.
Fig 3.2.1 View from lake of Remarkables Primary School
3.2 Precedent 2

Remarkables Primary School

- Location: Frankton, Queenstown
- Budget: $1750-$2000/m2
- Client: Minister of Education

Key Team Members
- Director: Frank Cleary
- Team Leader: Michael Bilsborough
- Architect: Stas Louca
- ESD Specialists: Craig Cooper & Ingo Ratsdorf

Fig 3.2.2 Concept Plan
A strong feature of the school’s learning culture is that teachers and students are all learners together. The desire to create strong community links and the value staff places on positive relationships, mean that the school has an inclusive and supportive culture. Students learn and play in a caring and safe environment.  

Some of the major contributing achievements within this school lay in the successful design which has allowed teachers to use the spaces and furniture to suit their learning and teaching styles. The school contains years 1-8, and separates them via pavilions or ‘pods.’ The overall school design has a strong connection to the heart being the central axis and court yards. The heart of the school is the connecting component which brings together children of all years, teachers and the community, sheltered and protected by the radial plan.

Each Pavilion contains three zones for teaching, the “cave”, the “campfire, and the “waterhole’. The three zones offer a variety of teaching methods and diversity of activities within each pod. An additional break away room and project spaces are shared amongst the community of pods where a sense of integration is achieved.

The Remarkables Primary School is also New Zealand’s first school to incorporate a green roof. That makes it one in a hand full of schools around the world with a green roof and to be environmentally sensitive. Aswell as reducing storm water runoff and providing insulation to the school, the roof provides much-needed further outdoor space. The school site is approximately half the size of a typical NZ primary school so the need to utilise the space to the best of its potential was paramount. This green roof enables the children to have a further outdoor learning and playing space.


Incorporating such environmental tactics will not only be ecologically friendly, but it will also help storm water run-off, insulate the building reducing heating and cooling costs, absorb carbon dioxide whilst producing oxygen.

The key aspects of this precedent which will be influential to my design is the connection between the ages. The heart of the school is the common communal area. This concept could play a key design role within my own as I attempt to bring together various ages, community and school. The Remarkbles have also set a standard in achieving environmental tactics to become more sustainable and environmentally friendly. A green roof within my own design would benefit the site by preventing too much rain water washing onto the lower field causing a swamp. Another vital reason is linked back to land consumption; providing a green roof will give back some of the area consumed by buildings.
Precedent 3

3.3 Tots on Triton Childcare Centre

- Location: Albany, North Shore, New Zealand
- Budget – 60M
- Client – Arrow International / Ministry of Education

Awards
- NZIA Auckland Award 2011 for Public Architecture
- Resene Total color awards 2011: color award – education, colour master – nightingale award (top award)
- DINZ Best awards 2011
  - Best awards Silver – Public and institutional spaces

Key team members
- Architects: Jeremy Bennett, Hamish Boyd, Roy Block,
- Landscape Architect: Joseph Muir

Fig 3.3.1 Tots on Triton Business Development Sketch
Tots on Triton is an early childhood centre which caters for up to 100 children. It is occupying a building which could also be re-used in the future as a commercial building. It has strong Environmentally Sustainable Design features for both economic and marketing reasons. At the same time, the building manages to fulfil the business park development criteria. It sits well amongst its neighbours and uses its unusual shape to its advantage creating a childcare centre, achieving a happy marriage of two seemingly separate roles. Preconceived ideas of childcare centres have challenged its double height spaces, general building form, use of surface materials and colour, giving the centre an individuality of its own. Adults and children have responded warmly to the unique sense of fun. The founding philosophy for the complex in 2009 was inspired by the Reggio Emilia’s approach to education, where children are encouraged to be independent and leaders of their own learning. The teacher is seen as the partner, nurturer and guide in the learning process, and the environment as the third teacher.\(^5\)

The qualities possessed by Tots on Triton provide a safe, fun and suitable environment to preschoolers, but it has been designed with the potential to be remodelled as an office, cafe or commercial building. These characteristics provide future possibilities for adapting to the needs of the immediate community and future occupants even when the type of business differs. This precedent was important for my research in finding current innovative centres for early childcare centres and determining the successes experienced which are in line with the objective of this thesis. Within my site, a preschool would be beneficial to the community and provide children with the same opportunities which the primary school has. Preschoolers can learn to swim from a young age in the swimming complex, go to the shared library and become familiar with the primary school environment of which they will move on to.

\(^5\) Richard Thornton, Tots on Triton Early Childhood Centre - Tui Room Education Review Report 12/10/2011
3.4 Precedent 4
The New Urban School, Mixed use Sports Complex proposal 2012

- Type: Music School, Sports Complex,
- Location: Helsingor, Denmark
- Client: Municipality of Helsingor
- Award: Prize in Master plan for the school district, Prize in Mixed-use(USE) (sports complex, Prize in Music School, Prize in transformation plan
- Architects: EFFEKT + Rubox

The winning proposal by EFFEKT + Rubox Architects incorporated a mixed use sports complex with a connection to the urban school. The design combines many smaller projects into one type of learning facility as well as a new city district. It provides a combination of indoor outdoor facilities for the life of the school and city culture. The project contains a new large school, sport facilities, a music school, 2 day care centres and the transformation of existing buildings and public spaces.

http://www.effekt.dk/#/sib/
Many houses in one
Fig 3.4.3 Accessibility and Spaces

A flexible house
Fig 3.4.4 Connection

Fig 3.4.5 Cross section of slope
It connects existing historical buildings and new plazas into one unified and modern facility. The plan is open and integrates a modern educational environment that is both educationally visionary while providing an urban district for the city and its communities. The surface connects the whole district and creates “pocket” parks, plazas and streets in between new and old buildings. The master plan carefully protects old historical masonry buildings, transforms concrete element buildings from the 70’s and positions new buildings where needed. All together creating a united school district with a variety of urban spaces and buildings. The sports complex is the main attraction to the whole city. It consists of international sporting dimensions, with several sports halls, cafe and exhibition with supporting facilities. The facility is large in context so it has been divided into smaller volumes to fit into the urban context. It can act as four independent houses, or as one single house. Each house has an individual entrance and is vertically separated by a slopping landscape stair as a canyon between buildings.

This urban transformation has similar aspirations as to my own brief. It connects the public and school together through the use of a main attraction. The redesign incorporates facilities which attract and provide opportunities to the community and school. The fact existing older buildings was used and remodeled suggests that the more adaptable these buildings were, the easier this project could incorporate them.

Aspects of this development which are influential to my research and design are the facilities incorporated within the scheme. Although the site is very large and contextually does not achieve the type of integration I am after, it does provide numerous facilities which are mixed use and shared between the school and public. Understanding their relationships will help define the positions of various facilities within my own design.

Fig 3.5.1 Millennium Olympic size swimming pool
The AUT Millennium Centre is a purpose built world class sports training centre which hosts both national and local sport organizations. The facility includes an indoor 50m heated pool, commercial gym, indoor sprints track, basketball court, climbing wall, saunas, swim school, athletics stadium, indoor sports hall, medical practice, accommodation, conferencing and more. The Millennium centre is an example of how various sports, businesses and community involvements take place within such a diverse complex. The selected site of my thesis is too small and wouldn’t be economically sustainable within the community to support this many sports orientated facilities, however there are a few which could be greatly beneficial to both the school and the community. It is interesting to note how the facility organizes and manages the different areas of the complex. This is particularly important to my understanding of what is involved within such a complex. To comprehend what relationships each department has to one another and how they work together.

Key aspects taken from this facility is the integration of athletes who are students (of sport) and the public. The relationship between various facilities such as recreational activities for the public, is compared to the current more private or specialized sectors meant for students and staff.
The centre offers a range of health facilities and services to the public as well as accident and medical services. Other services also working in conjunction with the centre are Plastic Surgeons, Physiotherapist, Orthopaedic Surgeon, Speech Therapist, Head and Neck Surgeon, Paediatrician, a Skin Cancer Clinic, Endocrinologist, Dermatologist, Otolaryngologist, Cardiologist, Diagnostic testing and a Surgeon. The great advantages of having so many specialists in one centre is the use of specialized medical equipment, resources and ability for patients to walk from a GP’s office to a specialist office when given a referral. Patients are firstly examined by a nurse in a general consulting room and notes are entered into their database which the doctor can then refer to later when seeing the patient.

The centre also contains a central courtyard which is safe for children and visitors can relax to wait for their call or for the person they have accompanied to the doctors. Integrated to the centre is a cafe allowing both staff and clients to relax without leaving the site there is also a pharmacy so prescriptions can be immediately filled. The entrance is clearly visible when entering the car park and opens directly into the reception, waiting area and pharmacy. Access to the specialist’s offices is easily missed but this may be a good thing as public will then approach the reception first and be directed to where they wish to go. From this centre I have gathered useful information on types of services provided and a general organization plan. I now need to consider what types of combined services would be beneficial to the community and school to ensure a successful design.
Llewelyn Davies

The work of Llewelyn-Davies has been widely recognised throughout the UK. It has been used as an international example of good healthcare systems through the new metric handbook which is experienced in over 75 counties. With over 50 years experience, Llewelyn-Davies has designed the well acclaimed healthcare projects of Addenbrooke’s, UCLH (University College London Hospital), ISEH (Institute of Sport Exercise & Health) and the recently awarded Cotton Rooms project for patients undergoing treatments for cancer.

UCLH offers a good variety of services as well as education and training. Although these services extend beyond the scope of the Oteha Valley health centre, the hospital offers leading design concepts and services to the community which can be greatly appreciated. The structure itself portrays an image of serenity and sterile with white structural elements and a green tinted glass envelope. The structure stands majestically on a street corner absorbing light into its internal spaces. The outer perimeters of the structure are given to patient rooms while the core contains controlled operating services.

The entrance and some of the public circulation to the hospital is open with large voids that flood natural light into the building providing a pleasant atmosphere. The hospitals design also strategically makes use of colour as appropriate to the area. The entrance and public circulation is filled with crisp uplifting colours which bring a sense of joy, hope and care. The patient rooms themselves are designed with neutral colours. “I like the layout, colours and the chilled out cosy atmosphere. Best off all though - is the freedom, I can come and go as I please.” The rooms are actually part of a four star, thirty five bedroom hotel specifically for the patients. The unique boutique hotel service to patients makes this a great hospital with a touch of luxury.

The Oteha Medical centre can make use of similar colours which are inviting to the children of the school who may visit the centre regularly for checkups in dental and general well being or even health education. There are a few aesthetic features from UCLH which will aid my design in being successful within its function and as part of the community centre.

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9 http://www.uclh.org/News/Pages/27FirstfourstarhotelsopenforNHSpatients.aspx
Accessed 21/01/2014
3.8 Existing Adapted Buildings

One example of an adapted building is the ELSKE Imperial café on 7 Fort lane, Auckland CBD. The newly refurbished café is hidden on a narrow street at the rear of buildings which once served as service lanes. The café has adopted a unique environment due to its unusual setting and the buildings existing structural influences. For example the café contains a sloped floor which was once a ramp for vehicular transport. The design has made no attempt to hide any of the existing structural components but has instead expressed the qualities of the space continued within the bar and seating design.

The downtown shopping centre has also left structural elements exposed, simple decorative features are installed to create an individuality to the shop. The theme creates an industrial rustic urban environment which in current trends is suitable to the retail public focus. The aspects of the design shows how minimal structural elements can create large spaces which have embraced the industrial characteristics to create an adapted retail store layout.
There are a number of buildings within Auckland CBD which have been structurally sound for many more years than its originally intended purpose and design. Some of these buildings are valued as important historic monuments and in order not to loose the history, major redevelopments have been done within the buildings to ensure current businesses can still be accommodated.

Most Buildings have been changed to take away their non load bearing internal walls which would limit future alternative uses and were changed to be large open spaces, for example the large columns or pillars. These spaces have been remodeled into business, shop outlets, cafés and bars in valued historic buildings such as the Old Customs house, Britomart and the Downtown shopping centre.

Some smaller historical buildings, such as those on Vulcan lane, have become attractive for their character. The botique buildings in smaller side streets have created an arcade atmosphere comfortable for pedestrians, a relief from the busy traffic along the main streets. The area is vibrant with life and enjoyed by many. These areas are sought out for their character and atmosphere.

Key aspects taken from this research is that buildings should rather be big open spaces with only some strong structural columns and pillars, allowing numerous future internal remodelings with more temporary finishings to suit attractive facilities suitable to its time and need of the immediate community.
3.9 The Unadapted Yates Building

Buildings such as the Arther Yates & Co office and warehouse buildings between Albert St and Wolf and Federal St is one example of a building that has stood for over 100 years making it a historic building. However the building has remained unoccupied for many years due to its inability to adapt to our current needs due to its structure.

The new owner of the building wants to demolish the building in order to build a new high rise apartment building, however the historic status and on going council and court dispute has been preventing a redevelopment on the site.

For more than a decade the building’s inability to adapt and be remodelled whithout a major capital input, has prevented the owner to utilize the building other than for a small crammed carpark and food court on the lower levels while the dispute is ongoing. If the building was more adaptable the whole building could have been useful in some way in the last 10 years in this prime inner city location. Another consequence of the building not being in use has resulted in graffiti and vandalism causing a major sore eye and issues for the occupants and businesses in close proximity. Buildings such as these which are not adaptable have become useless to todays society and and frankly an embarassment to the city when large cruise ships visit our city with numerous tourists looking to be amazed by our country.

The Yates building has received the protection category B under heritage buildings due to its age and former owner Arther Yates. Key aspects of this precedent to consider within my own development include importance to structure and malleability of space. When a building cannot adapt to the needs of its owner or future occupants, it becomes useless and would require a major investment to remodel if possible, or demolish completely and start again with the foundations.

This is an example of an old building, which is not necessarily a good building, it has only remained standing because of its history, and not because of its usefulness.
3.9.2 Arthur Yates Building Completion 1911

3.9.3 Yates Buildings on Albert St 2010

3.9.4 Yates Buildings on Albert St 2014 with Graffiti

3.9.5 Yates Buildings Graffiti and eye sore to neighbouring buildings
“Innovative, sustainable design solutions that recognize the inherent capabilities of site, people and place”
4.0 Site & Context

Fig 4.1.1 Google Maps View of Site
Fig 4.1.2 Location

New Zealand

Auckland

Oteha Valley Primary School
4.1 Site Analysis

The site is located at 2 Medallion Drive, Oteha, on the North Shore of Auckland. It is within an existing urban community environment with a large amount of housing developments planned within the near future. The selected site is the existing Oteha Valley Primary School, which will be maintained and developed to cater for the growing community. The design will present new opportunities, facilities and a heart to the community. The site will maintain as much as possible of the existing structures and landscape, whilst upgrading or adding facilities to enrich the educational and community interaction.

The site has been chosen for the following reasons:

- The site is a classic example of the urban school located within a growing community with an increase in density.
- The area does not yet have a central heart or connection other than the local school and a shopping centre in a neighbouring suburb (Albany).
- The site already has an existing established school from which an example could be made, exploring the possibilities of transforming an existing school into a community integrated centre.
- The site has its own spatial limitations which presents challenges of working within a high density area. The additional facilities show the importance of a well designed structure with their relationship to the context.
- Since the site is close to the motorway and within an existing populated area, it is convenient for the public to visit the centre making use of the facilities it has to offer.
- It is expected that areas from Longbay, Torbay, Brownsbay and Pinehill through to Albany will make use of the development.
Fig 4.1.3 Location Study
Fig 4.1.5 Site Contours
The site contours slope down from the school courtyard to the sports field. Classrooms are fairly level and situated at the southern end of the site near the car park. However there is approximately three metres from difference between the school courtyard to the field level. (Fig 4.1.5)

The existing school contains 3 pavilions and a two story classroom block. The main building consists of a small children’s library, admin office, a staffroom on the second floor and a half sized basket ball court within the gymnasium. Future planning has also placed a second two story classroom block neighbouring the current block. (Fig4.1.6)

Each pavilion is given a name relating to native icons of New Zealand. Paua, Pukeko and pohutukawa are displayed on each house. This creates a sense of belonging and individuality between students and their groups. A competitive drive also encourages children’s personal and team development by aiming to achieve and excel. A single pavilion contains four “pods” or classrooms which share bathrooms, an office, a breakaway room and a foyer space. (Fig 4.1.7)

The pavilions work well as a group, providing a variety of spaces for children to achieve certain activities, but the spaces themselves aren’t very adaptive to activities outside of a primary school classroom. The precedent Albany Senior High school shows how 4 classrooms could work in one space, an alternative solution would be folding walls providing the opportunity to work within a house of children or as a separate class in each area.
Fig 4.1.8 Collage of Oteha Valley Primary School
The existing car park is unused through most of the day. It will remain in its current location providing parking for visitors. The entrance to the school is accessible from Medallion drive which is a one-way Street with several drop off zones and car parks, it then exits onto the road named Fields Parade.

The current road has a 5kph speed restriction enforced by speed bumps which provides an effective method in increasing safety, traffic flow, and efficiency for the drop off and pick up times. The current school layout does not portray a clear entrance to the school grounds. It will require a clear reception office to draw in the public who visit the proposed centre and get the assistance or direction they may need as soon as possible. The current reception office is hidden to the back of the site led by a footpath from the car park.
4.2 Fundamental Relationships

- Context
- Environment
- Connectivity
- Current Community involvement and School programs
- Transport
- Constraints
- Opportunities

**Context**

The primary school is currently (year 2013) enrolled with 333 students. Therefore it is important to provide educational spaces for at least 350 students.

**Environment**

The additional buildings will reduce the permeable areas on the site which will place greater strains on the storm water systems. This could damage the storm water infrastructure, cause flooding or turn the field at the lower end of the site into muddy grounds. A good solution would be to include a green roof similarly to the Remarkables Primary School. A green roof will absorb rain water, slow the run off period relieving pressure from the storm water systems.

Rainwater from hard surface roofs could also be collected in underground tanks, which is then used to water grass fields and plants on the school premises, or as a primary...
source for flushing toilets.

**Connectivity**

There is currently no obvious entrance for visitors to the school. Classrooms are built in clusters of individual pods, allowing movement around any of the house groups. The school’s main office is situated on the south east end of the site near Fields parade. The school does not have a strong method of security but relies on the eyes of its students and teachers to watch over each other. The clustered orientation of the buildings on the site strongly suggest a front and rear, an inside and an outside. This creates a sense of place when being within the grounds of the school in contrast to being in the surrounding public areas. It will be important to maintain this sense of belonging throughout the additional facilities.

The primary school is situated fairly central to the development with a large number of newly constructed houses surrounding the site. Being reasonably centred, it is the development, it is the ideal site for the community. It is easily accessible within a few minutes of walking from any direction.

**Current community involvement and School programs**

The school starts their supervision from 08:15am until 15:15pm weekdays. The classes are set up as a composite class where children are graded and have the opportunity to advance in their educational level working alongside older years if they are capable. There are some advantages of this type of learning as the years learn to deal with different ages and become more connected.

The school has started a before and after school care program as well as some holiday programs for the children run by an organization called sKids. This is good for the parents who cannot be home to look after their children during the holiday periods or unable to drop off or pick up their children at the normal start and ending periods of the school day. Since the school offers a before and after school care, it already makes use of the facilities for longer periods of the day.

Another great initiative the school has taken onboard is the Walking School Bus. This is a great initiative which helps get children home safely while lowering traffic congestion through the morning and afternoons. This also encourages more children to walk to and from school in a fun group, rather than being driven by car or bus, and offers parents another alternative
to get their children to and from school safely.

Transport

The site contains a large car park which is situated between Medal-lion drive and the exit on Fields parade which is located at the other end of the site. The car park is vacant for most of the day except for peak hours when school starts and finishes. This provides a great opportunity for the public and travelling students to visit the mixed development facility as there is plenty of parking spaces. With such a dense community, walking or cycling to the site is quick and easy for most people. The site is 800m from the motorway and adjacent to Oteha Valley’s main road, providing convenience to visitors approaching from the motorway.

Oteha Valley road is also already a main road for some bus services feeding from the suburbs past the site, through the Albany bus station and onwards into the central city.

Constraints

Since the site contains an existing school, it is important to maintain the existing structures where-ever possible. This insists designing or remodelling parts to fit the mix-use development amongst the existing. The site has a field size of 9,536 m² with the total site being 30,993m². The size of the site along with its sloping contours, demands efficient spatial organization of the facilities to produce healthy circulation. With such a dense and confined perimeter, the physical constraints will push design to be innovative and responsive. The urban context also places a height restriction and sense of character within the local environment.

Opportunities

The opportunities presented within the site offer buildable land area, community wellbeing which is central to a community and easy access from main roads for visitors. The contours offer a design opportunity for levels to layer facilities creating various spaces to be inspiring, fun and user friendly. Levels offer spatial separation, cross over areas and integration.
Fig 4.2.2 Site relation to transport, motorway and bus station
5.0 Design Requirements
This design will incorporate three social groups:
- The School - A facility for teaching, learning, exploring and executing the normal activities carried out by a primary school.
- The community - facilities which provide recreation and educational spaces.
- The public – Business & Professional in employment.

This project will explore and provide a more flexible, multi user building which can accommodate a wider variety of uses incorporating current schooling programs as well as suitable businesses and community events. The intention is to generate an innovative educational facility which maximizes its annual traditional purposes which is currently limited within school terms, school days and hours.

Classrooms, meeting rooms, university & apprenticeship block course, community events are all just a few possibilities of users which can share a space. A design will be explored which will provide an architectural solution with technological integration and future adaptability for a larger diversity of users.

The design should function in a way to allow the various groups to work around or with each other as well as separately when required. Children should be kept separate from physical contact from general public, however they may be connected visually to add the sense of connectedness of a community. There should be easy access to various parts of the school for when the school program is not active, for example night classes can make use of the existing classrooms.
REQUIREMENTS:

~ To suite a variety of furniture and layouts where students are able to work on their own, in small groups or as a class.
~ Allow teacher to move around the class or area and teach from any point
~ Is able to cope with emerging technology
~ Has access to other supporting spaces where students may work independently
~ Has display space for students work, achievements, presentations, promotions, information
~ Has student and teacher storage areas
~ Has inviting access to social and recreational areas
~ Open plan and not totally committed to one size and layout
~ Structural, ventilation, heating and electrical systems are easily modified (upgraded)
~ Spaces should be designed to meet unknown future needs, (adaptability)
Inspirational – The facility should be innovative with its use in space and technology which will enhance the overall functionality. Through investigated design, the spaces will be creative, inspiring and able to accommodate various functions as required. The building will inspire the imagination of children as well as the community encouraging them to achieve more.

Adaptable – The facility should be multi-functional adapting to the needs of its various users. This requires spaces to be designed in a way to accommodate many types of functions and programs which could be altered to adapt to the needs of each activity. Buildings change through time and undergo various remodelling stages in their lifetime to stay relevant. Therefore it is important to focus more on structure, and spatial opportunities letting the current owner decide on the finishes. The structure provides the working circulation but the finishes carry the mood. Some aspects of the design could easily be removed and replaced with future materials and technological advancements without tearing the structure down.

Sustainable – Buildings of the future should be looking at ways to minimize environmental impact and provide for more than just the people, to give back and improve the existing environment. Taking into consideration innovative design techniques, bringing down the carbon footprint of the building erected.
**Fun** – The architecture, forms, spaces and technology will seek to become more interactive as the building evolves into our lives. Spaces will aim to be inspiring, productive, communicative and functional and user friendly towards a variety of ages.

**Multi – user** – Building education into the future is not just looking into innovative and compelling ways to educate the generations, but also to incorporate the community back into the schools to use the spaces for their own needs. With technology becoming so intertwined within our lifestyles, it has become like a part of our identity in such a way that many people will struggle to live without it. Bringing technology into the classroom is not a new concept, but providing for the future unknown technologies and bringing public in to share the technology and use the facilities is a program yet to be explored.
Fig 5.1.2 Community School relationships diagram to other Organisations
A school could be the heart of a community. If a school was to be the central organization containing facilities such as a Day care, Conference centre, Fitness centre, medical centre and arts centre, it would be very easy to link external organizations into the community. The school will provide facilities to organizations which will be financially and environmentally beneficial. These are but a few possibilities of what kind of organizations would benefit from such a shared facility. Facilities which will prove to be beneficial to the community and school would be a large gymnasium with at least a full size basketball court. A swimming complex to educate children to swim and the community for leisure and sports, a library with an adults section, media and technology and children’s section, and a medical centre on the site would also be valuable to the community and school offering a pharmacy and medical education on various levels. A preschool to allow parents to drop off their child while they may go for a lecture course, or relax at the cafe, library, medical or one of the sports facilities. Each of these facilities could cater for some of these external organisations.
5.2 Design Research

Primary School Requirements

Age range 5-10 years

General:
- Normal roll size 320-480
- Gross area approximately 3.7m² per cost place

Classrooms are boxes of enclosed learning spaces, but the future is looking at opening the boundaries of these boxes in order for spaces to adapt, transform and provide creative spaces for the community. The classroom is to unfold, unpack and blur the lines of how the classroom is traditionally known. The design should allow for variety in both organization and teaching methods, it should provide a recognizable home base area for each child while providing opportunities to move and use more sophisticated equipment.

Open areas:
- General Activity space may be formed in a home base situation; by the use of display and furniture each teacher can establish a territory.
- Practical areas, if these are regarded as nuclei, activities will overflow back into the general activity spaces. They need to provide services and storage for work in science, cookery, art and creative works and access to outside.

Large group room (50m²)
Class focused group activities as a mixed use area and teaching space

Closed areas: (17m²)
- Small group rooms this provides essential balance to the open areas allowing quiet (or noisy) work by 10 to 12 children. In addition up to 35 children can be accommodated for short periods through various activities such as announcements, films or screening displays, storytelling etc.

Facilities shared with the remainder or school (128m²)
- Physical education space, minimum ceiling height of 4.2m is required.
- Drama/Music room (60m²) with up to 35 students could accommodate larger groups for audio activities and limited or age appropriate assemblies.
- Library, central resource centre
- Staff and employees room
- Medical assessment room
Preschool Requirements

Age range 0 – 5

General:

- Normal size roll, 30 – 60 full time equivalent
- Gross area approximately 4.18m² per cost place
- Play room area – 2.3m² per pupil
- Nursery garden 9.3m² per pupil (minimum 3.7m² paved)

40 students:

- 92m² play area- (floor play, painting, clay modeling, sand and water play.)
- Quiet room 10m²
- Reception, 16/17m²
- Office 8/9m²
- Storage 9/10m²
- Additional staff lavatories, kitchen, utility
Administration requirements

The administration or reception area welcomes members of the public, community or students who seek assistance. The admin should provide a comfortable working environment for staff and be linked to offices with appropriate document storage and. The admin will also act as a ticket sales counter on the nights of an event, performance or seminars. It takes the responsibility of most of the management and finance on site. This includes dealing with parents and children of the school, the community or public wishing to find out info on events, lectures and courses, appointments or enrolments.

Cafe requirements

The cafe will replace the need for a staff room. The cafe will be public yet secluded from children. The staff will be able to use the cafe as a staffroom for meetings, social gatherings, or a breakaway zone coffee and tea could be subsidized for staff and employees. The community integration will help sustain the cafe whilst bring in new social groups into the development increasing the environmental separation from the school atmosphere. The cafe will serve people visiting the medical centre, aquatic centre, seminars, sporting events, performance nights, church groups or any other activities the facility manages to cater. The cafe should have an inviting atmosphere which lures the community for no other reason than just having a relaxing place to meet for coffee, brunch or lunch.

- Seating for 50-70 people
- Serving counter
- Kitchen
- Cool room

Library requirements

The Library should cater for all ages and separated with a children’s section and an adults section. The two sections should be connected via some circulation patterns yet provide a sense of security for when school children are using the library. A technology based area will also be included with specialised high tech equipment such as holographic rooms, computers, internet and other digital devices.

- Adults section
- Children section
- Withdrawal spaces
- Computer and media section
- Check out desks or stations
- Clear circulation
Gymnasium requirements

A full scale gymnasium will incorporate various sporting courts. There shall be a public entrance for users and spectators, an area for spectators to stand or sit and appropriate storage spaces for equipment. A secondary entrance will be required for the school. This is to provide a separation between the public entrance and the school entrance to the hall.

The gymnasium is a large open space which has the ability to cater for much more than just sports. Through mechanical systems and moveable bleachers, the gymnasium can be transformed from sports hall to theatre hall. This will add to the flexibility in use of the space. Church, community, school production hall rentals eg, wedding ventues and parties or large seminars could take place within this transformable space.

- Netball (32m x 16.75m)
- Basketball (28m x 17m)
- Volleyball (22m x 13m)
- Indoor Soccer (30m x 18.5m)
- Badminton (15.4m x 9.1m)
- Seats
- Storage
- Sound & Lighting
Aquatic Centre requirements

The aquatic centre will be used for recreational and education purposes by the public and school. However due to the constraints of the site, a half sized Olympic swimming pool and a learner pool can be incorporated. The learner pool may become part of the physiotherapy rehabilitation pool which will have specific requirements of its own. Combining a rehabilitation pool with a learner and children’s pool will help prove the space to be more efficient in use and costs.

Other contributing spaces to the aquatic centre may include a sauna and spa area mainly for relaxation purposes. This area will need to be placed with careful consideration in relation to the other pools. The centre will need its own main entrance, reception desk and bathrooms.

- Reception / Office
- Viewing area
- Changing Rooms Male and Female incl showers
- Lockers
- Main pool (25m x 13m)
- Learner pool (12m x 7m)
- Sauna
- Spa pool
Health Centre requirements

A health centre is a building which provides, is equipped, maintains and is staffed by family doctors and dentists. The purpose of a health centre is to draw together, and fuse into one organization, any combination such as traditionally separate health services: The health centre will provide for the community and the school. Traditionally health education is brought to schools through a program called “Harold the Giraffe” which is a life education program teaching children about anatomy and various other medical disciplines.

But with a medical centre at their door step, the school program would benefit to the education of their students. Students are taught by professionals, and the health centre can make use of the classrooms afterhours to educate their staff. Other courses such as first aid classes would benefit several groups such as the school teachers who need to keep their first aid certificate up to date, business education staff, St Johns ambulance training, the swimming complex staff and life savers, and also members of the public. These are a few services which would be beneficial and offered with the capability or sharing offices or specialized spaces and equipment.

Community based medical centre services

- Maternity and child welfare
- Ophthalmic
- Pediatrician
- Child guidance
- Speech therapy
- Physiotherapy
- Community nursing services
- Community health visiting services
- Chiropody
- Health education
- Social services

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Design Philosophy

No single pattern of health centre has been established, and health centres offer a variety of services based on their community. However, the philosophy of health centres is based on the improvements of general medical practices in combination with community requirements. Because of the changing nature of general medical practice, a health centre should provide for both flexible use of space and for balance in growth.

Structure of Health Centre

The principle of a health centre is the co-operation between practices, and is not usually divided into separate units. If the population exceeds above 20,000 then the domestic character of general practice is endangered and the plan may be better suited if divided to groups or teams. This health centre is expected to serve the local community and school children. Therefore the size enables a decentralized organization of services with the ability to share various facilities focusing on age relativity first in order to maximise the use of space and flexibility.

Long Life, Loose fit and low energy

Health centres and hospitals should be designed with long life span intentions and should be done so with good structural envelopes, engineering services and flexible spaces for a layout that can be renewed. The structural element of the design should cope for the next 100 years with services easily upgraded as technology advances in future. The solution is based on loose fit design principles which have been developed and studied by Richard Llewelyn-Davies and John Weeks, and also by the Department of Health Social Security.

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Main entrance

The main entrance should be clearly visible, identifiable and easily accessible to all patients and staff.\(^3\)

Reception

The reception staff has to cope with the direction of patients to waiting areas, the making of appointments and organization of administration.\(^4\)

Waiting Areas

The waiting area should be located near the entrance and is usually located near the reception desk.\(^5\) The advantage of having a waiting area near the reception desk allows doctors or receptionists to call out the names of waiting patients. The area is also overlooked by the staff for closer communication and security, a closer connection between the staff and visitors is achieved. The location of toilets should also be easily accessible in relation to the waiting area.

Pharmacy

The pharmacy is a department where drugs are stored and received. This can be combined with the reception and waiting area putting strong security in availability and storage of all drugs and medicines. Patients are able to purchase or collect prescriptions at a store near the entrance for convenience. The pharmacy will serve and store drugs for general practitioners, dentists, physiotherapists and the community. The diversity of services, school children and community ensures the success of the pharmacy.

Consulting rooms

Normally consulting rooms are provided for each doctor on a personal basis.\(^6\) However when consulting rooms are not in use, they should be used for other purposes and shared amongst services offered within the health centre.

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Treatment rooms

Treatment rooms are used primarily by doctors or nurses performing simple techniques. Treatment rooms should be considered in conjunction with some consulting rooms. Although some patients would prefer the privacy, a divider should be available for when required. As a general combined room it is expected to provide a space of approximately 17m².7

Physiotherapy

Individual rooms are required for patients of approximately 6m² with passageways of approximately 1.8m wide to allow for wheelchair access and flexibility. Special heat treatment and electrical apparatus machines are also needed and require storage space. Physiotherapy requires spaces such as gymnasiums, for various activities of rehabilitation. Swimming pools are also a good form of exercise known as Hydrotherapy. Because the health centre is conjoined to a school, it can benefit by making use of the facilities which would have otherwise been expensive to run without the involvement of other services. Sharing the facilities will lower costs, and increase day time usage making the facility more sustainable. For hydrotherapy, a raised pool with water level above ground allows staff to operate from outside the pool as well as in it.

Education

Traditionally nurses and technicians had departments for training within a hospital. They required rooms for practical training, demonstrations, library, lecture rooms and discussion rooms. However with the health centre joined to a school and so many other facilities at their disposal, the health centre can provide health classes to medical students training, while providing various services. The school provides a library, meeting rooms, lecture theatre, gymnasium, swimming centre and classrooms for staff training or first aid courses.

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Service Spaces

Dental Surgery room – 16.5m²
Dental Laboratory – 28m²
Health education room/ physiotherapy – 28m²
Chiropody – 11m²
Nurses/ Midwife room 11m²
Speech therapy – 14-23m²
Combined Consulting Room – 16.50m²
Consulting room –
Physiotherapy – 6m² + facilities

Some of these services have the abilities to share their spaces when not in use. Speech therapy for instance could take place within a school classroom, or physiotherapy room.
6.0 Concept Development

Fig 6.1.2 Concept Sketches
6.1 Exploring Relationships

After analyzing the site and context, the next stage attempts to find the relationships between various facilities throughout the school. How various classes and facilities may be arranged to work with and for each other. Each diagram explores possible organizational relationships and places various facilities in different collaborative groups.
Possibility of various clustered and common spaces in family groups.

This diagram explores connections, program and possible operation within the body. This shows the various clusters and common spaces in their family groups. This relationship diagram took education as the main connection branching to possible shared facilities. The diagram shows each group as independent as a healthy working environment with specific spaces whilst being equally connected to the central learning studio shared by the school and community as a whole.
Clusters and Affinities
Possibility of various clustered and common spaces in family groups

Learning Studio
Multi Media
Science + Technology
Performing Arts
Arts + Design

Gymnasium
Auditorium
Cafe
Reception

Courtyard
Outdoor Learning

Library
Multi Media
Project Area

Technology
Seats and Desks
Open Floor
Common Learning
Resource / Storage
Project / Wet Area

Porch / Work Area

Technology
Seats and Desks
Open Floor
Common Learning
Resource / Storage
Project / Wet Area

Porch / Work Area

Fig6.1.3 Working Group Relationships
Possibility of arrangement in activities

Within this relationship diagram, the public have taken equal hierarchy with the open possibility of a central hub which is shared by everyone. Within a context like this, the scheme is encouraged to work as a community. There is freedom to move between any of the three areas each containing specific facilities categorized by their relationships.

Summary

Both diagrams explored different placements of facilities and their relationship to different groups. Based on the existing classrooms and school relationship, the educational sector would benefit with a relationship as in the second diagram. However, the school itself could function within its own programs and spatial relations based on the first diagram. The shared facilities will be at the centre of the site connecting school and public, but the school has direct connections to working and learning spaces vital to their program.
ClUSTERS AND AFFINITIES

Gymnasium
Learning Support
Library
Resources
Cafe
Work Station
Reception
Lounge / Reading

Central Social Hub
Project Area
Learning Studio
Classrooms
Multi Media, Science, Technology
Performing arts, Art, Design

Seminar
Meeting
Conference
Lecture + Learning
Interview
Distance Learning

6.1.4 Organisational relationships of facilities
6.2 Important Educational Spaces

Learning Spaces
Various learning settings have been chosen to suit different kinds of activities and learning situations. The variety of settings allows students, teachers and public to occupy a space suitable to their needs.

There are a few key aspects required to help maintain a healthy learning environment. Several spaces require individual qualities which are seen as essential elements to the program and design. Therefore it is vital that through my spatial organization within the site, it is important to tie in these qualities within the layout and design.
**Learning Spaces**

Various learning settings to suit different kinds of activities and learning situations. The variety of settings allow students, teachers and public to occupy a space suitable to their needs.
Out-door Learning Space

- Outdoor spaces could consist of any scale and defined by the buildings edge, landscape or light weight covers and seating.
- This provides informal outdoor areas for socializing, study, reflection or discussions. This also provides the opportunity for small group activities and outside classrooms.
- Size - Varied (space defined)

Breakout Space

- Providing spaces with lounge areas, small study groups, and widened corridor spaces allow the separation between formal learning spaces.
- These spaces provide psychological and physiological relief from the formal environments. These spaces allow for reflection and social activities.
- Size - 15 - 20 m²
Teacher meeting space

- Spaces for staff, or groups to have meetings with preparation space.

- This encourages team teaching and mentoring between staff members, integrating planning and informal discussions.

- 20 - 25 m²

Resource & Supply

- Areas providing resources, storage and supply near classrooms for projects, tools, products and materials.

- These spaces are important providing ready access to supplies, tools and storage for learning.

- The safe storage of supplies and property between users in a multi function space is also important.

- Size 20 - 30sqm
Presentation & Display

- Spaces for demonstrations or performance

- Furnishing to display projects, or work in progress, (white boards, tack surfaces show case. etc) This could be integrated with circulation.

- Gives the opportunity to practice, share skills with others with the ability to receive feedback.

- Providing spaces to show ideas, and presentations or finished projects.

- Size - Presentation area 40-50 m² Display (20 m²)

Project & Wet areas

- Spaces which provide a variety of workable surfaces with cabinets and supplies. Storage areas for projects with accessibility to tools and technology.

- This will provide spaces to produce information, services and ideas. It also encourages critical thinking, problem solving and team work.

- Size - 40 - 50 m²
Individual Pod Space

- Provides a quite space for individuals to think, reflect or study.
- Small group gatherings
- Personal one on one discussions space
- Size: 10s m²

Group Learning Space

- A multipurpose workspace for staff, students or members of the public to operate as individual or as a team.
- The space encourages team teaching, mentoring, integrated planning and informal discussions.

Size 20-25 m²
6.3 Development of Plan

What design methodologies should be considered when designing a facility which is expected to adapt, be flexible in nature and stand the test of time? To be driven solely by functional requirements seems inadequate as such a design will not do justice to the complexities and relationships involved within such a mixed use facility. However, since there are various specific requirements to each type of activity, to choose to go consciously against functionality equally seems inadequate. Part of the design strategy is to design with flexibility in mind; a large amount of freedom is required within the design. Due to the existing school, careful considerations need to be taken in positioning the additional facilities. Each facility or space has its own set of requirements and relationships with other spaces.

It is clear that there is a central radial axis upon which the classroom have been built in order to provide the sense of security (inside / outside) as a school. This axis will have some sort of influence the design and layout while attempting to merge school with public. Since the school is already at the southern end of the site, the additional buildings will make use of the northern end near the current sport fields. However the grounds should still provide the school with a sport field meaning the design layout will need to make use of the contours and overlap spaces carefully.
Stage 1: Spatial organization

Since the task is to maintain the existing school structures, the development would need to be at the southern end or around the school. The sport field is the lower end of the site is only just large enough for a soccer / rugby field. With no other place for a sports field, it was clear that this area had to be kept reserved. The elimination and recognition of existing areas provide a clear understanding which areas can be used for future development.
Entrance

The entrance is the first threshold a person enters through into the complex, they should feel welcomed into a space feeling content and accepted. Emerging into the central space, or the heart, there should be connections to all areas within the site. The entrance needs a reception, welcoming, guiding and serving the visitors into the building. The reception is the point of service, direction, to the right is the existing school while to the left is the opportunity to develop a public sector.
The Gymnasium

The gymnasium is a facility which would be most commonly shared between the public and school. Therefore it was chosen as the centre, and physical divider. The gymnasium has the ability to cater and adapt for the most amount of groups. Used by the school through their curriculum, used by the public for events, sports, church gatherings, theatre or galas. Therefore the placement of the gymnasium needs to be at the heart of the development making connections to all groups.
The swimming complex is best suited near the field where a larger amount of space was available for a two story building. Making use of the contours the aquatic centre is a full story below reception level. The intent is to create a transition with shared public spaces between the swimming complex and gymnasium. A cafe located between the gymnasium and swimming complex provides a good relationship between the two services. Diagram Fig6.3.6 shows the connections each area has in relation to one another.
Public space

In order to provide enough circulation and space for the aquatic centre, it was necessary to demolish one of the existing pavilions. The circulation area will include a cafe, bathrooms and a preschool. The pavilion situated on the public side (left from entrance) will be reused as a stationary and printing shop as well as an office. The other pavilion adjoining the reception will remain as a classroom but it will also serve as a multipurpose room for meetings or small class course.
The library is an important facility to the site. However space is extremely limited and it had to make a connection between school and public. The library should be large enough to cater for school children adults with a media section where advanced technology such as holographic projection could be shared. To maintain a connection of integration, it is important not to physically separate the library into separate buildings. Since the library is another main attraction, it should be clearly visible and easily accessible to everyone.
A medical centre would be hugely beneficial to the school and community, and a school, library and swimming complex would in turn be beneficial to medical staff and other practices within the centre such as physiotherapy, or staff training. The medical centre itself needs to be easily accessible and should perhaps be accessible without entering the entire complex. It is expected that the medical centre would operate on longer hours than the rest of the school if it were to incorporate a gym and pharmacy. The lower end of the site near the entrance would be a very suitable place to position the centre. Currently the school is hidden and unknown to exist from the main road. Therefore the placement of the building would advertise the entire site as a Centre which will invite the public onto the site to use the facilities.
Fig 6.3.10 Proposed Layout on Site
MEDIA CENTER
AT MID-LEVEL
AT THE HEART
OF THE SCHOOL

Fig 6.4.1 Planning and Designing Schools C.William Brubaker Sketch
6.4 Circulation

The reception office is the main entrance to the complex and is shared between the public and school. The front entrance acts as the main resource and information area splitting groups into various directions based on the purpose of their visit. The southern end of the site will remain as current, primarily for students and teachers. This is where the existing classrooms and school courtyard lays. Since this project explores community integration with education in mind, it is important to make the classroom spaces easily accessible after school hours where night classes have the opportunity to take place. The library and northern end of the school will become more publicly focused and accessible throughout the day with consideration that the school would also use some of these facilities. Therefore it needs to be possible to access various parts and facilities without having to pass through the reception and public areas.
The school students and staff have a secondary entrance between the pavilion and the old library which will now become another clustered classroom. Students who regularly attend the school may enter through the secondary entrance which is a more direct route towards the school courtyard and classrooms. This also helps minimise the amount of people flowing through the entrance on a daily basis which could become unbearable to members of the public through the hours when school starts and ends.

Several routes have been explored and organized to flow around the public sections. The routes are safe and do not interrupt the public sections, maintaining a degree of separation which is important to the sense of place.
Public Circulation

The public circulation also needs to be kept separate in certain areas. This is to enforce the sense of a community centre and not of a school visit. The reception, office, stationary and business shop, cafe, preschool and the swimming complex’s upper levels will have a similar atmosphere to that of a mall. The spaces are open to all, where the public can freely wander and relax. Since the classrooms are linked directly to the reception area, the school area has the ability to become accessible to the public as evening courses are held.
The concept focuses on the facilities placed within the site based on their relationships. The layout and massing derives from an existing focal point, the school courtyard, and the second being the new gymnasium which was analyzed to be the heart of the mixed use facility.

Both of these focal points direct a line through the proposed entrance between the two remaining pavilions.

The two pavilions will remain due to their well designed flexible spaces, but their exterior will be remodeled to join the additional buildings.

A curves surface from the two pavilions will draw the eye towards the entrance and reception lobby. The library on the second level is the large radial structure as suggested in the sketch, overhanging the entrance creating a face to the building. A clear entrance portraying the sense of a public facility being occupied by the public.

The curved facade carries onto the sportsfield tying the field with public space aswell as connecting and providing the library with another aspect of the site. Visual connections are used to connect and integrate the various spaces and facilities.
6.5 Structure

Structure plays a very important part of a buildings lifespan. As analyzed by Stewart Brand, and suggestion by Christopher Alexander and through various examples I have recognized that have stood through the years, the key aspects to their success is their malleability and adaptability. So what does this mean and how do they influence design? Malleability includes the capability of being shaped, formed, pressured, controlled and influenced. In order for a space to be altered, the design should allow for flexibility, and flexibility it ultimately affected by structure. Therefore the importance of structure is of most significance when designing for future reuse. Because we cannot determine the program of tomorrow, we must allow as much flexibility as possible to ensure the lifespan of any major building.

Structure also contributes to adaptability; however the structure may also be influenced by technological upgrades. A building's structure will typically not change as quickly as technological advancements. Electrical, data systems, service components and technology itself are often intertwined within a structure. Buildings such as the famous Chatsworth house stands majestically within its country context even though it was built in 1549. However it has stood through time by becoming a monument, an icon, a museum, but not because it has adapted. Buildings like these have not managed to stay relevant in terms of their usefulness. They are admired but not used. A building such a school and community centre should be at the heart, contributing in every way possible in order to remain relevant.

Key aspects which will allow both malleability and adaptability to occur, the structure should incorporate large open spaces within the boundaries of the building. Most of the buildings loads should be transferred through the boundary walls with as little as possible internal load bearing walls or columns. Doing so has provided the opportunity to place partitions or light weights walls to create various spaces within the structure. Load bearing walls are only obstacles of inflexibility.

Technological adaptability would be done through various cavities devoted to services. These cavities are in as many places as possible to enrich the sense of adaptability. Walls, ceiling space and floors are all places of opportunity to support these essential services.
Fig6.5.1 Concept proposal of layout and structure
The radial movement of the structure and design, was influenced by the existing pavilions layout which had their own radial layout as seen in the site analysis. The library begins its radial based on the existing layout curve, creating a front facade and entrance which is clearly visible to visitors unlike the existing school entrance.
Until the second pavilion which is now a stationary, printing and business spaces, the radial alters slightly in order to create a facade to the sports field. The library overlooks the field providing the users within a visual connection the outdoors.

The entire radial structure uses the heart, (Gym) as the centre point of axis.
Fig 6.5.4 Swimming complex detail of structure
Fig 6.5.5 Swimming complex detail of level change
Fig 6.5.6 Detail of Library floor showing cavities and structure, services

- Carpet
- Acoustic Underlay
- Reinforced Concrete Slab
- Warm Water
- Cold Water
- Hung Ceiling
- Electrical Cables
- Quade Lock System
- Ring Beam Reinforcement
- Concrete Column

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Fig 6.5.7 Medical Centre structural layout design
The Medical centre has all the same principles in mind as through the rest of the project and structure. The layout and design of the centre is influenced by the available building area by the sports field and its relationship to the main road and entrance to the site. The medical centre advertises, facing the main road, Oteha Valley Road, it welcomes from the car park and overlooks the sports field. Each of these facades is equally important.

The structure is based on a grid system to provide modular like spaces allowing the internal configurations a flexible structure.

The main load bearing supports are situated around the perimeters of the building with a few internal columns to carry the span loads. The structure is a combination of concrete and steel with quad lock precast floor cavity systems. The quad lock system is precast panels with cavities to allow spaces for electrical wiring, ventilation or drainage services.

Bearing in mind future reuse, since the structure is designed with open plan, it has the opportunity to be easily remodelled into spaces such as classrooms offices or businesses.
6.6 Environmental

- Land Use and Ecology: 8 points
- Transport: 11 points
- Indoor Environment Quality: 26 points
- Water: 12 points
- Energy: 24 points
- Materials: 24 points
- Management: 13 points
- Emissions: 12 points
- Innovation: 5 points

TOTAL AVAILABLE = 135 points
Transport

− Due to the nature of the thesis, the design and program provides a variety of services eliminating the need for transport.
− The site is situated within walking distance from the Albany bus station which provides frequent public transport services linking the city and other suburban areas.
− The school already has a Walking School Bus program which is great for community integration and support.
− Shared cyclist stands are available to both school children and the public.

Land Use and Ecology

− The mixed use and programs incorporated within the design, provides compact and well used spaces increasing the overall annual usage. This affects running costs and maintenance.
− The Medical centre also has a green roof promoting the sustainable vision the design incorporates. The surface area of vegetation is greater than the surface area used by the medical centre.
− The thesis program makes use of valuable urban land within an existing community maximising and enhancing the site development.
Indoor Environment

- Day lighting has been maximised through all areas of the designed with windows into every space.
- Facilities have maximised external views creating visual connections.

Energy

- The mixed use facilities means maximising the usage which contributes to cost effectiveness and efficiency.
- Solar panels on the Swimming complex are north facing collecting energy through the majority of the day. The energy collected is put back onto the grid, and the amount put onto the grid is deducted from the facilities power bills.

Water

- Large rain water harvesting storage tanks are situated beneath the kindergarten play area next to the swimming complex. These tanks collect storm water relieving pressures on streams and drains.
- The tanks supply grey water to toilets over the site.
Fig 6.6.6 Environmentally Sustainable Design Integration
7.1 Conclusion

Over the last few decades, society has experienced an ever increasing pace of change in technologies which has a dramatic effect on the way we communicate and also change our learning habits and preferences. Many of the beautifully designed solid and styled buildings of the past, which were designed with a specific purpose in mind, have already had to give up its originally intended purpose and be altered internally, or be demolished to make way for newer buildings with more current needs in mind.

The project uses a school as an example to integrate the public into a school site and to ensure the buildings of the school site stays adaptable to current and future mixed use facilities. The approach of addressing the relationships between facilities and users has led to a solution of successfully integrating the existing school facilities with additional development for contributing facilities. The design outcome has also displayed the ability to share various facilities without sacrificing the security of school children. The proposal offers a public entrance splitting into various directions to which the visitors may be interested in. The school itself may not even be needed in just a few decades due to changing demographics of the community around it, therefore the school program should easily be able to give way to other facilities needed at that time to occupy the space and buildings designed today.

In this design outcome the school has been supplied with a full scale gymnasium, swimming complex, a large library for adults and children, café, preschool, health centre and allowing for many other programs such as clubs, conferences, adult education, personal development, health services, meet-up groups, etc. capable of using these spaces. The site and buildings belong to the school and external organisations occupying the spaces will contribute by paying rent to the school. Each building will be managed through a shared reception area where appointments can be made or information gained. Both rental income and profits gained from public use, will be contributing towards the overhead running costs of the facilities. The larger number of contributors and consumers, clients or customers provides a more sustainable and cost efficient site with its grouping of buildings which benefit everyone in the community. Opportunities are numerous and an added bonus is that adaptability is kept in mind to allow for needs and technologies we don’t even know about yet.
**Existing School Buildings**

The scheme was brought down to an urban scale, which meant maintaining most of the existing structures and retrofitting one building for a new purpose. The existing and retrofitted structures have been proposed in a way that supports flexibility and future reuse in mind. The existing school office and library building have been transformed as additional open plan classrooms with modular furniture for added flexibility in use of space. The classrooms now have the opportunity to serve for more than just primary school classrooms with their integration, folding walls and technological inclusions.

**Medical**

The medical centre is beneficial because having students near a health centre allows for a more visual and experienced health education on various levels as well as medical checkups and annual testing done on children currently in our standard school years and system. This could include services like immunisations, nurses, general practitioner, paediatrician, dentist, optometrist, audiologist, physiotherapist and child/family welfare councillor. The medical centre replaces the need for a school sick bay and nurse.

A medical centre can immediately attend to and care for unwell children giving parents more peace of mind as they make their way from their normal workplace towards a child reported unwell. The centre with qualified staff could conveniently supply parents with medical advice as well as dispense medicine from the pharmacy. Parents can make their way home or to hospital soon after without needing to make another appointment, undertake more travelling and then possibly experience delays in seeing a general practitioner elsewhere.

The selected services within the design are chosen according to current relevance within both the school and community. A walk-in medical program can run on the side to also serve the community to ensure full use of medical staff services while there is no immediate need for it by the school children.

The architectural design outcome of the centre is welcoming, fresh, uplifting and finished with modern materials. Simple but strong in structure, the centre offers flexibility in spaces for both current and future adaptability in use.
Aquatic Centre

A swimming complex enables the school to have swimming lessons and water sports as part of their curriculum. The swimming complex offers a recreational facility to the public with a half Olympic swimming pool, diving boards, learner and rehabilitation pool, a Sauna and a Spa bath.

Parents can drop their children off at the school or preschool and make use of the aquatic centre while their children are in safe hands. Even teachers could use the centre for exercise or sporting interests at times which suits their rosters.

The structure of the aquatic centres has been designed with large open spaces without any internal structural walls. Supported by the aesthetics of the design, it is open, modern and makes sensible use of the site. Circulation is easily and safely accessible to both the school and public without disrupting each other.

Library

A large public library which includes, historically treasured classics, current new works in demand, latest technologies, extensive archives which can be researched electronically and a children’s section keeping up with the interest of the latest generation, is a library from which everyone could benefit. Although children may normally only attend to the children’s section, children could be encouraged to use an integrated library containing more advanced technologies to research topics forming part of their current curriculums. This gives children the opportunity to extend their knowledge at a higher level than may currently be possible in our standard school libraries, if they choose to. The library offers advanced technology such as holographics and other impressive screenings to both the school and public. Quiet study or reading areas have also been included. The library has visual connections to almost everywhere on the site as it wraps the gymnasium looking inwards, and the radial design moves from the school courtyard all the way to the open sport fields.

The Structure of the library is open plan and divided into sections using various furniture arrangements rather than internal walls. The design focused on connection, privacy, layout and contextual responses which influenced the design to be a modern high tech facility which is publicly shared.
The gymnasium

The school currently has an existing hall which is big enough for class physical education, but it is barely large enough to fit the entire school for an assembly. A new full scaled Theatre and sports gymnasium, benefits the school with a space where the entire school can come together for sports activities, physical education, school productions or presentations.

The Gymnasium also serves the public with its large space by offering sport activities such as basketball, netball, volleyball, indoor soccer or dance sport. The gymnasium has moveable telescopic bleachers which transform it into an auditorium. The structure and design is very mechanical with moving bleachers and lights on rails for stage performances.

Other types of exercise classes can also be offered like Zumba, Yoga, Pilates, etc. The auditorium can even be used for church gatherings, Wedding receptions, special parties and events, seminars, lectures, prize giving events or showrooms for collective marketing like Weddings, Pregnancies and Babies, Jewellery and Make-up, Career Planning, Travel Shows, Auctions, Galas, etc. These types of gatherings will inform the wider public of the useful facilities offered by this site and may promote and encourage more traffic and use of other facilities.

The Gymnasium takes on natural daylight through the ceiling as part of sustainable design management. Light is filtered into the space from the cafe through large doors and windows, and similarly from the school courtyard. A visual connection is yet again made from the cafe to school through the gymnasium.

Preschool

The addition of a preschool benefits preschool children by allowing them to become familiar with their future school. When they leave the preschool they are already comfortable with the environment and have most likely already attended some of the facilities. They will most likely have experienced swimming and water play, the library and books, the medical centre for checkups and have visual recognition of the grounds around the preschool.

The Preschool allows parents to drop off a child who is 1-4 years old at the same school as their 5-11 year old children. Being within the community, the preschool could offer similar to babysitting services to parents even during evenings or weekends when parents wish to attend events not suitable for children or make use of any of the offered facilities on site. Whether they attend a lecture or part time University course at the school, relax at the library, go for a swim or have an appointment with the doctor, the preschool provides relief within walking distance of useful facilities.

The preschool design itself is currently proposed within the mixed use building with walls being non-load bearing. Movable timber walls are hung from the building’s structure and can provide separation between spaces, but they do not limit the use of space for future re-configuration.
The Café

The Café is an open inviting space where people can meet with friends, or coffee groups to have a social experience, or relax while waiting on someone else who is using any of the facilities on the site, or simply to grab a coffee or quick lunch as a matter of convenience on their way through the site before or after attending any facilities at the site.

The café can also offer nutritionally planned meals for staff and teachers during their normal work days, so it is not necessary to go off site to find something for lunch.

The café can also be used for training people in food technologies, for example chefs, waitressing, barista coffee makers, etc.

The café offers movable tables and chairs for enjoying a meal in restaurant style, but also some relaxing sofas where one could sit back and relax with a coffee.

Around a corner, a little removed from the normal café noise and atmosphere, is a more private area with groupings of couches to allow for small groups to gather with a bit more privacy. From the café area there is also a visual connection to other areas around the site like the gymnasium and the swimming complex.
Final Outcome of the Design

It is recognised that changes are happening at an ever increasing pace and the use of adaptable buildings and mixed uses proposed for the Oteha Valley school site could greatly improve and benefit the owners and occupants of these buildings. Not only have the benefits been proven within this thesis to be very valid for schools, but the same principles can also be applied to other types of buildings where their use is greatly limited in hours, for instance buildings used by churches, sports clubs, sport stadiums, etc.
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2 Kids pool & water slide
3 Half Olympic Pool
4 Learner & Rehabilitation
5 Reception
6 Sauna
7 Male Changing Room
8 Female Changing Room
9 Office
10 Spa
11 Machine Room
Redesigned use of Pod Structures
Existing Library, Office and Hall

OTEHA VALLEY PRIMARY SCHOOL ADMINISTRATION CENTRE GROUND FLOOR PLAN
Remodeled to Classrooms
School Office moved upstairs
1 Pharmacy & Reception
2 Treatment Rooms
3 W/C - M/F/U
4 Laboratory
5 Patients room / Multi
6 Dentist
Medical Centre Second Floor

1. Gym
2. Physiotherapy
3. Maternity and Child Welfare
4. Chiropody
5. Ophthalmic