MIRAMICHI MULTIPLEX PRE-DESIGN SERVICES

DRAFT FINAL REPORT
DECEMBER 22, 2015

City of Ville de MIRAMICHI

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1.0 INTRODUCTION

1.1 Executive Summary

This study has been prepared for the City of Miramichi, and develops criteria for a Recreation Multiplex program and design, in order to prepare a construction cost estimate for the facility. The title "Pre-Design Services" describes this phase which will aid the City in making a decision regarding moving forward with the recreation Multiplex, and it will inform the traditional building design and construction services starting with the Schematic Design Phase.

The study was split into two parts:
Part One - Market Assessment and Business Plan
Part Two - Site Assessment, Concept Design and Cost Estimation

In Part One, the consultants built upon two earlier reports, the Recreation Facility Needs Assessment Plan and the Recreation Infrastructure Assessment and Comparison Report. In this study the market assessment determines levels of use in both prime and non-prime time for the proposed facilities. The result is a reasonable projection of how the facility will be used by the community.

Based on the results of the market assessment the report moves forward with a building program including one spectator ice arena, which can be twinned with a second arena in the future, an aquatic centres including a 6-lane competition pool, leisure pool and therapy pool component, a double gymnasium and multipurpose recreation rooms. Additional best practices programming is also listed in the market assessment.

The business plan includes a staffing model, and typical other costs for facilities of this type, as well as a detailed operating proforma developed to indicate revenues, expenditures and net operating costs. The business plan assumes that the Miramichi Civic Centre would remain operational until its operation is no longer feasible, however the Lord Beaverbrook Arena, Golden Hawk Recreation Centre, Lindon Recreation Centre, Kinsmen Outdoor Pool, Chatham Outdoor Pool, and Miramichi Valley High School Pool would close. The business plan indicates an operational deficit in line with the City's current recreation facility operational deficit, and identifies that with a facility operational plan including new pricing policies, the facility may operate on a smaller deficit than what is currently run in Miramichi.

In Part Two, the consultants assisted the City of Miramichi in assessing sites of interest using a multiple criteria location analysis methodology. The three top scoring sites were then reviewed in more detail with concept site plans and cost estimations for site development. Site Development Cost estimates for these three sites ranged between $3,764,500 and $8,278,200. The City will require more detailed site analysis including geotechnical and environmental studies in order to move forward with the purchase and development of a site for this facility.

A concept design was developed out of an integrated design charette with City Staff and City Council. The concept reflects the needs and goals of the City, while includes more specific building information in order to inform a Class C Cost Estimate for the facility. The construction cost estimate for the building, excluding site costs, outlined in this study is $35,468,800. Total project costs would include the total of these construction cost plus soft costs which are typically 20% - 25% of the total project costs. The project cost estimates, taking into account the range of site development costs, are as follows:

Lowest Range of Site Development Costs Included

Construction Costs:	$35,468,800
Site Development Costs:	$3,764,500
Soft Costs (25% Construction Costs):	$13,077,767
Overall Project Budget Estimate:	**$52,311,066**

Highest Range of Site Development Costs Included

Construction Costs:	$35,468,800
Site Development Costs:	$8,278,200
Soft Costs (25% Construction Costs):	$14,582,333
Overall Project Budget Estimate:	**$58,329,333**

The Pre-Design Services conclude with a description of the next steps in moving towards the construction of a Recreation Multiplex for the City of Miramichi.

1.2 Consultant Team

This study was lead by Architecture49 and carried out with subconsultants dmA Planning and Management, WSP, and Hanscomb.

ROLE	CONSULTANT	COMPANY
Senior Architect	Joe Zareski	A49
Architect	Anna Sampson	A49
Recreation Planner	Jim Morgenstern	dmA
Recreation Planner	Wendy Donovan	dmA
Urban Planner	Christina Townsend	WSP
Traffic Engineer	Greg O'Brien	WSP
Civil Engineer	Denis Leblanc	WSP
Structural Engineer	Wade Enman	WSP
Electrical Engineer	Craig MacIntrye	WSP
Mechanical Engineer	Tyler Gallant	WSP
Landscape Architect	Mik Owen	Mosaic/WSP
Cost Estimator	Raymond Murray	Hanscomb

The consultant team would like to thank the Miramichi City Staff and the Miramichi City Council for their time and collaboration throughout this study.

City of — Ville de
MIRAMICHI

City of Miramichi

Multiplex Project

Needs Assessment and Business Plan

Final Report

Prepared by:

dmA Planning & Management Services Inc.,

November. 2015

November 18, 2015

Ms. Suzanne Watters
Director
Community Wellness and Recreation Dept.
City of Miramichi
94 General Manson Way
Miramichi, NB E1N 6K8

Dear Ms. Watters:

Re. Multiplex - Needs Assessment and Business Plan

We are pleased to provide our final report for the City of Miramichi Multiplex Needs Assessment and Business Plan. The study confirmed the need for new and replacement indoor recreation facilities to serve residents in Miramichi and provides an initial projection of operating costs. The proposed Multiplex will replace aging facilities, significantly enhance programming in the community and contribute to operating efficiencies.

As you know, we have a recommended that the Department undertake an operational review to investigate the implications of the Multiplex for current staffing, operations and policies. This is an important next step in the planning for this major new recreation facility.

It has been a pleasure working with you on this project. We trust the recommendations will provide a solid foundation for the Department as it continues to work toward the development of the Multiplex.

Sincerely,

Jim Morgenstern, MCIP
Principal

cc: Ms. Anna Sampson, Practice Leader for Sport and Entertainment, Atlantic Canada. Architecture49

21 Gaspereau Avenue PO Box 3935 • Wolfville, NS • B4P 2S3 • T:• 902.542.2908 • F 902.542.2906
www.dmaconsulting.com

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1.0 INTRODUCTION

In February 2015, Architecture49 and dmA Planning and Management Services were retained by the City of Miramichi for pre-design services with respect to the Miramichi Multiplex project. Part of this assignment included a comprehensive Needs Assessment and Business Plan for the proposed Multiplex.

1.1 ORGANIZATION OF THE REPORT

Section One: Background and Approach to the Needs Assessment

Section Two: Needs Assessment – Major Facility Components

Section Three: Business Plan

Section Four: Conclusion and Next Steps

Appendix A – The Benefits of Multipurpose Recreation Complexes

Appendix B – Recreation Participation Trends

Appendix C – Sport and Recreation User Group Input

Appendix D – Key Informants Interviewed

2.0 BACKGROUND AND APPROACH TO THE NEEDS ASSESSMENT

2.1 BACKGROUND

In Oct. 2013, the City prepared a Recreation Facility Needs Assessment Plan[1]. The report documented the community's interest in improved and expanded recreation facilities. While the report was not a comprehensive needs or market assessment, it did provide a Vision for the future development of indoor and outdoor recreation facilities based on considerable community consultation. Key findings of the community consultation aspects of the 2013 Study include:

- "Almost all respondents [to the online survey] believe that facilities are in declining condition and require significant repair" ……"in general residents support the decommissioning of the arenas and pool facilities to support the creation of a wellness centre" (P.3-4)
- "residents do not believe that merely replacing existing facilities meets future needs" (p.4)
- "the City should explore the centralization and amalgamation of sport assets" (p. 4)
- "significant civic, recreation and cultural facilities should be planned and located as "complete facilities". Thus the entire family has a reason to participate …..[and these facilities} should integrate sport, recreation and cultural assets to create multi-use and multi-cultural destinations".

Building on this community input, the 2013 Study envisioned a recreation concept that included The Miramichi Wellness Centre as "one of New Brunswick's most significant cultural, recreation and sports venues". While the specific elements of the Centre are not identified and the report goes on to recommend a major feasibility study to clarify needs and create a business plan, the concept of the Wellness Centre is consistent with major multipurpose recreation facilities that are increasingly the norm in other Canadian communities.

It should be noted that the Vision articulated in the 2013 Report is not a new idea. This interest in improved and consolidated facilities is long-standing and over 15 years ago Miramichi's most recent Recreation Master Plan called for the "rationalization" of major recreation facilities.

Following the October 2013 Report, a second study was commissioned to investigate the relative costs and benefits associated with renovating and updating existing City of Miramichi

[1] Council Report. City of Miramichi. Recreation Facility Needs Assessment Plan. Trace Consulting. October 2013.

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Multiplex – Needs Assessment and Business Plan
November 2015

facilities or replacing them with a new multi-purpose recreation complex[2]. This study, led by Architecture49, concluded that replacement of the aging recreational infrastructure while resulting in higher capital costs offered a number of advantages. This study also included a discussion of the benefits associated with major multipurpose recreation complexes which is reproduced in this report. (See Appendix A).

As part of the Architecture49 2013 study a Discovery Session was held with the Building Viability Committee to clarify the key components of a possible Miramichi Multiplex. At that time, it was determined the Multiplex would include a twin pad arena, with one ice surface accommodating 1800 seats for events that would attract spectators. The facility would also include an aquatic facility with a 25 metre, 6 lane pool ideally with multiple tanks which could accommodate instructional/competitive, recreational and therapeutic uses. Finally, the Multiplex would include a gymnasium/fieldhouse with appropriate finishes and fitments for traditional indoor sports (such as basketball, badminton and volleyball) and flexible multipurpose space capable of accommodating a wide range of other community activities. An indoor walking track was also to be included in the fieldhouse area. The Multiplex would not accommodate artificial indoor turf, which, if warranted, will presumably be made available at an outdoor venue with the potential for seasonal enclosure.

The scope of our work included a needs assessment and business plan for these facilities only (aquatic centre; twin pad arena; multipurpose space and gymnasium/fieldhouse). During the study process, other possible community facilities were mentioned as potential components of the Multiplex. These included other sports facilities but also such things as the public library. While the other facilities mentioned would be compatible with the Multiplex and have often been included as components of major multipurpose recreation centres, they were not part of the needs assessment and business plan. They could however be added in the future if additional study indicated this was warranted and the site and building could accommodate the expansion.

The Multiplex would replace the Lord Beaverbrook Arena, Miramichi Civic Centre[3], the Chatham and Kinsmen outdoor pools, the indoor pool at the Miramichi Valley High School and the Lindon and Golden Hawk Recreation Centres.

Finally, it should be noted that while this report does not address the broader community and social benefits of improved and expanded recreation services, we believe these are important considerations when evaluating the value of this project. Relative to the Province as a whole,

[2] Architecture49 Recreation Infrastructure Assessment and Comparison Report. 2014.
[3] While this was the understanding entering the needs assessment, a decision was made to phase the twin pad arena. The Civic Centre will be retained until the second phase of arena development. See Section Two for additional discussion.

the Miramichi region is more likely to report unhealthy eating habits and unhealthy weight for children, youth and adults. While other health behaviours, including sedentary lifestyles and alcohol and tobacco use are more consistent with Provincial levels, they still indicate potential health risks[4]. The role that recreation can play in community health and wellness is understood and reflected in the mission and operating philosophy of the Community Wellness and Recreation (CWR) Department. The Multiplex would contribute to the wellness goals of the Department.

2.2 Approach to the Needs Assessment

2.2.1 Needs Assessment Process

The following factors were considered in the needs assessment.

- **Service Area Population/Population Change**: The current and future population defines the potential market for the Multiplex. Both the City's population and that in the regional service area were considered.
- **Availability and Use of Current Facilities**: The proposed Multiplex will replace a number of existing facilities. A major consideration is the extent to which prime time is scheduled to capacity in these facilities as well as any indication of unmet demand.
- **Trends in Participation**. Anticipated change in people's interest in participating in various recreational activities is a major consideration in projecting needs.
- **Community Demand**. The demand for additional facility time among organized sport and recreation groups and other potential users.
- **Levels of Supply in Similar Sized Communities.** Where possible the facility supply per capita in Miramichi was compared to other communities of a similar size. Despite the limitations associated with comparing communities in this manner because of the many intervening variables, population based comparisons can provide a useful benchmark to assist in the assessment. Comparative supply levels was based on data for Ontario communities of 10,000 to 50,000 population. We used Ontario data because it offers a much larger sample of communities (36 for 10,000-50,000 population). In addition, because this was a special study[5] that was undertaken by dmA based on a survey of all major Ontario municipalities we were able to control for quality of the data and ensure that comparable facilities were included in each of the major categories used for benchmarking. The data was compiled in 2005 and is therefore somewhat out of date. It likely underestimates levels of supply in most communities.

[4] New Brunswick Health Council. My Community at a Glance. Health Indicators for the Miramichi region.
[5] Municipal Recreation Facility Inventory Study. dmA Planning & Management Services, 2005

These were the key considerations in the needs assessment. The following describes key aspects of the study process:

- Background information for the analysis was provided by City staff. This included the inventory and current levels of use of existing facilities.
- The input of organized sport groups was gathered at a workshop and with a detailed survey. In a few cases, user groups were contacted for follow up interviews to clarify survey information. This input was the primary source of information concerning current and future community-based demand. (see Appendix C).
- Interviews were conducted with CWR Department staff, other municipal officials, agency representatives and community members. (See Appendix D for a list of key informants).

As noted above, community based demand for facilities was measured through the input of the users, key informant interviews and CWR staff. We did not conduct surveys of the community at large, focus groups or other methods. For most of the facilities considered in this study, the core user groups are the best measure of demand and, based on our experience in other communities, their input as collected in this study is a reliable measure of the market. Furthermore, given that we are largely dealing with replacement facilities, much of the general community use has been captured in existing programming that will be transferred to the new facility. However, latent demand among current non-participants or anticipated interest in programs that are not currently possible in existing facilities may not be fully represented in the input we received. This would seem particularly relevant for the leisure and therapeutic components of the aquatic centre and for multipurpose program space. In these cases, we have estimated demand based on our experience with comparable facilities and input from CWR Department staff.

2.2.2 Key Assumptions

Key assumptions adopted for the needs analysis include:

- The City of Miramichi's 2011 population was 17,811, which represents a 1.8% decline from the 2006 population of 18,129. We understand that the City's Strategic Plan adopts population growth as a key objective in the hopes of reversing this trend. In addition, there are new business and employment developments – including the government pay centre that will provide over 500 jobs. While these initiatives are encouraging, they do not yet signal a reversal in the trend to declining population. There are no population projections available for Miramichi, but based on discussions with City staff and representatives of regional planning authorities, we have assumed a stable City population of 17,500. While this is a reasonable assumption for planning purposes, it

may be optimistic. Decisions based on this assumption should respect the uncertainty inherent in any future population projection for the Miramichi area.

- For the purposes of this assessment, we have assumed that the City of Miramichi service area extends into the larger region. The overall proportion of non-residents currently participating in arena, gymnastic and aquatic programs in the City is estimated at 17%.[6] Consequently we increased the assumed City population of 17,500 by 17% to arrive at an overall service area population for the Multiplex of about 20,500.
- We have no information on the changing characteristics of the population (age, household structure, employment, income, etc.). New employment, such as the pay centre mentioned earlier, may bring younger families to the area, however, the Miramichi area currently has an older age profile[7] than the Province and a major influx of younger households would be needed to counter the aging trend. Consistent with societal trends we have assumed an aging population which suggests lower levels of participation in active, organized sports. We have assumed that any other changes (income, ethnicity etc.) will not be significant and won't affect the demand for recreation services.
- For the purposes of this assessment, it is our understanding all existing use in decommissioned facilities will be transferred to the Multiplex and no new, competing facilities will be introduced in the market area.
- We have assumed minor change in existing CWR Department policies concerning fees, facility scheduling and other operational issues that might affect demand (see further discussion following).

[6] Based on information provided by the CWR Department for arena and gymnastics programs in 2014 and aquatic programs in 2008 (the last year for which information is available).
[7] New Brunswick Health Council. My Community at a Glance. Miramichi (and larger area) proportion of population 65 years of age and older is 19%, compared to 17% for the Province.

2.3 The Community Context

The following are unique characteristics of the local community that affect the assumptions and approach we have adopted for our analysis.

2.3.1 Multiplex Location

The Multiplex will be a single centralized facility replacing seven stand-alone facilities located throughout the City. The financial and programming advantages of centralized facilities are significant (see Appendix A). However, a concern has been expressed that a centralized location will result in less use. Whether the concern is rooted in historical attachments to pre-amalgamation communities or longer commuting times, if location affects use it is an important consideration in the needs assessment. The site for the Multiplex will not be determined until the needs assessment is complete. However, assuming a site is selected with reasonable access to major arterial roads and transit, we do not believe the location will have an impact on use for the following reasons.

- The majority of sport and recreation groups who will use the Multiplex support this position. Some of these groups (such as minor hockey and ringette) are already using facilities on "both sides of the river" with no detrimental impact on their participation. Most user groups (67% of arena groups and 63% of the gym/multipurpose space users) responding to the study's survey indicated location would have no impact on use (see Appendix C for details). For all other groups, anticipated impacts were minor and much less likely to be connected to the Multiplex location than to unique aspects of their current scheduling (e.g. the swim team uses the MVHS pool at 4PM and some of the participants can walk to the pool from schools in the vicinity. A new location might necessitate changes in this schedule, but was not expected to have a significant impact on swim team membership. Similarly, high school arena use is often scheduled at the end of the school day and a later start time may be required if additional travel was necessary. This was seen as a very manageable issue.)
- The situation in Miramichi is being repeated in virtually every major regional market in Canada as municipalities move from the old model of stand-alone facilities to large multipurpose recreation complexes. There is no evidence to suggest this transition is having a major negative impact on participation rates; indeed in most communities multipurpose recreation complexes are experiencing higher levels of community use.
- When multipurpose recreation complexes replace older stand-alone facilities, a number of factors generally increase use. The facilities are newer and more attractive to consumers. Contemporary design may introduce new features (such as recreational or therapeutic pools) that attract new markets. Parents attempting to get different

children to pools, arenas and gyms at various locations throughout the city, may find it much more convenient and less time consuming to travel to a single location. It will generally be more cost effective to provide transit to these facilities so service can often be improved.

- Miramichi facilities are already serving a regional market and wherever the Multiplex is located driving times for residents will be reasonable. Few parents would choose to deny their children the opportunity to learn to swim simply because they needed to drive an extra 10 minutes to get to the pool. Particularly if they are driving to a location where they can also register in a program or simply enjoy a cup of coffee in a pleasant setting while waiting for their children to finish a lesson.

For these reasons, we have assumed location will not impact community use. There will of course be impacts on individual users. Some residents faced with an additional commute or opposed to the location for other reasons may stop registering their children in a program – however, we expect these parents may change their minds after a few years and, in any event, these losses will be fully offset by new participants for whom the location is more convenient or who are simply attracted to a new facility. We acknowledge those living within walking distance of a facility that is decommissioned will be impacted. For example, we received an informal survey conducted with residents of Retirement Miramichi which indicated much lower levels of recreation activity if the Golden Hawk Recreation Centre is closed. We expect this would be the case. However, these residents are among very few in the City who can easily walk to a recreation facility of their choice. For the community at large, we believe the location will not affect use.

2.3.2 Replacement of Existing Facilities

Miramichi's existing recreational infrastructure is relatively old – the newest facility of interest to this study was built almost 30 years ago. Maintenance and capital conservation costs are significant and will increase over time. In addition, the facilities were designed for an earlier generation of users and few provide the amenities and programming features associated with contemporary recreation facilities. This is why the community is contemplating replacing these facilities with a new Multiplex.

However, the current supply of facility time is very generous. Some of the current infrastructure was inherited by the City with the closing of the Canadian Forces Base. It provides a level of facility access which far exceeds that in most comparable communities. The Golden Hawk Recreation Centre provides facilities, such as a bowling alley, which are not customarily provided by municipal recreation departments. Similarly, areas in the Golden Hawk Recreation Centre that were re-purposed for community use (e.g. the former rifle range as a dedicated

archery facility and the former theatre as dedicated space for the gymnastics club) would not be available in most Canadian communities.

Consequently, the potential development of the Multiplex represents a significant transition in the manner in which recreation facilities will be provided in Miramichi. For the purposes of this study, we have assumed that recreational facilities will be provided in a manner that is customary in other Canadian communities and some community space currently available will no longer be provided.

2.3.3 Staff and Volunteer Program Resources

The extent of programming in the community has a direct impact on facility requirements. Programming is a function of staff and volunteer resources. CWR Department staff identified new program possibilities with regard to existing staff resources. With the exception of aquatics, volunteers are responsible for most of the activities that will occur in the Multiplex. Most of the volunteer groups returning the survey noted constraints on programming associated with volunteers and skilled coaches and this undoubtedly affects their needs for facility time. Our assessment reflects these constraints and as such represents a realistic but perhaps conservative picture of community needs.

2.3.4 Fees and Charges

User fees and facility rental rates are very low in Miramichi compared to many other communities in Atlantic Canada and nationally. Ice time is subsidized; revenue from most gymnasium and multipurpose space is derived from a drop-in fee rather than a set rental rate; and the swim team is charged a very low annual flat fee for pool time. User groups generally recognize facility access fees are lower than in other communities and no group suggested their fees were unreasonable. However, relatively few groups were prepared to pay higher fees for better facilities. Only about 33% and 50% respectively of arena and gym/multipurpose space users reported a willingness to pay higher fees for new or improved facilities

Setting fees for recreation programs and facility rentals is the responsibility of municipal councils. There is no correct or standard approach and the levels of subsidy will vary considerably from one municipality to the next. In Miramichi, a larger proportion of total costs are assigned to the taxpayer than would be customary in many other communities. This is Council's policy and it is not the purpose of this study to review this policy. However, the following implications should be noted.

In most cases, Multiplex revenues will be based on current pricing practices resulting in in a higher operating deficit to be covered from the general tax base. (While we will generally use

current pricing practices, exceptions will be made. Miramichi's current approach to facility pricing is an unusual combination of rental rates, drop-in fees and fixed fees. These approaches are not consistent and do not appear to be governed by an over-riding philosophy for recreational user fees. Consequently, for some programs we will use our judgment and customary practices in other municipalities to set pricing for the Business Plan).

Fees can have a major impact on maximizing the efficiency of facility use and scheduling. This is the objective behind the CWR Department's current policy that charges the full rate rather than the subsidized rate when an arena group does not show up to use ice time they have booked. While this is a reasonable practice, it does not extend to all recreation facilities and is not reflected in the pay as you go practice employed for many programs. In some cases, the result may be inefficient use of existing facilities and the perception that more facility time is required than is in fact is the case. (We have discussed this point further below).

The final implication addresses demand. Users frequently argue that higher fees will result in lower participation. This relationship is not as linear as most users argue. While marginal increases in fees sometimes have a short term impact on participation, in most cases these are recouped over time. Furthermore, these impacts are most pronounced when existing fees are increased. People are much more accepting of fees for new programs, than increased fees for existing programs. In Miramichi residents are used to low recreational fees and Council will be somewhat constrained in their ability to reduce Multiplex deficits with increased fees without adversely affecting participation, at least in the short term. Consequently, if it is Council's intent to generate more revenue from users as a condition of developing the Multiplex, gradual annual fee increases should start immediately.

2.3.5 Scheduling Practices – Capacity and Use

In many cases, the Department's schedule of use for major recreation facilities suggest that available times are fully booked for community use. However, current practices do not reflect efficient scheduling. For example:

- According to the Department master schedule, the MVHS gym is used by the community on Saturdays from 8:30AM until 9PM and on Sundays from 8:30AM to 5PM (Miramichi Hoops Basketball, Miramichi Volleyball and Miramichi Track and Field). This is a total of 21 hours each weekend. Assuming a roughly 28 week season for programming – as much as 588 hours of gym time is available for community use on weekends. However, school use for tournaments and special events takes precedence over community use and CWR Department staff estimate as much as 40% of available community time may be displaced. This would leave roughly 350 hours for community programming. According to the CWR Department program and activity statistics for 2014, the three community programs noted above using the MVHS gym on weekends accommodated

1405 users – or roughly 4 per hour. This suggests that the community demand for gym time at MVHS could be accommodated in many fewer hours than appear on the schedule.

- In the period from September 22 to November 30, 2014, there were approximately 110 hours committed to public swimming at the Golden Hawk Pool. In the Sept. - Nov. time frame 408 people participated according to the Department's activity statistics, or roughly 3.7 swimmers per hour. The same calculation for day and evening lap swims indicates less than two swimmers per hour. While the available hours provide a very convenient schedule for swimmers, the demand could likely be accommodated in less time without too great an inconvenience.
- The Lord Beaverbrook Arena accommodated 289 public/pre-school skaters in the period October 2013– March 2014. Two hours a week are scheduled for public skating for a total of roughly 48 hours, or 6 skaters per hour. Again it may be possible to allocate facility time more efficiently and still accommodate community demand.

The CWR Department has taken advantage of the available facility time to provide as many, flexibly scheduled hours as possible for Miramichi residents to participate in programs and activities. This is a reasonable and appropriate strategy; however, when determining the need for Multiplex facilities, we will adopt more restrictive scheduling practices that maximize the use of the facilities in the available time without jeopardizing program quality.

2.3.6 The Joint Use Agreement for the Pool and Gym at Miramichi Valley High School (MVHS)

The indoor pool and gym at the MVHS are subject to a joint use agreement signed in 1975 between the former Town of Newcastle and the Board of Education. The agreement sets out the terms and conditions for community and school access and cost sharing for use of the pool and gym as well as providing for access to a wide range of other MVHS facilities and municipal recreation facilities on a reciprocal basis. We understand that the agreement has not been updated and presumably won't be until Council makes a decision concerning the Multiplex. To the best of our knowledge no formal positions have been taken on the future of the pool or other aspects of the agreement by the parties involved. Given that all capital conservation costs and ongoing maintenance of the pool are assigned to the municipality, if the City is no longer a party to the agreement, we assume the MVHS pool will be closed.

For the purposes of this study, we have made the following assumptions.

- All community use of the pool will be transferred to the Multiplex. This includes the time booked by the Swim Team during "school hours" (The team uses 10 hours on weekdays outside of the hours committed to community use by the agreement).

- The gymnasium space at MVHS will continue to be available for community use when not required for school purposes. While this use may no longer be governed by the existing agreement, presumably the MVHS will accommodate community use in a manner similar to other schools in Miramichi. We will adopt this assumption.
- School users will continue to have access to the City's arenas. For the purposes of the Business Plan, we will assume there is no cost for school use of the arenas. This is currently the case, however, the manner in which the School District and the City share costs and provide access to their facilities would ideally be the subject of a new, comprehensive reciprocal use agreement. If such an agreement is put in place in the future, the financial projections in the Business Plan may have to be updated.

2.3.7 Community Use of School Gymnasia

Even in the absence of joint use agreements such as that for the MVHS, school gymnasia play an essential role in meeting community recreational needs. Furthermore, in the Miramichi area there will be an increase in the supply of school gymnasia.

We understand that the following changes will be made in the supply of school gymnasia.[8]

- In the Newcastle area, three schools will close (Croft Elementary; Harkins Elementary; and Harkins Middle) and be replaced by a new K-8 school. The new school will provide a regulation size double gym and a single gym; this is an improvement over the quality and supply of gymnasia in the schools that are closing.
- In the Chatham area, two schools will close (Ian Baillie and St. Andrews) and be replaced by a new K-5 school. Gymnasia facilities in the schools to be closed were poor and not well used. The new school will have a double gym.
- In the Douglastown area, an existing K-5 school will be expanded to accommodate K-8. An existing single gym will be replaced with a new double gym.

All of these schools were planned to accommodate community use and we understand there were some discussions with the City about establishing agreements for shared investment and use of these facilities, but these did not materialize.

This information suggests that there will be an increase in the supply of gym time available for community use assuming that access can be arranged. Community use of schools varies widely across various jurisdictions in Canada. In the best systems, municipalities and boards of education enter into strong partnerships based on functional reciprocal use agreements that eliminate many of the frustrations associated with using each other's facilities. In Miramichi,

[8] Based on discussions with Tim Dunn. Director of Finance and Administrative Services. Anglophone North School District.

school access is managed by the Principal (in all cases except MVHS where an agreement is in place). A formal policy[9] on community use of schools and a rate structure is in place. The policy assigns priority to school use and prohibits competition with the private sector. The priority for community use is non-profit community activities for youth. However, within these parameters, data provided by the School District indicates a fair amount of community use of current school gymnasia in the Miramichi area. This will be a consideration in our assessment of the need for a Multiplex gymnasium.

2.3.8 The CWR Department's Data Base for Monitoring and Managing Facility Scheduling

In some cases information that would contribute to a more accurate assessment of community use and demand for recreation facilities is not available in Miramichi. We understand the CWR Department is investigating computerized management systems that could be used for scheduling, on-line registration, invoicing, tracking program registrations and facility rentals, etc. These are increasingly common even in smaller municipal recreation departments. If such a system was put in place in Miramichi, it would greatly improve the Department's capacity for future planning and service evaluation.

2.3.9 Comprehensive Review of Recreation Service Delivery Policies

As discussed above, current CWR Department policies and practices have developed over time and reflect the current facilities. They often lack consistency, may not be contributing to the most efficient use and scheduling of facility time and may not maximize the community access to school facilities. The Multiplex will represent a major transition to a new model of recreation facility provision. It is therefore an ideal opportunity for the CWR Department to review policies and practices associated with scheduling, staffing, managing and monitoring facility use, fees and other aspects of service delivery. This would involve a comprehensive operational review of the CWR Department and should occur prior to the opening of the Multiplex. We strongly recommend that an operational review be undertaken.

[9] New Brunswick Department of Education. Policy 407: Community Use of Schools. July 1986/Revised June 2006.

3.0 NEEDS ASSESSMENT – MAJOR FACILITY COMPONENTS

3.1 INTRODUCTION

3.1.1 The Multiplex

The proposed Multiplex includes a twin pad arena, aquatic centre, double gym and multipurpose programming space. Community needs do not warrant three double gyms, which were originally envisioned as part of a Multiplex fieldhouse. The need for these core recreation facilities is discussed in detail in this section of the report. We have also discussed issues associated with a dedicated gymnastics facility. Finally, we have recommended a number of "best practice" facilities which are recreational spaces with high appeal but for which traditional market assessment is not possible.

3.1.2 Decommissioned Facilities

The Multiplex will replace the Lord Beaverbrook Arena, Miramichi Civic Centre[10], the Chatham and Kinsmen outdoor pools, the indoor pool at the Miramichi Valley High School and the Lindon and Golden Hawk Recreation Centres. These facilities will no longer be available for community use, with the following implications:

- The bowling alley at the Golden Hawk Recreation Centre will be closed; however, a private bowling alley will continue to operate in the community. In most Canadian communities, bowling would be provided by the private sector.
- The dedicated archery range at the Golden Hawk Recreation Centre will no longer be available. The Archery Club reports that they require a space of roughly 35m by 20m, and ideally this would be dedicated space for safety reasons and to avoid the inconvenience of setting up and taking down equipment. It is not reasonable to provide a dedicated space of this size for archery at the Multiplex. The program might be relocated to the gym if the safety of users can be guaranteed, but drop-in use of the range will no longer be possible. CWR Department activity statistics show 604 and 737 uses in 2013 and 2014 respectively of both program participants and drop in users. Archery reports a membership of 35 to 40 individuals and expects future membership to be about the same. While the archery program will suffer from the loss of a dedicated facility accommodating drop-in use, if the Club uses the gym they will provide a service to local residents comparable to what is available in many other communities.

[10] While this was the understanding entering the needs assessment, a decision was made to phase the twin pad arena. The Civic Centre will be retained until the second phase of arena development. See the arena needs assessment in this section of the report for additional discussion.

- The small fitness room at the Golden Hawk Recreation Centre will no longer be available. This small space has a few pieces of equipment and, we understand, limited use (activity statistics are not maintained for this space). It is Council's position that publicly funded facilities should not compete with those provided by the private sector and a fitness centre will not be provided at the Multiplex.
- Gymnastics could continue to be accommodated in a Multiplex gym and/or Council has the option of providing dedicated space at the Multiplex. Council also has other options for supporting gymnastic facilities that do not involve the Multiplex. These are discussed further in a subsequent section of the report.
- The Farmers Market at the Lindon Community Centre will not be accommodated in the Multiplex and will need to find a new location. Farmers Markets are not traditionally accommodated in community recreation facilities because of incompatible design (flooring, loading docks, etc.) and the requirements for servicing (electrical, water source, refrigeration). In addition the organizers of the market at the Lindon Community Centre are fully committed to staying in Newcastle, ideally as close to the urban centre as possible. They argue relocation would not be supported by their vendors or customers. We understand the Farmers Market has been exploring alternate venues in Newcastle.
- Other major users of the Lindon Community Centre, including bingo, ball hockey, tennis and seniors programming could be accommodated in gymnasia and multipurpose space at the Multiplex.

3.2 CORE RECREATION FACILITIES

3.2.1 Twin Pad Arena

Conclusion

- Two NHL size ice surfaces; one with seating for 1800 and the other with seating for 200 should be provided as replacements for the Lord Beaverbrook Arena and the Miramichi Civic Centre.
- The City has the option of developing both ice surfaces as part of the initial Multiplex development or in two phases. In the phased scenario, the Multiplex would be designed to accommodate two ice surfaces, but the second surface would be added at a later date. In this scenario, the Miramichi Civic Centre would be retained until the second ice surface was provided at the Multiplex. This is the recommended course of action.

Background

SUPPLY/DEMAND	LOCAL INDICATORS
Existing Supply	• 1:8,750 (based on assumed City population of 17,500. We have used the City rather than regional population in this calculation to be consistent with the comparative supply data)
Comparative Supply	• 1:9,179 (10,000-50,000 pop)
Use Levels	• The arenas are used to near capacity in prime time.
User Group Survey Results	• Arena user groups requested a total of 8 hours/week of additional prime time for their existing programs and 9 hours/week of prime time for new programs. • Three groups (minor hockey, figure skating, ringette) returning the survey account for almost 90% of arena users. Two of these groups had declining membership in the last 3 years and one was stable. • Two of six arena user groups expected their membership to increase in the future; the other four expected stable membership. • Arena user groups report that 99.5-100% of their members are under the age of 18; indicating a shrinking market in an aging community. • Reported reasons for restricted participation unrelated to available ice time included the availability of volunteers, skilled coaches, the cost of their programs, and funding.
Participation Trends	• Overall moderately declining use of arenas should be anticipated; particularly in organized team sports directed to younger age groups. More significant declines in participation may occur if health and safety becomes a greater concern • Unorganized, recreational uses (shinny hockey, recreational skating etc.) may experience some growth. • Use of the arena floor for activities when the ice is removed (sports including ball hockey, soccer, box lacrosse, etc.) may represent opportunities for expanded programming.
Other Considerations	• The possible closing of regional arenas may impact use. We have no information on the likelihood of closures. The impact would likely be limited if closures are related to declining participation, which we understand is the case.

Discussion

Two ice surfaces for the current population compares favourably with other municipalities.

The existing ice surfaces are used to near capacity in prime time. Use has declined moderately in recent years and we understand that less desirable prime time (early morning and late evening), which would have been scheduled in the past, are no longer needed. Bookings at both arenas generally start between 7-8AM and finish by 11PM. The Lord Beaverbrook Arena is closed on Tuesday and Thursday mornings. In markets where ice demand is high, it would not be unusual to see arenas booked from 6AM until midnight.

We understand the length of the season is also managed to minimize the periods when ice must be maintained in the facilities. The Civic Centre generally has ice from August to March; while the Lord Beaverbrook Arena has ice from October until May (April and May to accommodate a hockey school; if this contract was not in place the ice would be removed sooner).

There is relatively little use of the arenas in the non-ice season. The total number of events (graduation ceremonies; dance and concerts; trade shows, etc.) booked at both arenas in 2014 was 12, occupying fewer than 20 days. There may be possibilities to expand these booking in the off-season if the Multiplex provides a superior venue for events.

CWR Department staff report occasional requests from new groups for ice time, but these are limited and always for core prime time.

The majority of the arena users reported stable to declining participation in recent years and anticipated this trend will continue. (See Appendix C) Two of the current ice users requested additional hours to accommodate both current and new programs. A total of 17 hours/week were requested. The majority of these hours (12 of 17) were requested by Figure Skating who also anticipated a 30% increase in membership in the next 5 years. This projection is based on an aggressive program development strategy and may be somewhat optimistic. However, even if we accept the projections for 17 hours of additional ice time, the demand could be accommodated by returning to a more demanding schedule that required less desirable prime time ice to be used.

The situation reported by arena user groups in Miramichi is consistent with the experience of other municipalities and trends (see Appendix B). Trends suggest that ice related activities will remain stable at best and are much more likely to decline, particularly if energy costs significantly increase user fees with an adverse impact on membership. In Miramichi where fees have traditionally been very low, any adjustment that saw higher costs would have a more pronounced impact. While cost is a significant consideration, other factors including the

continued aging of the population, safety concerns, and increasing winter alternatives to hockey all point to lower levels of future participation. The most probable future scenario is a steady, gradual decrease in demand for ice time.

If arena sport participation continues to decline at a gradual pace, two ice surfaces will still be required in Miramichi, but will not be used to capacity within 10-15 years. However, if a more pessimistic scenario is anticipated with much steeper declines in hockey participation (see Appendix B) as well as a significant drop in population – the need for a second ice surface in 10-15 years is questionable.

The uncertainty concerning future ice demand may warrant Council's consideration of an alternative for arena development at the Multiplex. The City has the option of developing both ice surfaces as part of the initial Multiplex development or undertaking the development in two phases where the Multiplex would be designed to accommodate two ice surfaces, but the second surface would be added at a later date. In this scenario, the Miramichi Civic Centre would be retained until the second ice surface was provided at the Multiplex. The Civic Centre is Miramichi's best arena and requires less investment in capital conservation than Lord Beaverbrook.

The key advantage of phasing the arena development is that the demand for two ice surfaces will be much clearer in 2025 than it is today. If the second ice surface is not required, the City avoids a major capital expenditure as well as the ongoing cost of operating two ice surfaces, neither of which would be used to capacity. The major short term disadvantage is that the operating cost savings that would have been realized by moving to a twin pad will be deferred. Some capital conservation expenditures will also be required at the Civic Centre. However, on the understanding that the arena is to be replaced in the future, only critical capital conservation expenditures would be approved. These expenditures, and the deferred operating cost savings, are a fraction of the cost of building and operating an arena that is not required.

In our view, phasing the arena development is a preferred course of action.[11]

[11] This issue was discussed with Council in June 2015. Council subsequently provided direction to the consulting team to proceed on the assumption that the arena development would be phased. The multiplex will include one ice surface capable of seating 1800.

3.2.2 Aquatic Centre

Conclusion

- The Multiplex should incorporate a contemporary aquatic centre comprised of a 25 m, six lane pool ideally with separate recreational and therapeutic tanks.
- The aquatic centre will replace the indoor pool at the Golden Hawk Recreation Centre, the Kinsmen and Chatham outdoor pools and community use of the pool at the Miramichi Valley High School.

Background

SUPPLY/DEMAND	LOCAL INDICATORS
Existing Supply	• Currently the City is served by 4 aquatic facilities – the indoor pools at MVHS and the Golden Hawk Recreation Centre and two outdoor pools. Indoor pools are not programmed during the summer. • Assuming 1.5 indoor pools, Miramichi's level of supply is 1:11,670; and 1:8.750 for outdoor pools. • Existing pools are older, traditional, rectangular designs without recreational or therapeutic features.
Comparative Supply	• Indoor pools 1;17,463. Outdoor pools 1:25,571.
Use Levels	• In the past decade instructional program registrations at all pools dropped from about 1300 to 1100. • In the period from 2002-2013, recreational use of the outdoor pools has dropped by about 50%. The combined fun and adult swim counts in 2002 were almost 9,000 dropping to about 4,600 for public and lap swimming by 2013 • The existing pools are relatively well used, but none are programmed on a year-round basis. A well designed contemporary pool with separate training/instructional, recreational and therapeutic components could readily accommodate existing programs and provide opportunities for expanded use.
User Group Survey Results	• Swim Team participation is expected to remain stable; no additional pool time will be required • While the MVHS pool meets the Swim Team's need and they have excellent access at a very affordable cost, a new 25 m pool would also serve their needs.
Participation Trends	• Aquatics are amongst the most popular recreational activities for Canadians. • Aquatic programs appeal to a wide range of age groups and, assuming proper facilities are available, deliver a number of health and wellness benefits. Therapeutic and wellness programming is particularly well suited for older age groups and as such participation will continue to rise.
Other Considerations	• The need for a contemporary aquatics facility was supported by key informants.

3.2.3 Discussion

With four aquatic facilities Miramichi's level of supply compares favourably with other similar sized communities. However, the existing pools present a number of programming and operational challenges. The only 25 m pool is MVHS. This pool has the greatest programming potential, but is only operated by the Department from 6-9PM, for ten months of the year. The smaller size of the Golden Hawk pool limits opportunities for simultaneous programming (multiple instructions; instruction plus lane swimming, etc.). Outdoor pools are the only facilities available in the summer months. As with most outdoor pools, programming options are limited, use is weather dependent, and participation is declining. In addition to the programming constraints, it is an added challenge to coordinate staffing across four locations. A single facility would address these limitations.

The two indoor pools in Miramichi are meeting the demand for the aquatic activities that can be accommodated in these pools. With the occasional exception of swimming lessons for the youngest age groups, current programs are not registered to capacity. Public swimming and lane swimming hours are generous and current demand is readily accommodated. The swim team operates 10 months of the year and at MVHS and the outdoor pools; the latter for a summer fun, feeder program focused on introducing competitive swimming. Club membership has fluctuated largely due to the difficulty of maintaining qualified instructors. Currently there is a strong, stable membership of about 50 participants. While some growth is possible, the Club does not anticipate a significant increase in participation and current hours of indoor pool time (11 hours/week) are adequate for the foreseeable future. The Club experiences some constraints in hosting meets at MVHS due to the deck size, absence of spectator seating, and the need to use classrooms or other school spaces for officials, marshalling areas, etc. While the number of meets that could be hosted would not justify major expenditures to support spectators and support space, providing viewing areas overlooking the pool and access to multipurpose space could provide a better venue for swim meets at the Multiplex than is possible at the MVHS.

Unmet aquatic needs in Miramichi can largely be attributed to the design of the pools; not the time available for programming. The existing older facilities of a traditional design cannot provide the full range of programs available at modern facilities. These pools are especially limited in serving the needs of those with disabilities and in attracting recreational and therapeutic users. Given that recreational swimming continues to be one of the most popular leisure activities for all ages and a growing numbers of older adults will drive demand for therapeutic aquatic opportunities, this is a significant unmet need.

CRW department staff identified the following as expanded areas of aquatic programming:

- Leisure swimming and special events focused on recreational features in the pool (slides, water play areas, etc.)
- Therapeutic and rehabilitation programs for older adults and individuals with disabilities. These might be offered in conjunction with other agencies in the community.
- Other health related programs for special groups, such as pre and post-natal water fitness.
- Expanded adult programming – including instructional programs but also the possibility of specialized programs such as hydro-spinning
- Expanded youth programming, such as Lifesaving Sport and leadership courses.
- Increased private rentals.

There is considerable flexibility associated with the design of new aquatic centres and during detailed design programming and activity requirements and preferences will need to be more closely aligned with design options and available construction budgets. While specifics will be determined during detailed design, a new aquatic facility for Miramichi should have three main functional areas: (1) training/instructional, (2) therapeutic, and (3) recreational.

The training and instructional component requires a 25 metre, 6 lane tank – which essentially replicates the existing MVHS pool. The therapeutic pool is envisioned as a separate tank with warmer water, but this need not be a large pool. At minimum, it must be large enough to accommodate typical class sizes (perhaps 15-20 people), and if budget allows, it could be a larger pool. It has specialized design features to accommodate the programming focus. The training/instructional and therapeutic components are the highest priority and the basic requirements noted here should not be compromised, but certainly could be enhanced if resources allow.

The recreational components are the lowest priority but should be developed to the greatest extent possible within the construction budget. Ideally recreational components would be part of a separate third tank rather than integrated with the training/instructional pool. The recreational pool might involve teaching steps and a free form swimming/play area as well as recreational play features (slides, on deck spray pads, etc.) The extent of these installations will be governed by budget.

3.2.4 Gymnasium Space

Conclusion

- A regulation size, double gymnasia should be a part of the Multiplex to replace the gym at the Golden Hawk Recreation Centre.

Background

SUPPLY/DEMAND	LOCAL INDICATORS
Existing Supply	• Community residents currently have access to the Golden Hawk and MVHS gym through the CWR Department. In addition to MVHS, there are 12 schools with gyms in the Miramichi area accommodating some level of community use (this excludes French language schools for which we did not compile information). • New school construction will result in an expanded supply of gymnasia. Three double and one single gym will be added to replace aging facilities with less programming potential and limited community use (see earlier discussion re. Community Context).
Comparative Supply	• Information for school facilities is not available
Use Levels	• Very limited weekend use is made of the MVHS gym under the existing community use agreement. The gym is well used by community groups on weeknights. • School gymnasia appear to be well used for community activities (see further discussion below).
User Group Survey Results	• Eight users of gymnasia responded to our survey (see Appendix C for details). • No group reported declining membership, 3 reported increases and 5 reported stable or fluctuating membership in the last 3 years. The majority expected stable future participation, with 3 anticipating increases (ranging from 5-25%). • 5 gymnasium user groups reported they could not currently accommodate interested participants in their programs with the available gym time. Over 40 hours/week of additional gym time was requested by these groups. • Cost, accessibility to schools, volunteers and skilled coaches were also identified as reasons affecting participation.
Participation Trends	• There will be sustained demand for gymnasia which can be programmed for a variety of active indoor sports and are available for drop-in activities. • General trends indicate increases in gym-based activities (e.g., basketball, badminton, volleyball, wellness activities).
Other Considerations	• With the exception of the MVHS joint use agreement, no City/School District reciprocal use agreements are in place for school facilities. Based on their experience at MVHS, the Department is very reluctant to place community programs in school gymnasia because of the number of cancellations.

3.2.5 Discussion

Gymnasia for community use in Miramichi are of two types – those controlled by the CWR Department and those controlled by the School District. We have discussed these separately.

The gymnasia controlled by the Department (Golden Hawk and MVHS during public access hours as defined by the reciprocal use agreement[12]) are not fully accommodating community needs because of scheduling issues and current demands:

- The Department is reluctant to use the MVHS gym because public programs are frequently cancelled to accommodate priority school uses. This is customary with community use of school facilities. No records are kept, but Department staff estimate that as much as 40% of community use is cancelled on weekends (much less time is cancelled on weeknights).
- The MVHS gym is only available after 8PM on weeknights. This excludes all but adult programming. The facility is only used for a total of 8 hours, Monday to Thursday, for adult volleyball and badminton.
- While large blocks of time are committed to volleyball and basketball at the MVHS gym on weekends, these are not being extensively used for community use (see earlier discussion in Community Context).
- Use of the Golden Hawk gym is dominated by gymnastics. The Gymnastics Club has the use of one-half of the gym most weeknights and weekends. Despite dominating available gym time the allocated hours do not meet the Club's needs.

These arrangements constrain community programming in gymnasia. A major limitation is programs that provide informal, unstructured access to gymnasia. Many communities are placing considerable emphasis on "open gym" programs for children and youth and parents and tots because these successfully reach the physically inactive and are a major strategy for combating obesity and other impacts of sedentary lifestyles. While some open activity hours are booked in the Golden Hawk gym (4 hours during the week and 4 hours on Saturday, with an additional 7 hours on Sunday for half the year), staff estimate that these can be significantly expanded. As much as 16 additional hours per week of open gym activity is suggested.

Experience in most communities indicates increasing popularity of basketball, volleyball, badminton, floor hockey, and indoor soccer (among other sports) for both league and unstructured participation. CWR Department staff identified a need for as much as 10 additional hours of gym time per week for basketball and ball hockey programs. Input from user

[12] The Lindon Recreation Centre is considered multipurpose space rather than a gym.

groups substantiates the growing popularity of gym sports and the need for additional gym time in Miramichi.

- Soccer estimates they would use a minimum of 15-20 hours per week for a 24 week season for a winter indoor soccer program. Soccer cannot secure space in gymnasia for this program currently. They are also reluctant to use any available hours at the Golden Hawk gym because of safety concerns resulting from shared use with gymnastics (due to chalk residue on the gym floor).
- Track and field would expand their current two hours at MVHS to six hours if time was available.
- Basketball and Tai Chi requested an additional 10 hours per week of gym time for existing programs and Basketball would like to introduce a new house league program that could require an additional 4-8 hours for a 16-20 week season.
- Gymnastics also requested additional gym time (A gymnastics facility is discussed as a separate section of the needs assessment).

With the exception of some of the open programs, all of the requested gym time noted above would be accommodated in prime time (4-11PM on weekdays and all day on weekends). However, there is a growing demand for daytime access to major recreation facilities in a society where leisure time is more flexible and daily schedules are less likely to be oriented around child responsibilities. The potential for day time use plus opportunities for cross programming when gyms are co-located with other major recreation facilities such as pools, is an added incentive for providing a gym at the Multiplex.

This information suggests that a municipally owned and operated regulation size double gym should be a component of the Multiplex. The information noted here suggests that community programming would fully occupy time available at a Department gym. This would likely be the case even if existing hours committed to the Gymnastics Club were no longer accommodated in the gym (see additional discussion in a subsequent section of the report).

In all communities, the majority of gymnasia for community use are provided by educational authorities. This of course raises the question of whether school gymnasia can adequately meet community needs. Due to no day time access and frequent interruptions in community programming due to school priorities, most municipalities will attempt to augment school facilities with at least one major municipal facility. This is a reasonable strategy in Miramichi and essentially a continuation of the current situation.

We explored community use of gymnasia at 12 schools with data provided by the Anglophone North School District.[13] As discussed earlier, some of these schools will be replaced; improving the supply and quality of gymnasia. Our review of the scheduling data indicates a relatively high degree of community use. Nine of the twelve schools accommodate regularly scheduled sport or athletic programs (i.e. a program operating weekly for the Sept/Oct. to March/June period). These include basketball, volleyball, gymnastics, karate, floor hockey and fitness programs. In addition all of the schools are accommodating short term sporting events in their gyms. These might include a single training event, a two or three day tournament, or a short program operating for five or six weeks. Finally, most of the schools are also accommodating one or more other events in the gym (fund-raisers; home-comings; local community cultural and special events, etc.). This pattern of use appears typical for schools that are not governed by reciprocal use agreements. The level of community use is far below capacity – if capacity was defined as community use in all hours not required for school activities. However, full community capacity is not a realistic expectation, particularly in schools that are not governed by reciprocal use agreements. The design and quality of gyms in schools will not always accommodate all programs; community access will only be possible in most cases when custodians are available; fees and other restrictions on acceptable uses may affect community demand and, perhaps most importantly, in the absence of a formal agreement and coordinated booking process, it is very difficult for community organizations to know what is available to them or how to arrange use.

In summary, our assessment indicates sufficient demand for a municipally owned and operated regulation size double gym at the Multiplex to augment the community's supply of school gymnasia. However, community demand will not be fully accommodated with the Multiplex gym. The community will continue to rely on school gyms and opportunities to further enhance community use should be explored with the School District. The MVHS agreement should be reviewed and options for improving access to other schools explored. Some communities have been able to more effectively address reciprocal use issues (such as the cancelling of community programs for school use) with improved agreements and better communication and coordination. Improved booking procedures should also be investigated. We note that the Community Use of Schools Policy can accommodate a coordinated approach to bookings administrated by local municipal authorities[14]. This would be a significant achievement if put in place in Miramichi.

[13] Information was provided for the following schools: Dr. Losier; James M. Hill; St. Andrew's; Nelson Rural; Napan Elementary; Gretna Green; Harkins Middle; Harkins Elementary; Harcourt; Miramichi Rural; Croft; Ian Baillie.
[14] New Brunswick Department of Education. Community Use of Schools Policy. Clause 6.2.7.

3.2.6 Multipurpose Space

Conclusion

- Multi-purpose programming space should be a component of the Multiplex to accommodate programs and activities currently hosted at the Golden Hawk Recreation Centre and Lindon Hall and to provide a venue for expanded CWR Department programming.

Background

SUPPLY/DEMAND	LOCAL INDICATORS
Existing Supply	• Multipurpose programming space specifically designed for recreation programming is not available to the CWR Department, however the community uses a variety of spaces for recreational programming, including such areas as the Golden Hawk teen/seniors lounge and activity room and the mezzanine at MVHS (the latter used for Tae Kwon Do). • The Lindon Community Centre is used on a very limited basis for community recreational programs (e.g. ball hockey, tennis and seniors' carpet bowling).
Comparative Supply	• n/a
Use Levels	• None of the current spaces are used to capacity. However, none are designed with appropriate flooring, wall and ceiling finishes, and support facilities to fully accommodate a wide range of recreational programming.
User Group Survey Results	• No additional time was requested but some of the hours users desired for new and expanded programming in a gym could be accommodated in multipurpose space.
Participation Trends	• Trends support the provision of appropriate multi-purpose rooms within larger recreation complexes. Cross-programming and intergenerational programming opportunities, and the convenience and benefits of combining these types of components under one roof are all justifications of this type of facility model. • General trends indicate increases in a range of activities utilizing multi-purpose space (e.g. fitness programs, dance programs, martial arts, etc.).
Other Considerations	• Multi-purpose/meeting space is flexible program space that can accommodate a wide range of indoor, organized, or drop-in sports and recreation and can also be used for dry-land/cross training and non-sport activities.

3.2.7 Discussion

Appropriately designed multipurpose programming space can accommodate a broader range of community activities than virtually any other component of a multipurpose recreation complex. Athletic activities that do not require a full size gym (fitness classes, martial arts, youth groups, cross/dry-land training, etc.) other recreational programming (cultural events, mom-tots programs, etc.) and instructional activities (first aid, child care, etc.) can be accommodated in this space. An area of about 4,000 sq. ft. would generally be provided with moveable walls so that it can be partitioned for simultaneous programming. Flooring, wall finishes and fixtures would be selected to accommodate a wide range of programs, and could include mirrors and sprung floors in some areas. Natural light and amenities required to facilitate programming (storage; sinks; presentation equipment; moveable tables and chairs, etc.) would be available. The space would also be located within the larger recreation complex to take advantage of other support services (kitchen; change rooms) and to be available for cross-programming.

The type of space described above does not exist in Miramichi. Instead, the type of community programming that would generally occur in multi-purpose space is accommodated in gymnasia or in other spaces; few of which are actually designed for multipurpose programming and none of which are extensively used for recreational programming (e.g. the MVHS mezzanine; the teen lounge at the Golden Hawk Recreation Centre; Lindon Community Centre).

Most of the user groups responding to our survey and desiring additional space requested gym time. However, in a number of cases the programs they were interested in offering could be accommodated in multipurpose space because they do not require the high ceiling and flooring customary in gymnasia.

Most of the demand for multipurpose space will originate with new programs. The needs assessment did not include the type of surveying that would generate input from people not currently participating in leisure time activities because programs of interest are unavailable. While we have no quantifiable data to support the interest in these activities, they are customary in other communities. There has been a significant increase in wellness programming in response to concerns surrounding physical inactivity and obesity. These programs focus on movement and social interaction and generally do not require a full gymnasium. Art and cultural programming (art appreciation, dance, painting, children's arts and crafts) is growing in most communities as are a wide range of physical fitness and activity programs such as yoga and tai chi. Programs for parents/care givers and pre-school children are also extremely popular in most communities, and especially where climate or other factors contribute to the isolation of parents caring for young children. Finally, special event programming is often well suited to this type of space.

Not surprising given the high degree of flexibility demonstrated by well-designed multi-purpose space, recreational trends would suggest growing demand. This is also the case because many of the programs and activities that can occur in multipurpose program areas cater to older adults.

Multipurpose program space is relatively inexpensive to provide and maintain, is a customary feature in major multipurpose recreation facilities and should be provided at the Multiplex.

3.2.8 Gymnastics Facility

Conclusion

- The Miramichi Gymnastics Club offers a strong program that has been well received by the community and has growth potential.
- The Club will lose dedicated and shared facilities at the Golden Hawk Recreation Centre if the Multiplex is developed.
- The City can develop a dedicated gymnastic centre as part of the Multiplex but other options to support the Club appear more desirable.

Background

SUPPLY/DEMAND	LOCAL INDICATORS
Existing Supply	• The Club currently uses both dedicated and shared facilities at the Golden Hawk Recreation Centre.
Comparative Supply	• No available information
Use Levels	• In addition to its dedicated facility, the Club makes extensive use of the Golden Hawk Gym. They are allocated one-half of the gym for approximately 26 hours/week for the full year and a further 19 hours/week for half the season.
User Group Survey Results	• The gym time currently available to the Club does not meet their needs and restricts the potential to offer new programs (see discussion following for details). • Gymnastics has a long history in the Miramichi area and the Club reports stable membership with the potential for growth if more facility time was available.
Participation Trends	• General trends indicate an increase in gymnasium-based activities including gymnastics. • Gymnastics Clubs are offering a wider range of programming focused on adults; young children, and health and fitness.
Other Considerations	• Dedicated gymnastics facilities are almost exclusively used by the gymnastics club, and do not accommodate other programming or users due to permanently fixed structures and scheduling conflicts because preferred times for community use coincide with club use. • Gymnastics is often run on a for-profit basis and is therefore generally not eligible for subsidy.

Gymnastics is a strong program with the potential for growth. Current membership is relatively stable at about 250 participants. Due primarily to a lack of gym time, the Club turns away potential participants and has a waiting list of about 40 people. To meet current needs the Club requires at least 20 hours of gym time. The Club currently uses one half of the Golden Hawk gym; their current needs would likely be accommodated with access to a full gym for 8 hour blocks on both Saturday and Sunday. This assumes they continue to have access to dedicated space. The Club would require additional time if new programs were introduced.

The gymnastic club currently has a dedicated space of about 9,000 sq. ft. as well as shared access of the gym in the Golden Hawk Recreation Centre. Both areas are used for programming that requires gymnastic equipment to be set up and dismantled; a major inconvenience in the gym. The Club's preference therefore would be for dedicated space. They indicate that an area of about 12,000 sq. ft. would be required to fully accommodate their programming. This is a large space; larger than many other gymnastics clubs would have access to as dedicated space. It is an ideal allocation because it would allow permanent program areas to be established for activities such as vaulting and allow the sprung-floor to be left in place rather than taken up when additional space is needed for other programs. This is not currently the case and would be a substantial improvement for the Club. However, many gymnastic clubs offer successful programs with less than ideal space; as the Miramichi Club has done for many years. The Club could run a successful program with less than 12,000 sq. ft. of dedicated space.

Given the existence of an established club with a history of successful programming in Miramichi, we are confident that a proper gymnastics facility would increase programming and membership and be well used. However, given the requirements for dedicated use, the viability of this project has more to do with the City's policies and priorities concerning funding then the anticipated use.

The fundamental issue associated with the provision of gymnastics facilities is that unlike multi-functional spaces which accommodate a variety of community needs these are dedicated spaces with permanently installed structures, used almost exclusively by gymnastics clubs. The gymnastics facility could be used for programs such as fitness classes, yoga and dance but this is unlikely because the Club requires the facility on weeknights and weekends for its programs, and during the day other programs could be fully accommodated in multipurpose space at the Multiplex. Because of the requirement for dedicated space, most Canadian municipalities do not own and operate gymnastic facilities.

Assuming that the City of Miramichi wishes to play a role in supporting the capital development of a gymnastic facility[15], it has three options:

- Option 1: provide a municipally owned and operated facility dedicated to gymnastics. Subject to refinement during detailed design, this might be an area of 12,000 sq. ft.
- Option 2: maintain the current arrangement where the Club shares the Multiplex gym and also has access to a smaller, dedicated space.

[15] It is not within the scope of our study to recommend a role for the City in the possible development of a gymnastics facility. The issue is relevant to the study because the City is currently providing gymnastic facilities. The City could elect to provide no capital funding for this type of facility. This would not be uncommon in other Canadian municipalities.

- Option 3: support the Club's efforts to secure an appropriate facility, but not as part of the Multiplex.

Option One requires a policy decision on the part of Council as to whether or not the City will own and operate dedicated recreation facilities. (It should be noted that this decision may have implications for other users such as the Archery Club and the bowlers who will lose their dedicated spaces if the Multiplex is developed).

Option Two best represents the status quo but is a compromise that makes little sense. If Council is prepared to support dedicated facilities, than Option One is clearly the preference. If Council is not prepared to support dedicated facilities, then presumably this also rules out Option Two. Option Two would also be the least desirable for the Gymnastics Club given their preference for dedicated space.

Option Three would see the City assist the Club to secure and operate its own facility. The nature of the support would be determined by the City but in other municipalities this has included a contribution to capital costs; in-kind services or an ongoing operating grant. Option Three best represents the practice in other municipalities that support gymnastic clubs and has a number of possible advantages over Option One. Capital and operating costs would be much lower in this option. If the Gymnastics Club is owned and operated by the City, higher staff costs for maintenance and repair should be anticipated. Capital costs would also be higher at the Multiplex because of the need for a higher quality of construction. It is for this reason that many gymnastics clubs purchase or rent space in industrial buildings at a much lower cost. Finally, while the Gymnastics Club is a perfectly compatible use for the Multiplex, there are very few options for shared use. The Gymnastics Club does not require other spaces or services of the Multiplex and other users do not benefit from access to the gymnastic facility. Consequently, assuming Council wishes to support the gymnastic facility developing it at another location is a reasonable and preferred strategy[16].

[16] This issue was discussed with Council in June 2015. Council subsequently provided direction to the consulting team to proceed on the assumption that a dedicated gymnastic facility would not be a part of the Multiplex. The issue of how the City will support a gymnastic facility to replace the areas currently used at the Golden Hawk Recreation Centre, if at all, is not a part of this study.

3.3 BEST PRACTICE FACILITIES

Supply and demand data was not available to assess the following facilities in the same manner as those discussed in the previous section. With the exception of the walking track which was strongly supported, these facilities were generally not discussed by community representatives. However, they are often included in multi-purpose recreation facilities as innovative spaces that offer unique programming opportunities. We have referred to these as "best practice" facilities and these should be considered as components of the Multiplex project. Again, with the exception of the walking track, these are small spaces that would be unique in Miramichi and significantly expand both programming opportunities and the appeal of the Multiplex for a broad range of users, including those who may not be interested in sport facilities.

3.3.1 Indoor Walking Track

Walking is one of the most popular recreational activities and its appeal extends to a wide range of individuals, including those who are less likely to participate in active sports. Walking is an activity that residents can take part in at their own convenience and with a minimum amount of equipment and training; therefore participation will continue to rise. Indoor walking/running tracks also provide year-round opportunities to be active, benefiting communities that experience cold and lengthy winter seasons. Walking tracks are also well suited to multi-purpose recreation facilities because they complement other programs and can often be accommodated within the larger building design.

An indoor walking track could support participation by those who are currently inactive due to obesity, medical conditions, or age related challenges.

There was strong support for an indoor walking track amongst those interviewed for the study.

While not ideally designed for the activity, individuals do use the gym at the Golden Hawk Recreation Centre for walking. Seniors are the major users and the Departments activity statistics show roughly 1300 and 900 participants respectively in 2013 and 2014. The Civic Centre is also used for a walking program but activity statistics are not kept at this location. We are confident that walking would increase significantly if appropriate facilities were provided as part of a larger multipurpose recreation complex with other amenities such as food service and social space.

3.3.2 Community Board Room/Classroom/Skills Development Space

This space would be used almost exclusively for structured, educational and skills development programs and would accommodate computers, audio-visual equipment, etc. This space could be programmed throughout the day for at-home parents and older adult classes, after school for homework help/tutoring, and in the evening for classes catering to those who work during the day. If rented for meetings and training sessions, the space provides another revenue stream for the facility.

3.3.3 Community Kitchen

A typical kitchen will be included as part of the Multiplex to support occasional rentals and social events in the multi-purpose areas. With a modest addition to the available space, the kitchen space can also be used for programs including cooking classes, food safety instruction and nutritional classes – all of which would support the wellness objectives represented in the Department's mandate. CWR Department staff identified nutrition, healthy eating and cooking classes as an area of potential demand in the community.

3.3.4 Rock Climbing Wall

A climbing wall, ideally located in a highly visible area such as off the lobby, would be a desirable feature at the Multiplex. Participation in indoor climbing has grown dramatically in recent years and is recognized as having a variety of health and fitness benefits. It is an activity that can be enjoyed year-round and can be undertaken by adults and children as well as by those with physical disabilities. This type of feature is often a major attraction for youth, including those who may not participate in traditional sports.

3.3.5 Child Minding Space

As part of the overall Multiplex design, a small child minding/babysitting component should be incorporated. Appropriate and affordable babysitting options can be difficult to arrange and can often make participating in recreation and leisure activities a challenge. This should be considered as a fee-for-service option during peak periods of use at the Multiplex.

3.3.6 Food Service and Community Social Space

It would be customary to provide an area for food service and informal socialization in major multipurpose recreation complexes. This is both a customer service and a recreational space where residents can socialize. Ideally is would be located in the lobby area and would have views to activity spaces in the complex (e.g. over-looking the pool**)**.

4.0 BUSINESS PLAN

4.1 INTRODUCTION

The purpose of the business plan is to provide an initial projection of operating costs and revenues for the proposed Multiplex. It should be understood that, in all cases, the financial scenario presented here is based on a series of assumptions regarding use, operating costs, staffing complement, utility costs, size of facility, fees, rates etc. This information is based on the scope of this study and the best information we have available at this time. The information is presented as a starting point for future decisions that may affect fees charged, facility size or components, scheduling and use, and adjustment in staffing and operational approaches. These future decisions may present opportunities to reduce the net deficit identified by the business plan.

While this is the case for any business plan prepared at this point in a major recreation facility's development, it is particularly relevant in Miramichi. As noted earlier, current policies and practices with respect to fees and scheduling are not customary in other communities and the Multiplex represents a major change in the City's facility model with significant implications for all aspects of the Department's operation. We have recommended that the City undertake a comprehensive operational review of the Department prior to the opening of the Multiplex. Accurate projections of costs and revenues cannot be provided until the operational review is complete.

The business plan provides a projection of net operating costs based on current available information including:

- Size and nature of the planned facility;
- Staffing allocation and costs that reflect current salary, wage and benefit rates; and FTEs reflecting facility components and hours of operation;
- Utility costs[17];
- Estimated program and general management expenses;
- Current and proposed [18]fee and rental rates;

[17] These are based on the square foot occupancy costs identified in the 2014 Miramichi Recreation Infrastructure Cost Comparison. Final Report prepared by Architecture49.
[18] Where current facilities don't accommodate a proposed activity a fee has been proposed based on other similar fees within the Province of NB.

- With the exception of gymnastics as discussed earlier, transfer of existing aquatic, gymnasium and multipurpose activities from decommissioned facilities;
- Additional aquatic and gymnasium uses based on staff indications of new programs;
- All existing rentals and programming at the Lord Beaverbrook Arena transferred to the new facility;
- No allowance for the cost of annual capital debt financing.

Based on these assumptions the projected net annual operating cost is in the order of $680,000. For the most part (assuming that facilities recommended to be decommissioned are) the projected net deficit is not in addition to the Departments current deficit. Rather, expenses and revenues represented in the business plan incorporate a significant portion of the CWR Department's current budget.

It should also be emphasized that revenue projections generally reflect current practices and are quite conservative. As noted in the assumptions that follow, fees are lower than in other communities and in many cases revenue streams available in other comparable facilities are not included for the Multiplex.

In a meeting with the consultant in June 2015, Council indicated its intention to review fees and charges for recreation facilities and potentially move to model that is more efficient, consistent with other communities and may require lower subsidies. We have reflected this intention in the fee assumptions for the business plan. While we have maintained a number of the current fees, which are lower than other New Brunswick communities, we have occasionally used different approaches to charging for community use. For example, instead of assuming Miramichi's widespread use of a per person charge for most programs, we have adopted standard facility rental charges that are customary in most other communities.

We acknowledge that this may have an effect on program participation and use of the Multiplex and this issue should be investigated further, as part of a pricing review, associated with the recommended operational review. As an example, we note that the swim team pays a flat fee of $1500 annually for pool rentals. Based only on their indoor pool use (10 hours per week at MVHS for 40 weeks/year) this represents about $3.70/hour. In our experience, this fee is unprecedented. In the business plan, we have used a subsidized prime time pool rental rate of $45/hour (based on the average rate in three New Brunswick communities).

It was not within the scope of our work to compare the operating costs and revenues of the decommissioned facilities with those of the proposed Multiplex. Providing a "true" comparison would be extremely difficult because of differences in the approach to operating and charging for these facilities (we have used different fee assumptions and, to cite one example, the need

for facility supervisors to collect fees at multiple locations is no longer required with our staffing model). In addition to operational differences, the inherent inconsistencies in comparing older, single purpose buildings to a new Multiplex makes an accurate assessment of net annual operating costs impractical.

More importantly, the comparison is also of limited value. The challenge for the City is to adopt new operational approaches for the Multiplex that are consistent with current best practices in the recreation field and will ensure the most efficient and cost effective scenario going forward.

4.2 Facility Use Assumptions

The following assumptions reflect the use of existing facilities that will be decommissioned as well as information received from the user group consultation activities, from trend data, and from discussion with staff.

4.2.1 Arena

- The development of a twin pad arena will be phased at the Multiplex. A single ice surface will be provided to replace the existing Lord Beaverbrook Arena in the first phase and the business plan is based on this scenario. For the purposes of this assessment, we have assumed that only use at the Lord Beaverbrook Arena will be transferred to the new facility. This may not be the case if users of the Civic Centre prefer the new arena. However, any additional transfers to the new arena at the Multiplex would be lost revenue at the Civic Centre and would not affect City wide arena revenues.
- It is assumed that the arena will operate with ice from the first week of September to the first week in May (35 weeks). This accommodates the regular minor hockey ice season of October through March, providing a slightly earlier start. The April and May opening is for the hockey school that currently operates from the Lord Beaverbrook arena. If this contract was not renewed in the future, ice would not be required for these months.
- Despite the fact that the proposed arena could accommodate summer ice, it has not been considered in the costs and revenues. User groups did not express a need for summer ice hours and these are not currently provided. If summer ice is considered in the future, additional use would reflect additional revenue, but also additional operational costs. This should be assessed, if warranted, in the future.
- Reflecting current practice in Miramichi, different fees were not used for prime and non-prime ice time.

- Ice use projections are based on current experience at the Lord Beaverbrook Arena for a total of 53 hours weekly minor hockey rentals, 3 hours of shinny, and 9 hours of senior public and family skating at an estimated hourly participation of 15 persons;
- No passes or group fees were used in the creation of the revenue estimates. While it is anticipated that users will avail themselves of passes, it is not possible at the current level of assessment to know which or how many individuals will use these options. As only per person and per hour revenues have been estimated it is possible that revenues are slightly over estimated. On the other hand no assessment has been given to program increases and therefore in the short term these two assumptions will likely cancel each other out.
- Seven days of non-ice summer usage is projected based on the current situation at Lord Beaverbrook Arena. Two of those days were used for school graduations and it is assumed that no revenue will be received. The other five uses were for tournaments and events and it is assumed these days are charged at the non-profit rate for day use. (This is not entirely consistent with the current practices where tournament revenue is limited to charging a fee for attendees and different charges are in place for events with and without alcohol).

Table 4.1 illustrates the assumptions used for arena use and participation.

Table 4.1: Arena Use Assumptions

Arena Uses	number of hours per week	Number of Weeks per Year	average number of users
Minor Hockey	53	24	N/A
Public Skate	9	30	15
Shinny Hockey Rental	3	24	12
School Use no charge	12	20	N/A
Hockey School	192	8	N/A
Full Day Rentals - For Profit Group	0	0	
Full Day Rentals - Not for Profit Group	1	5	

4.2.2 Aquatic Facility

- It is assumed that with the opening of the proposed lap and leisure pools all other aquatic facilities in the City will close including both outdoor pools and the indoor pools at the MVHS and the Golden Hawk Recreation Centre.
- The pool schedule used to calculate use and revenues is based on discussion with City Aquatic staff and includes:
    - Fitness swims every morning, noon hour, and late evening;
    - Senior Fitness swims during the day time;
    - 15 hours of public swim
    - Teen night
    - Various drop in fitness programs such as pre and post-natal fitness, aqua-stretch, hydro spinning, a full range of leadership instructional programs, and swim lessons for all ages.
- Table 4.2 illustrates a possible schedule for the pool. This does not suggest the way the pool will be programmed but rather illustrates that the number of hours used to calculate revenues and staff requirements are consistent with time available in the new aquatic facility.
- It is noted that while programming largely fills the traditional six-lane pool there remains excess time for programming the leisure pool. There is also likely capacity within existing programs and space for additional concurrent programming.
- No activities identified specifically for the therapy pool and this is an area of potential growth during day-time hours particularly.
- Lifeguards have been included based on a ratio of 1:25 with a single guard never being responsible even if there are fewer than 25 participants in the pool. A guard is on deck whenever the facility is in use including when aquatic instructional staff are working and for community rentals, such as swim team use.
- Three guards (one senior and two assistant) are on deck during all public swim times with a fourth on staff for breaks.
- Fees for community hourly rental are based on an average of three pools in the Province (Dieppe, Fredericton, Riverview) as the City of Miramichi does not currently have an indoor pool rental fee.

Table 4.3 illustrates the usage assumptions.

Table 4.2: Aquatic Facility Projected Schedules

Monday							Tuesday						
	Rectangular Pool			Leisure Pool/Therapy Pool				Rectangular Pool			Leisure Pool/Therapy Pool		
Time	Use	Hours	# users/hr	Use	Hours	# users/hr	Time	Use	Hours	# users/hr	Use	Hours	# users/hr
7:00	Lap Swim	1.0	8				7:00	Lap Swim	1.0	8			
7:30							7:30						
8:00							8:00						
8:30							8:30						
9:00							9:00						
9:30	Senior Fitness Programs	2.0	25	Senior Fitness Program			9:30	Pre School Lessons	=5 1/2 hour classes	5/ 1/2 hr	Pre /Post Natal Fitness	3	
10:00							10:00						
10:30							10:30						
11:00							11:00						
11:30							11:30						
12:00	Lap Swim	1.0	8				12:00	Lap Swim	1.0	8			
12:30							12:30						
1:00	School Use	3.0	NA				1:00	School Use	3.0	NA	Hydro Swimming	2	= 25 /hour
1:30							1:30						
2:00							2:00						
2:30							2:30						
3:00							3:00						
3:30							3:30						
4:00	Swim Lessons	= 3 hrs levels 1 - 6	21				4:00	Swim Lessons	= 12 hrs levels 1 - 6	21/hour			
4:30							4:30						
5:00	Swim Club	3.0	NA				5:00						
5:30							5:30						
6:00							6:00						
6:30							6:30						
7:00							7:00						
7:30							7:30						
8:00	Leadership	2.0	= 24 /hr	Public Swim	2.0	25/hr	8:00	Leadership	3.0	= 24 /hr	Public Swim	2.0	25/hr
8:30							8:30						
9:00	Lap Swim	2.0	8/hr				9:00						
9:30							9:30						
10:00							10:00	Lap Swim	1.5	8/hr			
10:30							10:30						
11:00							11:00						

Wednesday

	Rectangular Pool			Leisure Pool/Therapy Pool		
Time	Use	Hours	# users/hr	Use	Hours	# users/hr
7:00	Lap Swim	1.0	8			
7:30						
8:00						
8:30	Pre/Post Natal Fitness	1	5			
9:00						
9:30	Senior Fitness Programs	2.0	25	Senior Fitness Program		
10:00						
10:30						
11:00						
11:30						
12:00	Lap Swim	1.0	8			
12:30						
1:00						
1:30	Pre School Lessons	=5 1/2 hour classes	5/ 1/2 hr			
2:00						
2:30						
3:00						
3:30						
4:00	Swim Lessons	= 3 hrs levels 1 - 6	21			
4:30						
5:00	Swim Club	3.0	NA			
5:30						
6:00						
6:30						
7:00						
7:30						
8:00	Leadership	2.0	= 24 /hr	Public Swim	2.0	25/hr
8:30						
9:00	Lap Swim	2.0	8/hr			
9:30						
10:00						
10:30						
11:00						

Thursday

	Rectangular Pool			Leisure Pool/Therapy Pool		
Time	Use	Hours	# users/hr	Use	Hours	# users/hr
7:00	Lap Swim	1.0	8			
7:30						
8:00	Adult Learn to Swim	3	10/hr			
8:30						
9:00				Aqua Stretch	2	= 25 /hour
9:30						
10:00						
10:30						
11:00						
11:30						
12:00	Lap Swim	1.0	8			
12:30						
1:00	School Use	3.0	NA			
1:30						
2:00						
2:30						
3:00						
3:30						
4:00	Swim Lessons	= 12 hrs levels 1 - 6	21/hour			
4:30						
5:00						
5:30						
6:00						
6:30						
7:00						
7:30						
8:00	Leadership	2.0	= 24 /hr			
8:30						
9:00	Lap Swim	2.5	8/hr			
9:30						
10:00						
10:30						
11:00						

Friday

	Rectangular Pool			Leisure Pool/Therapy Pool		
Time	Use	Hours	# users/hr	Use	Hours	# users/hr
7:00	Lap Swim	1.0	8			
7:30						
8:00						
8:30						
9:00						
9:30	Senior Fitness Programs	2.0	25	Senior Fitness Program		
10:00						
10:30						
11:00						
11:30						
12:00	Lap Swim	1.0	8			
12:30						
1:00	School Use	3.0	NA			
1:30						
2:00						
2:30						
3:00						
3:30						
4:00	Leadership	4.0	= 24 /hr			
4:30						
5:00						
5:30						
6:00	Teen Night	2.0	50	Teen Night		
6:30						
7:00						
7:30						
8:00						
8:30						
9:00	Lap Swim	2.0	8	Hydro Swimming	2	= 25 /hour
9:30						
10:00						
10:30						
11:00						

Saturday

	Rectangular Pool			Leisure Pool/Therapy Pool		
Time	Use	Hours	# users/hr	Use	Hours	# users/hr
7:00	Lap Swim	1.0	8			
7:30						
8:00	Swim Lessons	= 12 hours		Aqua Stretch	2	= 25 /hour
8:30						
9:00						
9:30				Pre School Lessons	=5 1/2 hour classes	5/ 1/2 hr
10:00						
10:30						
11:00						
11:30						
12:00	Lap Swim	1.0	8			
12:30						
1:00	Public Swim	5.0	25/hr	Public Swim		
1:30						
2:00						
2:30						
3:00						
3:30						
4:00						
4:30						
5:00						
5:30						
6:00						
6:30						
7:00	Party Rental	2.0	N/A			
7:30						
8:00						
8:30						
9:00	Lap Swim	2.0				
9:30						
10:00						
10:30						
11:00						

Sunday

	Rectangular Pool			Leisure Pool/Therapy Pool		
Time	Use	Hours	# users/hr	Use	Hours	# users/hr
7:00	Lap Swim	1.0	8			
7:30						
8:00	Swim Club	4	N/A			
8:30						
9:00						
9:30						
10:00						
10:30						
11:00						
11:30						
12:00	Lap Swim	1.0	8			
12:30						
1:00	Public Swim	4.0	25/hr	Public Swim		
1:30						
2:00						
2:30						
3:00						
3:30						
4:00						
4:30						
5:00						
5:30						
6:00	Synchro	2.0	TBD			
6:30						
7:00						
7:30						
8:00	Lap Swim	2.0	16			
8:30						
9:00						
9:30						
10:00						
10:30						
11:00						

Table 4.3: Aquatic Use Assumptions

Aquatic Facility Usage	Number of hours per week	Number of weeks or sessions Per Year	Average number of users per session
Fitness Swimmers	28	48	8
Senior Fitness Swimmers	6	48	25
Public Swim	15	48	25
Teen Night	2	40	50
Pre and Post Natal Fitness / Parent Tot	4	40	15
Pre School Class (1/2 hour lessons)	14	4	5
Swim Kids 1-6 Lessons	40	4	7
Swim Kids 7-9	2	4	10
Lifesaving Sport	3	1	12
Adult learn to swim	3	3	10
Aqua Stretch	4	40	25
Hydro Spinning	4	40	10
Bronze Star	2	4	12
Bronze Medallion	2	4	12
Bronze Cross	2	4	12
NLS	4	1	8
Synchro	2	4	10
School Use no charge	12	40	25
pool rental (subsidized prime)	10	40	25
pool rental (party rental)	4	40	15

4.2.3 Multi-Purpose Space

- Multi-purpose space will be used by both community rental and CWR Department programming;
- No revenues or expenses have been attributed to use for CWR Department programming on the assumption that the cost of space will be incorporated in the Departmental budget and programs will be operated at a break-even basis. CWR Department programs include such things as "Girls on the Move" or teen drop in programming. Currently the Department charges a $3/per person fee for attendance at these events but this revenue is not specifically related to facility or program expense (e.g. room rental; staff who are not volunteers; program supplies, etc.) For the purposes of this assessment, we have assumed revenues are sufficient to cover costs for these types of programs;
- Community programs identified for the multipurpose space include such things as yoga and Tai Chi. These may be day time or evening and/or weekend programs. We have assumed that community groups will rent the space from the Department and cover these costs (and any others) through fees that they charge their participants. This would be a customary practice in most communities. As the space is divisible there is considerable excess capacity to increase programming. The hours identified are largely those transferred from decommissioned facilities;
- Rentals for meetings by private or community organizations are not easily accommodated with current facilities in Miramichi and the Department does not currently charge for meeting room rentals. Better facilities will be available at the Multiplex and, with a change in pricing policies, the CWR Department could likely generate revenue from meeting room rentals. However, based on current practice, we have not assumed revenue from meeting room rentals.
- Party Rental of the Climbing Wall and Multi-Purpose space is an estimate although no information from the community was provided as to its potential use.

Table 4.4 illustrates anticipate use of multi-purpose space.

Table 4.4: Multi-Purpose Space Use Assumptions

Multipurpose Space Use	Number of Hours Per Week	Number of Weeks Per Year
Community Meeting Rentals	0	0
Community Programs	42	35
Party Rental Climibing Wall and Multi-Purpose Roor	2	30

4.2.4 Gymnasium Space

- Based on the needs assessment and the assumption that all existing gym use (including that at the MVHS) is transferred to the Multiplex and that additional time requested by users for new programs is accommodated, there is considerably more demand than can be accommodated within the gym space available at the Multiplex. However, as discussed in the needs assessment, the Multiplex gym's role is to complement gymnasia provided by educational authorities who will continue to meet most the community's needs. The Multiplex gym may be preferred to those provided by schools because there will be fewer restrictions on use, but our assumption is that school gymnasia will continue to serve the community.
- While all uses have been noted as full gym use this reflects in many cases two groups using half the gymnasium;
- Consistent with current practice, no use has been identified for summer use. However, we anticipated that the Department will program the facility for summer programs during the day and that once built community groups will express an interest in summer use;
- As with multi-purpose space no revenue will be identified associated with CWR Department programs (e.g. open gym time) on the assumption that fees will cover costs.
- We have not identified revenue associated with private or full day rentals of the gym. This is not customary in Miramichi, but may be an added source of revenue at the Multiplex.

Table 4.5 illustrates gym time used to generate the pro forma.

Table 4.5: Gymnasia Use Assumptions

Gymnasium Use	Number of Hours Per Week	Number of Weeks Per Year
Community Group hourly gymnasia rentals evening & weekend full gym	35	40
Community Group hourly gymnasia rentals daytime	8	40
Department programs evening / weekend	15	40
Department programs daytime	15	40

4.2.5 Other Spaces and Revenue Potential

- Revenue for the walking/jogging track is currently charged $3.00 per person for use at Golden Hawk Gymnasium for 12 hours per week. It is assumed, based on similar walking programs that a majority of the approximate 150 users per month are regulars coming several times a week and throughout each month. Based on this assumption there may be about 10-15 regular walkers. There is considerable capacity to increase usage and it is recommended that a walking pass be instituted. A projection of 200 distinct users annually purchasing passes of $100 is used in this pro forma.
- Additional revenue from concessions, a percentage of the gate for events, profit from instructional classes and membership fees if charged, advertisement, donations etc. should be anticipated. We have not estimated these revenues.
- Food service will be available at the Multiplex and will likely represent an improvement over that available at current facilities. However, the number of potential customers will not support a national franchise, a restaurant or other full service option. While there are a variety of options for providing food service and these will need to be investigated further by the Department, some combination of concessions and vending machines would be customary in a facility of this type. While some revenue may be generated, it would be more appropriate to view this as a customer service than as a profit centre.
- It has been suggested that office space might be provided and rented as an additional source of revenue. Even if the City was prepared to assume the role of landlord and there was a need for additional commercial rental space in Miramichi, this is not a likely scenario. Construction costs at the Multiplex will be considerably higher than for building commercial space elsewhere in Miramichi. Common operating costs – such as snow removal and landscaping – will also be higher because of City staff costs. Consequently rents at the Multiplex would need to much higher than comparable office space elsewhere in the community. To be competitive the rents would need to be subsidized by the municipality, which presumably defeats the purpose of raising revenue and would not be acceptable to taxpayers who own commercial properties, particularly if these properties are vacant.

4.3 MANAGEMENT APPROACH

It is assumed that the City of Miramichi's CWR Department will operate the Multiplex. The proposed staff complement in Table 4.5 illustrates what is needed to operate the new facility based on our experience with other comparable multipurpose recreation complexes and input from CWR Staff. It was not our purpose to "reassign" existing staff to the Multiplex. The extent to which these are existing, reclassified or new staff positions will be determined by the Department. However, to a considerable degree the staffing and other costs used to create the pro forma are already within the City's operating budget.

The staffing complement, full and part time, illustrated in Table 4.6 reflects hours of operation, staff to participant ratio's, and the positions required to operate the facility. This should be considered a starting point for discussion. Based on City policies and practices this complement may increase or decrease.

While we have included a full time program coordinating position, as noted earlier, the staff complement does not include part-time program staff associated with CWR Department recreational or active living programs; these costs are assumed to be covered by program revenues. Part-time aquatic staffing is as required to operate the pool as programmed in Table(s) 4.2. The positions were reviewed with the CWR Department Aquatics supervisor. Other part time staff associated with the arena, maintenance and customer service and would be customary in a facility of this type.

Salaries, hourly wages and benefit rates are consistent with current practice in Miramichi.

Table 4.6: Staff Complement for the Proposed Facility

Staff Complement				
Position	Salary	Hourly Wage	Benefit Rate	FTE's
Full Time Staff				
Facility manager/Director	$75,000		33%	1.00
Aquatic Coordinator	$50,000		33%	1.00
Facility Coordinator	$55,000		33%	1.00
Program Coordinator	$50,000		33%	1.00
Administrative Assistant (35 hours per week)	$40,000		33%	1.00
Operations Staff (40 hours per week)	$52,000		33%	3.00
Part Time Staff				
Head Guard	6,272	$12.00	*13%*	3.45
Assistant Guard	5,472	$11.05	*13%*	3.01
Instructor	2,720	$10.55	*13%*	1.49
Aquafit Instructor	480	$10.55	*13%*	0.26
Cashier / Customer Service Assitance	2,640	$10.30	*13%*	1.45
Maintenance Staff	5,824	$20.00	*13%*	3.20
Rink Attendants - public skating	270	$10.55	*13%*	0.15
Rock Wall and Teen Supervisor	450	$10.55	*13%*	0.25
Total Full time and Full Time Equivalent				**21.26**

4.4 OPERATING COST ASSUMPTIONS

Multiplex operating costs exclusive of staffing are described in Table 4.7. These are general estimates based on other similar facilities. A number of these costs are comparable to Miramichi's current experience (e.g. insurance for the decommissioned facilities is roughly $43,000; chemicals and cleaning supplies are $19,000) and in some cases we have included costs not represented in Miramichi's budget (such as volunteer recognition and staff training). One major difference is in the marketing and promotion budget. We have allowed for $20,000 to promote the new facility and encouraging participation. The CWR Department's current advertising budget is $8,600.

Table 4.7: Operating Costs (Exclusive of Staff)

General Office	Costs
Marketing, Promotions	$ 20,000.00
Office Supplies	$ 10,000.00
Office Equipment	$ 10,000.00
Telephone	$ 6,000.00
Postage/Courier	$ 2,000.00
Insurance	$ 46,000.00
Dues/Subscriptions	$ 500.00
Volunteer Recognition/Recruitment	$ 2,000.00
Maintenance	**Costs**
Pool Chemicals	$ 10,000.00
Cleaning & Maintence Supplies	$ 10,000.00
Small Equip. Repair	$ 10,000.00
Minor Building Repair	$ 10,000.00
Contracted Cleaning	$ 20,000.00
Program Costs	**Costs**
Aquatic program supplies	$ 10,000.00
Part time staff training	$ 3,000.00

In addition to the expenses noted above, utilities are another significant cost. Utility costs are based on a previous report[19] and are estimated at approximately $2.50 per gross square foot for heat, water, electricity and some lifecycle maintenance. This figure should be reviewed and confirmed with other currently operating facilities. Based on that gross square foot estimate and the projected size of the facility approximately $300,000 is projected for annual utility costs.

4.5 REVENUE ASSUMPTIONS

Revenues were generated using the program and rental fees provided by staff and/or existing. In a few cases e.g., indoor pool rental to community groups that does not currently exist with respect to the municipal pool time, an hourly fee is proposed.

Not all fees were used in calculating revenues. For example we did not use family rates or multi-use passes. It is not possible at this level of evaluation to identify how many of a group of say public swimmers will be there as a family, as a senior, as an individual, on a multi-use pass etc. We have therefore used single use payments for these calculations. This may enhance revenues slightly. On the other hand it should also be assumed that use may also be underestimated and the two situations will have the effect of mitigating each other.

Fees and rates used are listed in Table 4.8.

[19] Architecture 49 Recreation Infrastructure Assessment and Comparison Report. 2014.

Table 4.8: Fee and Charge Assumptions

Program Fees & Charges		
Aquatic Programs and Uses	**Fee**	**Length of Use**
Daily Pool Drop-In / Public Swim / Lane Swim fee	$ 3.00	per time
Youth Teen Night	$ 3.00	per time
Pre and Post Natal Fitness drop in	$ 3.00	per time
Pre School Class (1/2 hour lessons)	$ 35.00	per lesson group
Swim Kids 1-6 Lessons	$ 50.00	per lesson group
Swim Kids 7-9	$ 60.00	per lesson group
Lifesaving Sport	$ 60.00	per lesson group
Adult learn to swim	$ 60.00	per lesson group
Aqua Stretch	$ 3.00	per lesson group
Hydro Spinning	$ 3.00	per lesson group
Swim for Life Instructors	$ 200.00	per lesson group
Bronze Star	$ 60.00	per lesson group
Bronze Medallion	$ 125.00	per lesson group
Bronze Cross	$ 100.00	per lesson group
NLS	$ 200.00	per lesson group
Synchro	$ 60.00	per lesson group
pool rental (subsidized prime)	$ 45.00	per hour
pool rental (non subsidized)	$ 90.00	per hour
pool rental (non subsidized)	$ 90.00	per hour
Arena Programs		
Minor Hockey	$ 70.00	per hour
Public Skate	$ 3.00	per hour
Hockey School	$ 155.00	Per hour
Rentals - Not for Profit Group	$ 500.00	per day
Gymnasium		
Full Gymnasium	$ 60.00	per hour
Active Living Space	$ 35.00	per hour
Meeting room	$ 25.00	per 3 hours
Climbing wall and party room	$ 100.00	per two hours

4.5.1 Revenue Projections

Table 4.9 illustrates revenue projections based on the use noted in earlier tables and the fees and charges noted in the preceding section. As noted earlier, our assumptions concerning fees and revenue sources are quite conservative. In most cases there is some additional capacity for increased use in proposed spaces that could enhance revenues. This is particularly the case with respect to summer and daytime use. It is likely more classes could be added to the pool although as the traditional pool is largely programmed there may be additional requirements for guards to supervise other areas of the pool should additional programming be added using other pools.

Table 4.9: Revenue Projections by Program Area

AQUATIC FACILITY							
PUBLIC SWIM AND DROP IN PROGRAMS	No. of Sessions/Times	**Annual weeks/year**	Sessions /Year	Fee	**Participants /Hour**	Revenue
Fitness (lane) Swim	28	48	N/A	$ 3.00	8	$32,256.00
Senior(Lane) Fitness Swim	6	48		$ 3.00	25	$21,600.00
Aqua Stretch	4	40		$ 3.00	25	$12,000.00
Hydro Spinning	4	40		$ 3.00	10	$4,800.00
Pre and Post Natal Fitness / Parent Tot	4	40		$ 3.00	15	$7,200.00
Teen Night	1	40		$ 3.00	50	$6,000.00
Public Swim	15	48		$ 3.00	25	$54,000.00
INSTRUCTIONAL	No. of classes / Season	**Annual weeks/year**	Sessions /Year	Fee	**Participants / Class**	
Pre School Class (1/2 hour lessons)	28	N/A	4	$ 35.00	5	$ 19,600.00
Swim Kids 1-6 Lessons	40		4	$ 50.00	7	$ 56,000.00
Swim Kids 7-9	2		4	$ 60.00	10	$ 4,800.00
Lifesaving Sport	3		1	$ 60.00	12	$ 2,160.00
Adult learn to swim	3		3	$ 60.00	10	$ 5,400.00
Bronze Star	2		4	$ 60.00	12	$ 5,760.00
Bronze Medallion	2		4	$ 125.00	12	$ 12,000.00
Bronze Cross	2		4	$ 100.00	12	$ 9,600.00
NLS	1		1	$ 200.00	8	$ 1,600.00
Synchro	2		4	$ 60.00	10	$ 4,800.00
RENTAL	No. of Hours / Week	**Weeks / Year**	Sessions /Year	Fee	**Participants /Class**	
pool rental (subsidized prime)	10	40	n/a	$ 45.00	N/A	$ 18,000.00
pool rental (non subsidized)	4	40		$ 90.00		$ 14,400.00
School Rental	18	40		$ -		$ -
venue Total						**$ 291,976.00**

ARENA						
Ice Rentals	No. of Hours or Uses / Week	No. of Weeks / Year	Average No. of participants	Fee		Revenue
Minor Hockey	53	24	N/A	$ 70.00	N/A	$ 89,040.00
Shinny Hockey Rental	3	24	12	$ 3.00		$ 2,592.00
Public Skate	9	30	15	$ 2.50		$ 10,125.00
School Use no charge	12	20	N/A	$ -		$ -
Hockey School	24	8	N/A	$ 155.00		$ 29,760.00
Full Day Rentals - Not for Profit Group	1	5	N/A	$ 500.00		$ 2,500.00
evenue Total						**$ 134,017.00**

MULTI-PURPOSE SPACE AND GYMNASIUM						
Rentals and Uses	No. of Hours or Uses / Week	No. of Weeks / Year	Average No. of participants	Fee		Revenue
Community Meeting Rentals	0	0	N/A	$25.00		$ -
Community Programs	42	35		$35.00		$51,450.00
Party Rental Climibing Wall and Multi-Purpose Room	2	30		$100.00		$6,000.00
Community Group hourly gymnasia rentals evening & weekend full gym	35	40		$60.00		$84,000.00
Community Group hourly gymnasia rentals daytime	8	40		$60.00		$19,200.00
Department programs evening / weekend	15	40		$0.00		$ -
Department programs daytime	15	40		$0.00		$ -
						$ 160,650.00
Total Annual Revenue						**$ 586,643.00**

4.6 OPERATING PRO FORMA

Net operating cost projections (Table 4.10) are based on the assumptions noted in preceding sections. The pro forma does not represent all the additional programming that may evolve as the Mulitplex is built, marketing initiatives that may be developed, policies that would increase or limit participation, or other directions that are not part of this study. These projections represent a reasonable starting point from which to begin the process of more exact programming, scheduling and budget projections. Staffing costs for full-time employees are escalated at 2% annually, recognizing cost of living increases and incremental movement of staff through the pay range. Other operation costs are also escalated at 2% annually as well.

The net operating cost does not include contributions to ongoing capital conservation or debt repayment. While not currently the practice in Miramichi, it may be advisable to build in contributions to ongoing capital conservation and this should be assessed as part of the recommended operational review.

Total annual gross operating costs in the first full year of operation are approximately $1.27M using assumptions as outlined in this section of the report. Many of these costs are currently within the CWR Department operating budget. While a direct comparison is not possible due to the manner in which the budgets are kept, the 2014 budgeted expenditures for the existing facilities that will be decommissioned when the Multiplex opens were about $1.25million.) Program costs comparable to those included in the business plan added about $168,000 to this total for overall expenditures in the order of $1.5million.

This estimate suggests that Multiplex costs are marginally lower than those for the existing decommissioned facilities, but may in fact under-estimate the savings due to the proposed staffing. The Multiplex budget includes a facility manager, a program coordinator, and administrative and customer service staff who may be covering some job responsibilities of existing staff not represented in budgets of the decommissioned facilities. We have recommended an operational review that will clarify how Multiplex staff relate to existing Department staff and we expect this will indicate some duplication and therefore opportunities to realize further staff efficiencies within the CWR Department.

The business plan indicates approximately $587,000 of revenues in the initial year of operation. This is somewhat higher than the roughly $400,000 in revenues in 2014 that could be attributed to the decommissioned facilities. However, it is not possible to directly compare revenues because of the manner in which budgets are kept and fees are charged by the Department.

The business plan indicates an approximate $670,000 annual operating deficit. This would appear to be a marginal improvement over the financial performance of the facilities that the

Multiplex will replace. This reflects current pricing practices in Miramichi. It also assumes that the operating efficiencies associated with a twin pad arena are delayed until such time as the Civic Centre ice surface is decommissioned and replaced at the Multiplex.

Table 4.10: Five Year Operating Pro Forma

Salaries	Year One TOTAL	Year Two	Year Three	Year Four	Year Five
Full Time Staff					
Facility manager/Director	$ 99,750.00	$ 101,745.00	$ 103,779.90	$ 105,855.50	$ 107,972.61
Aquatic Coordinator	$ 66,500.00	$ 67,830.00	$ 69,186.60	$ 70,570.33	$ 71,981.74
Facility Coordinator	$ 73,150.00	$ 74,613.00	$ 76,105.26	$ 77,627.37	$ 79,179.91
Program Coordinator	$ 66,500.00	$ 67,830.00	$ 69,186.60	$ 70,570.33	$ 71,981.74
Administrative Assistant (35 hours per week)	$ 53,200.00	$ 54,264.00	$ 55,349.28	$ 56,456.27	$ 57,585.39
Operations Staff (40 hours per week)	$ 69,160.00	$ 70,543.20	$ 71,954.06	$ 73,393.15	$ 74,861.01
Total FT Staff Costs	**$ 428,260**	**$ 436,825.20**	**$ 445,561.70**	**$ 454,472.94**	**$ 463,562.40**
Part Time Staff					
Head Guard	$ 85,048.32	$ 86,749.29	$ 88,484.27	$ 90,253.96	$ 92,059.04
Assistant Guard	$ 68,326.13	$ 69,692.65	$ 71,086.50	$ 72,508.23	$ 73,958.40
Instructor	$ 32,426.48	$ 33,075.01	$ 33,736.51	$ 34,411.24	$ 35,099.46
Aquafit Instructor	$ 5,722.32	$ 5,836.77	$ 5,953.50	$ 6,072.57	$ 6,194.02
Cashier / Customer Service Assitance	$ 31,472.76	$ 32,102.22	$ 32,744.26	$ 33,399.14	$ 34,067.13
Maintenance Staff	$ 131,622.40	$ 134,254.85	$ 136,939.94	$ 139,678.74	$ 142,472.32
Rink Attendants - public skating	$ 3,218.81	$ 3,283.18	$ 3,348.84	$ 3,415.82	$ 3,484.14
Rock Climbing Supervisor	$ 5,364.68	$ 5,471.97	$ 5,581.41	$ 5,693.04	$ 5,806.90
Total PT Staff Costs	**$ 363,201.89**	**$ 370,465.93**	**$ 377,875.24**	**$ 385,432.75**	**$ 393,141.40**
Total Staff Costs	**$ 791,461.89**	**$ 807,291.13**	**$ 823,436.95**	**$ 839,905.69**	**$ 856,703.80**
General Office					
Marketing, Promotions	$ 20,000.00	$ 20,400.00	$ 20,808.00	$ 21,224.16	$ 21,648.64
Office Supplies	$ 10,000.00	$ 10,200.00	$ 10,404.00	$ 10,612.08	$ 10,824.32
Office Equipment	$ 10,000.00	$ 10,200.00	$ 10,404.00	$ 10,612.08	$ 10,824.32
Telephone	$ 6,000.00	$ 6,120.00	$ 6,242.40	$ 6,367.25	$ 6,494.59
Postage/Courier	$ 2,000.00	$ 2,040.00	$ 2,080.80	$ 2,122.42	$ 2,164.86
Insurance	$ 46,000.00	$ 46,920.00	$ 47,858.40	$ 48,815.57	$ 49,791.88
Dues/Subscriptions	$ 500.00	$ 510.00	$ 520.20	$ 530.60	$ 541.22
Volunteer Recognition/Recruitment	$ 2,000.00	$ 2,040.00	$ 2,080.80	$ 2,122.42	$ 2,164.86
Total Office Costs	**$ 96,500**	**$ 98,430**	**$ 100,399**	**$ 102,407**	**$ 104,455**
Maintenance Costs					
Utilities	$ 295,770.00	$ 301,685	$ 307,719	$ 313,873	$ 320,151
Pool Chemicals	$ 10,000.00	$ 10,200	$ 10,404	$ 10,612	$ 10,824
Cleaning & Maintence Supplies	$ 10,000.00	$ 10,200	$ 10,404	$ 10,612	$ 10,824
Small Equip. Repair	$ 10,000.00	$ 10,200	$ 10,404	$ 10,612	$ 10,824
Minor Building Repair	$ 10,000.00	$ 10,200	$ 10,404	$ 10,612	$ 10,824
Contracted Cleaning	$ 20,000.00	$ 20,400	$ 20,808	$ 21,224	$ 21,649
Total Maintenance Costs	**$ 355,770.00**	**$ 362,885.40**	**$ 370,143.11**	**$ 377,545.97**	**$ 385,096.89**
Program Costs					
Aquatic program supplies	$ 10,000.00	$ 10,200.00	$ 10,404.00	$ 10,612.08	$ 10,824.32
Part time staff training	$ 3,000.00	$ 3,060.00	$ 3,121.20	$ 3,183.62	$ 3,247.30
Total Program Costs	**$ 13,000.00**	**$ 13,260.00**	**$ 13,525.20**	**$ 13,795.70**	**$ 14,071.62**
TOTAL EXPENDITURES	**1,256,731.89**	**1,281,866.53**	**1,307,503.86**	**1,333,653.93**	**1,360,327.01**
Revenues - Aquatic Facility	291,976.00	300,735.28	309,757.34	319,050.06	328,621.56
Revenues - Arena	134,017.00	138,037.51	142,178.64	146,443.99	150,837.31
Revenues - Multi Purpose Space & Gymnasium	160,650.00	165,469.50	170,433.59	175,546.59	180,812.99
TOTAL REVENUES	**$ 586,643.00**	**$ 604,242.29**	**$ 622,369.56**	**$ 641,040.65**	**$ 660,271.86**
NET DEFICIT	**$ (670,088.89)**	**$ (677,624.24)**	**$ (685,134.30)**	**$ (692,613.29)**	**$ (700,055.15)**

APPENDIX A

MULTIPURPOSE RECREATION COMPLEXES – BENEFITS, DESIGN PRINCIPLES, PROGRAMMING ENHANCEMENTS

COMMUNITY ECONOMIC DEVELOPMENT, HEALTH AND SOCIAL BENEFITS[20]

There is considerable research to suggest that the economic, health and social benefits that are frequently attributed to recreation are in fact maximized with multiuse complexes.

It has long been recognized that in an increasingly competitive economic environment, communities with quality recreational resources will have a significant advantage over others in the drive to attract new investment and recruit and retain a skilled labour force. Indeed, some studies suggest that following health care and education, recreation infrastructure is the most significant factor attracting and maintaining businesses and a stable labour force in a region. A number of authors including Dr. John Crompton of Texas A & M, a leading expert in the economic benefits of recreation, Mr. Richard Florida, author of the best-selling book – *Creative Cities*, and Enid Slack for the Laidlaw Foundation have written, at some length, about the recreational benefits to local businesses.

- "Small business ranked recreation, parks and open space first among, quality-of-life elements in location decisions…"[21]
- "Recreation, parks and open spaces are important in attracting small businesses, and areas which fail to recognize this are likely to lose them to cities that emphasize these amenities."[22]
- "Cities need to attract business and skilled labour to be globally competitive. Services that enhance the quality of life of individuals in the community (such as parks, recreation, and cultural activities) feature prominently among the characteristics that attract the knowledge workers to particular places..."[23]
- "Over 90 percent of businesses in America employ 10 or fewer people, and most growth in business starts with those small companies. Those business owners can live wherever they want to live, and they will trade off some revenue potential for quality of life opportunities."[24]

[20] This appendix is taken from a Discussion Paper that was part of the earlier study: Architecture 49 Recreation Infrastructure Assessment and Comparison Report. 2014
[21] Steve Hill, newsteam@agnews.tamu.edu from Interview with Dr. J. Crompton, *Parks, Recreation Could Help Attract Business (*1995).
[22] Florida, Richard, *Competing on Creativity; Planning Ontario Cities in the North American Context* A report prepared for the Ontario Ministry of Enterprise, Opportunity and Innovation and the Institute for Competitiveness and Prosperity, p.1
[23] Slack, E. (2003). *Municipal Funding for Recreation*. Prepared for the Laidlaw Foundation
[24] Gale Group (2004). *Leverage your parks: a quality parks system, which B.R. lacks, can help keep workers and attract new companies - Community – Interview.* Retrieved on December 10, 2004 from: http://www.findarticles.com

These quotes, which reflect a common theme in a growing body of literature, indicate the importance of high quality recreation facilities for attracting business and investors to a community and retaining a skilled labour force. The existing Miramichi recreation facilities do not appear to support the local economy in these important ways. While renovations and updates would undoubtedly improve this situation, this strategy is unlikely to have the impact of a new multiuse complex. A new multiuse complex will send a different message to potential investors by introducing a signature facility, state of the art design, and a quality community focal point with something for everyone. It is the type of facility that could be the centre piece of a marketing and promotional strategy for the region.

One of the most prevalent trends in recreation service delivery in New Brunswick, and elsewhere in Canada, is the increasing emphasis on physical activity and healthy lifestyles. For the following reasons, we might expect the beneficial health impacts of a multiuse complex in Miramichi to be more significant than those associated with updating or renovating the existing facilities. The complex can:

- Provide facilities not currently available (e.g., therapeutic pool; a well-designed walking track) that can offer specialized programming with a wellness focus.
- Greatly expand the supply of well-designed multipurpose space that can be used for physical activity programs.
- Offer enhanced opportunities for cross programming (gym and swim) and family programming (leisure pool with recreational components such as aquatic climbing walls).
- Provide better multipurpose space and venues for educational programs to promote health and wellness.

Multiuse complexes will generally increase the use of recreation facilities and, more importantly, frequently attract new users. In addition, because all facilities are under one roof – these complexes can make a significant contribution to a wide range of social objectives including higher levels of community cohesion and social interaction; inter-generational contact; and opportunities for shared program delivery.

The current facility model in Miramichi largely focuses on single-purpose facilities, geographically dispersed and with few complementary and supporting amenities required to maximize community use. A multiuse complex introduces a new model with the ability to attract those who would not normally be regular or frequent participants and to create a community focal point. While the municipality has provided a strong youth programming focus

at the Golden Hawk Recreation Centre (with a dedicated youth room and outdoor skateboard park), we expect a new multiuse complex would be more attractive and cater to a broader range of young people. The multipurpose complex would be a facility that encourages hanging-out and impromptu social opportunities through design and programming. It would bring people in and encourage repeated use of all parts of the facility. Youth who have a place to congregate can be encouraged to contribute programming ideas for other activities, (e.g., youth-only swims, creative opportunities for those not interested in, or only in, sports). Community interaction supports social cohesiveness and contributes to wellness through activity and social networking.

Unlike stand-alone facilities, multi-component recreation centres provide many opportunities for cross-programming (e.g. a gym and swim program) or concurrent programming (e.g. a single location where family members can simultaneously participate in programs of interest). Consequently, the municipality is a position to expand its program base in both different areas of interest and service combinations. In addition, only large multi-component recreation centres generate use levels high enough to support a full range of ancillary facilities and amenities such as food service, child-care, and facilities for those with special needs; etc.

Operating Cost Benefits

In addition to providing modern, full service sport, recreation and wellness facilities, multiuse complexes create unique opportunities for more cost effective service delivery.

Net operating costs depend on a variety of factors affecting costs and revenues and are community and facility specific. Identical facilities will have very different net operating costs based on municipal policies concerning fees and cost recovery and labour agreements. Programming policies and priorities will also have a major impact on the bottom line because of different cost recovery ratios for various activities. Finally, the design of the facility and the initial capital investment in furnishings, fitments and equipment will have a major impact on operating, maintenance and repair costs over the life of the building.

While the scope of this study did not include an assessment of operations, costs and revenues that would allow us to quantify the savings associated with a multiuse complex, the following are possible cost savings.

Staffing

- Twin pad arenas can be operated with fewer staff than two single pad arenas.

- Maintenance and cleaning staff can be much more efficiently deployed in a larger complex.
- Administrative, security and reception staff functions are shared. Generally in single purpose facilities, these staff are either not provided or are very poorly utilized because of low levels of use. They can be efficiently deployed in a multiuse facility.

Administration and Operations

- Equipment can be shared between facilities resulting in lower overall operating costs.
- Economies of scale can be utilized to negotiate better arrangements for service contracts, insurance, etc.

Energy

- Generally less overall space will be provided in a multiuse complex than would be needed for stand-alone facilities (e.g. shared lobbies, washrooms; maintenance and work areas, etc.) In addition to savings on capital costs, this results in more efficient buildings which cost less to heat and maintain.
- There are opportunities to exchange heat and make better use of energy by co-locating facilities such as the arena and the pool.
- New facilities will achieve greater operating efficiencies than the existing facilities, even if these are renovated and updated. Facilities can be developed to green building standards to achieve higher levels of energy efficiency and overall sustainability.

Enhanced Revenue

- Much higher levels of use can be anticipated and this will yield higher program revenues.
- Shared facilities allow for shared amenities (such as food service) and higher levels of use significantly enhance revenue streams. This is particularly the case if the facility attracts casual users, participants and residents who simply want to socialize in community space.
- Facility users will be willing to pay higher rental rates and program fees for quality facilities

While the multiuse complex will be more cost effective than maintaining stand-alone facilities in most respects, the indoor aquatic facility will likely be the exception. Staffing costs are a major part of the operating budgets and we should expect a larger staff complement because

of higher levels of use; more programming potential; and features that must be supervised. (such as slides, climbing walls or other recreational elements). These additional costs will be offset to some degree by higher revenues. The extent to which higher operating costs would be incurred for a new aquatic facility in the multiuse complex can only be determined with a more detailed assessment of operations.

Planning and Design Principles – Relevance to Multiuse Complexes

Section One of the paper identified a number of significant benefits associated with multiuse complexes that suggest this option is preferred to the renovation and retention of existing stand alone and single purpose facilities (assuming this is reasonable based on the relative capital costs). However, it is also important to note that multiuse complexes are also more consistent with facility development planning and design principles. The principles noted below represent best practices in community recreation facility planning. These are generally much more consistent with a centralized facility model.

Principle 1: Multi-Purpose Community Hubs

When developing new recreation facilities or expanding and redeveloping existing facilities, they should be designed to function as community hubs. Where feasible, more than one recreation component (e.g. an indoor aquatic facility, twin pad arena, large multi-purpose or gymnasium, etc.), as well multi-purpose programming and arts related spaces will be combined in one facility cluster. Other community facility components such as a branch library, health and wellness related facilities, and appropriate services (e.g. sport medicine, therapeutic health, etc.) could be provided through partnerships with others. Complementary outdoor facilities that enhance the "community" experience are strongly supported. Facilities such as multiple soccer fields, multi-purpose courts, play structures, splash pads, all contribute to an enhancement of experience and may be considered to complement the indoor experience. This principle is well reflected in the Vision presented in the October 2013 Recreation Facility Needs Assessment Plan and was clearly the preference of Miramichi residents participating in that study.

Principle 2: Grouping of Facility Components

Where feasible, "like" facility components (ice surfaces, indoor aquatic components) will be twinned or grouped together to support economies of scale and expanded user opportunities, where geographic access can be maintained. This principle responds to one of the key drivers of recreation planning today - the financial realities of ever increasing operating costs - and recognizes the economies of scale that contribute to financial and other resource efficiencies

with grouped rather than single facilities. Bringing together the two arenas and the two indoor pools in Miramichi is consistent with this principle.

Principle 3: Flexible and Accessible Design

Future development will ensure to the degree possible, that facilities are flexible and accessible, with opportunities to accommodate as wide a range of use as possible, and to be converted to other uses in the future. This principle supports long term financial sustainability and community responsiveness. With community growth and the aging of the population, needs and interests will change. It is imperative therefore that recreation facilities are built to accommodate change. This is largely a design issue that ensures flexibility in all aspects of facility development and does not compromise the functionality of the facility for today's users.

Principle 4: Sustainable Building Practices

Where developing new or redeveloping existing facilities, to the extent possible, the municipality should employ sustainable building practices and energy conservation measures. For all new facility development and when redeveloping or adding significant space to existing indoor and outdoor facilities, opportunities to improve/maximize energy efficiency and to educate and inform the public of these practices should be pursued. Sustainable use of resources also implies that funds continually be set aside for capital conservation purposes. Sustainable building practices include such considerations as: sensitivity to the ecology of the building site; using locally available or historic building materials, or building materials with recycled content and/or with lower impact manufacturing methods and by-products; use of a well-insulated and energy efficient building shell, high-performance windows and doors, and passive solar design; enhanced day-lighting; use of interior finishes which promote a healthier interior environment; use of energy-efficient and water-saving fixtures and equipment, and employing state of the art technologies in heating and cooling. Over time, the benefits of including these efficient systems in terms of operational savings far outweigh the capital cost differential. Fully sustainable construction of recreation facilities will only be possible in Miramichi with new construction. The existing older facilities can be improved, but they cannot reasonably be expected to meet the same standards of sustainability as new facilities.

Principle 5: Welcoming Facilities That Support Social Interaction

Where developing new or redeveloping existing facilities, the municipality should include elements that encourage social interaction and a wide range of activities. New and redeveloped community recreation facilities (where feasible) should strive to include a bright, welcoming, open-concept lobby area with amenities encouraging social interaction (comfortable seating, views of all major components, food services, etc.) supporting a wider range of activities and a

longer length of stay. Consideration should be given to ensuring indoor and outdoor facilities provide a mix of opportunities and incorporate spaces that support active and social recreation, spaces to exhibit and display, and spaces to learn and socialize. Opportunities for unstructured social interaction are particularly important for youth, young families and older adults.

This of course is one of the major benefits of a mulituse complex that cannot be replicated in stand-alone facilities. In Miramichi, this may be one of the few opportunities to create a social centre which brings together the community.

Principle 6: Physical Linkages & Access

The municipality will support access to recreation facilities by a range of travel modes, by locating facilities on major transit routes, and by connecting geographic hubs and other recreation and district facilities by natural and hard surface trails. To ensure that a focus on communities does not negate the sense of citywide attachment, major nodes of activity should be connected to the extent possible by a variety of hard surface trails, bus routes, roadways, pathways, etc. Such physical linkages respond to active transportation initiatives, build local communities, and connect those communities through positive physical form. They provide opportunities for active living, recreation and general health. By ensuring community facilities are linked by transit routes and connected, where possible, by natural and hard surface trails, the municipality supports access by a range of travel modes to these amenities.

This concept is also reflected in the Vision presented in the October 2013 report and in the municipality's active transportation strategy. A multiuse centre is a significant community attraction, with high enough levels of use, to be positioned as a major node in Miramichi's transportation corridors, both vehicular and active transportation.

Principle 7: Partnerships and Alternative Funding Mechanisms

For all new and redeveloped facilities, the municipality will explore the full range of partnership and alternative funding mechanisms as part of a broader feasibility study. As part of its commitment to being fiscally responsible, and to nurture partnerships, a full range of potential partnerships with community organizations, partner agencies, other levels of government, and the private sector should be explored as part of the feasibility assessment for new community facilities. Opportunities to maximize funding through grant programs, corporate sponsorship, community group sponsorship, private donations, etc. should also be investigated for all facility development and redevelopment projects.

This is an issue that requires further investigation in Miramichi, but a multiuse complex maximizes the opportunities for partnerships that are beneficial to the municipality. The number and diversity of residents who will be attracted to the centre, make it extremely

attractive to partners that are providing a service (e.g. life skills for youth; programs to support independent living among the elderly, etc.) or have products to sell (e.g. retail or business interests such as sports medicine, food service, etc.). The attributes also make it an ideal location for other municipal services – such as the library. The co-location of libraries and recreation centres is a well established practice in Canadian communities and in virtually all cases mutually beneficial. Libraries in recreation centres experience much higher levels of use and attract many more new members than stand-alone facilities. The library provides another social and activity space for patrons of the recreation complex, particularly those that are waiting for other family members to finish a program, and as such is a particularly attractive feature in these facilities.

COMMUNITY USE AND PROGRAMMING - ENHANCEMENTS IN MIRAMICHI

We anticipate that new facilities as part of a multiuse complex will offer a number of programming opportunities that cannot be realized with the upgrading of existing facilities. We have commented on selected opportunities below.

Indoor Pools

Due in large part to their age and traditional design, Miramichi's aquatic facilities cannot fully respond to the full range of aquatic needs and interests of residents now or those of future residents. Opportunities to respond to these issues through enhanced programming or minor renovations are limited by the nature of the facilities. A new leisure pool could include the following features to enhance use; programming opportunities and resident use and satisfaction:

- specially designed therapeutic pools with a separate tank and warmer water which can be used for specialized programming (e.g. for older adults with arthritis) as well as a wide range of programs for older adults and younger children;
- accessibility components such as zero-depth entry, wheelchair ramps with handrails, hydraulic lifts;
- indoor water play features such as sprays and jets;
- the design requirement for instructional, fitness and training programs;
- an atmosphere (natural light, enhanced social and deck space) and amenities (full family change rooms, on-deck whirlpools, food service) that will attract a wider range of residents to use the pools more frequently.

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These pools will also enjoy much higher levels of use, higher revenues and more efficient operations. While they may ultimately have higher net operating costs, this will largely be attributed to much higher levels of community use.

Arenas:

While the Lord Beaverbrook Arena is in much worse condition than the Miramichi Civic Centre, both arenas are older, single pad, stand-alone facilities which are less efficient to operate than multiple-pad, contemporary arenas. The combination of age and limitations in the outdated design and equipment add to operating inefficiencies, increasing maintenance costs, and ultimately result in user dissatisfaction.

Replacing the existing single pad arenas with a twin pad facility in a multiuse complex can respond to community needs and interests by including elements such as an expanded lobby with food service; a warm viewing area; improved seating; expanded, improved dressing rooms, female dressing rooms, etc.

A twin pad arena will also improve the municipalities ability to host tournaments and meets. This includes off-ice events such as trade shows or major community special events. Higher levels of community use, and programming as well as improved revenue opportunities are the result.

Multi-Purpose Space

We anticipate that the provision of new, well designed multi-purpose space as part of a larger community "hub" model will improve programming venues for a wide range of community active living, arts and cultural and social programming as well as provide better equipped rental and training spaces. .While space for these types of activities are available in Miramichi and the Golden Hawk Recreation Centre, the Lindon Recreation Centre and other venues, the quality of the space and the support features (such as storage, changerooms, etc.) are not always ideal. These programming venues would be improved in a new multiuse complex.

Older Adult Space

Older adult space is provided at various locations in the community and in the case of the Golden Hawk Recreation Centre, users have access to other facilities. However, the design and arrangement of programming spaces in existing Miramichi facilities will not fully address the leisure needs of the current and future generation of older adults.

Research clearly indicates that the emerging generation of older adults will be interested in a broader range of leisure opportunities, including (but not limited to) a strong interest in

aquatics, fitness and wellness activities, art and cultural programming, general interest courses and lifelong learning, community and special events, intergenerational programs, and trail usage. This diversity of needs cannot be addressed with sole purpose, stand-alone seniors centres or with facilities that are not designed for older adult use (such as traditional aquatic facilities).

A multi-purpose complex is a preferred approach to serving older adults if their needs are considered in facility design and programming. Older adults can be expected to use all components of these facilities (including aquatic facilities, multipurpose areas) assuming the design is conducive to older adult programming.

Space for Youth

In addition to traditional sports and youth-specific activities such as skateboarding, research indicates a growing interest in a broader range of physical activities, arts and cultural programming, and unstructured, drop-in activities. Multi-purpose space and/or gymnasium spaces as part of larger centres can best address these interests, particularly the interest in unstructured, social activity.

Dedicated, stand-alone youth centres, where the municipality is the sole provider, are not recommended for many of same reasons as described above for dedicated older adult centres. However, the municipality might from participate in the development of youth-focussed programming using the appeal and resources of a multiuse complex. As discussed earlier, a multiuse complex lends itself to partnerships with a variety of other agencies (health, social service, employment, counselling, etc.) in a manner that would likely not be possible at smaller, single purpose stand-alone facilities.

APPENDIX B

RECREATION PARTICIPATION TRENDS

INTRODUCTION

The following discussion describes factors affecting participation in various activities and programs that might be accommodated at the core facilities in the Multiplex. The anticipated trends in participation are a major consideration in the needs assessment. These trends are provincial and national in scope and to the extent we might expect variations in Miramichi this is discussed in the needs assessment.

ARENA PARTICIPATION TRENDS

Arena sports will conform to the broader trends indicating a decline in organized sports. However, a combination of other factors suggest that arena sports – primarily hockey – may experience much more significant declines.

As early as the late 1980s some commentators were predicting a significant decline in the use of Canadian arenas. These early projections of declining participation were primarily based on the then dominance of arena sports by young males and the anticipated aging of the Canadian population. The predicted decline did not materialize as soon as expected in large part due to the emergence of girls' hockey and the growth of adult leagues. National enrolment in hockey has experienced a modest increase in the past decade due to women and adult participation, but the longer term trend is one of significant decline. "Enrolment in Hockey Canada teams is currently 572,000 [2012 data], down more than 200,000 from its peak. And the prospects are grim. In the next decade, some say there could be 200,000 fewer kids playing the game".[25] A 2011-12 survey of hockey parents by Hockey Canada found that 21% were considering leaving the sport.[26] Particularly troubling is the decline in participation amongst the youngest players. A 2014 study reported no increase in novice registration in Canada's four largest hockey markets (BC, Alberta, Ontario and Quebec)[27]. Surveys with parents suggest that the younger players may be leaving due to lack of interest or cost, however, health concerns are a significant contributing factor with older players.[28]

Hockey New Brunswick reported almost 18,000 registrations in 2004-05, which dropped to between 14,500 and 16,000 over the next decade. However, the 2013-14 data has shown a return to the 2004-05 levels.

[25] Toronto Star. Editorial. The Future Looks Bleak for Canadian Minor Hockey. Jan. 2012.
[26] Cited in: Shifting Ice and Minor Hockey's Tipping Point. Globe and Mail. Sept. 2013.
[27] Canada's Game? Hockey Losing Ground Among Cash Strapped Families? Jamie Sturgeon. Global News. Mar. 2014.
[28] Cited in: Shifting Ice and Minor Hockey's Tipping Point. Globe and Mail. Sept. 2013.

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Women's' and girls' hockey is now an established sport in many communities and the aging trend is accelerating. Consequently, many communities have seen relatively stable participation in arena sports in recent years.

Looking forward, there are a number of indicators that would suggest that stable participation is an optimistic scenario and modest, perhaps steep, declines are more likely. These include:

- Continued aging with ongoing increases in the proportion of the population in the oldest age categories
- Increasing user fees due to the high cost of building, maintaining and operating arenas relative to many other indoor sports facilities. Increasing energy costs in particular will likely continue to have a disproportionate impact on arena user fees. According to a 2011 survey of parents and volunteers in Canada, 35.7% or respondents indicated that increasing ice costs were the single greatest issue facing their hockey communities and amongst parents who did not register their kids in hockey, 38% said it was because it was too expensive.[29] A more recent study undertaken by the Scotia Bank found that one-third of parents with kids playing hockey say the sport is becoming unaffordable.[30]
- Health and safety concerns highlighted by media reports of injuries in professional contact sports. The Toronto Star editorial cited earlier projects further significant declines in hockey registration if safety issues are not addressed.[31] The editorial cites Canadian research on health injuries and suggests that "fear of injuries is driving young children and their parents away from the game". Recent media reports claiming hockey helmets are defective and citing major concussion related law suits in professional sport likely continue to fuel parents' perceptions that arena sports are risky.
- Expanding indoor recreational opportunities, many at lower costs that will compete with arena sports for the winter market. (e.g. in many communities soccer is now a year round activity)
- While less relevant in Miramichi[32], in most major Canadian centres increasing diversity is resulting in residents with a broader range of recreational interest and in many cases less experience with arena sports. Provincial hockey associations in some jurisdictions are addressing this issue with outreach programs, the success of which remain to be seen.

[29] "Canadian minor hockey risks stalling as boys enrolment sinks, costs rise". Rachel Brady. Article in the Globe and Mail. Dec. 5, 2011.
[30] Cited in: Canada's Game? Hockey Losing Ground Among Cash Strapped Families? Jamie Sturgeon. Global News. Mar. 2014.
[31] "The future looks bleak for Canadian minor hockey" Emile Therien. Article in the Toronto Star. Jan. 4, 2012.
[32] New Brunswick Health Council. My Community at a Glance. In 2011, Miramichi (and larger area) report 1.6% of the population as immigrants, compared with 3.9% for New Brunswick. Both figures are very low compared to major urban centres in Canada.

These indicators were perhaps best summarized in a survey of 875 non-hockey playing families in Ontario and Nova Scotia who provided four major reasons for not playing the game: (1) it wasn't fun, (2) was too time consuming, (3) safety concerns, and (4) affordability.[33]

All of these concerns are being addressed by the hockey associations in Canada and the long range impact on participation is uncertain. However, a reasonable projection for the next ten years would be modestly declining participation rates in arena sports. However, the impact of health and safety concerns could be much more significant if studies indicate serious risks or if a major event, such as a lawsuit, is widely publicized. In this scenario, more significant declines in participation could result.

AQUATIC PARTICIPATION TRENDS

Aquatics share many of the characteristics of other activities which are growing in popularity. These include: ability to participate regardless of age and skill (at entry level); relatively low cost requiring little equipment; and, ability to participate according to one's own schedule (e.g., for lap swim or recreational swim).

Not surprisingly, therefore, recreational and fitness swimming continues to be one of the most popular leisure activities for all ages.

As the population ages and older adults remain active well into their 80's and beyond, demand to participate in this mildly aerobic low impact activity will increase. Reduced impact exercise programs are provided in warm water pools with a water temperature between 32°C and 35.5°C and a consistent depth (approximately 1M)[34]. This form of therapeutic recreation is extremely beneficial for those who are physically challenged due to injury or illness designed to improve quality of life[35].

Instructional swimming programs continue to experience strong participation among children, whereas leadership and aquatic instructional participation has declined as the population of teenagers' declines. Competitive swimming continues to be strong. Competitive diving and synchronized swimming have both been relatively stable over the past few years. Participation in these programs is limited by the availability of facilities and trained coaches, and typically enjoys success as a result of Canadian athletes in international competition.

[33] Cited in: Canadian Families Shunning Hockey, Survey Finds. Globe and Mail. August 2013.
[34] Lifestyle Information Network. McCune, Gabrielle. Warm Water Pools-Durham Warm Water Aquatic Program (2009).
[35] Lifestyle Information Network. McCune, Gabrielle. Warm Water Pools-Durham Warm Water Aquatic Program (2009).

Swimming is one of the most integrated sports in Canada, which will likely lead to relatively strong increases in future participation by swimmers with a disability. SWAD (Swimmers with a Disability) Canada continues to pursue high performance swimming opportunities and development initiatives to attract and train athletes. Specialized aquatic programs are increasingly recommended as a form of therapy for older adults and others with acute or chronic conditions (e.g., for stroke recovery, cardiac care, flexibility for arthritis sufferers, etc.).

Contemporary aquatic facilities often incorporate three tanks to accommodate three separate streams of programing.

- **Traditional Pools**: Aquatic facilities built primarily for competitive use, instruction and fitness are rectangular pools of 25 meters with a minimum of 6 lanes, a deep end and a shallow end. They typically have a cooler temperature (approximately 28 degrees Celsius).
- **Leisure Pools**: Beginning in the 1980's communities began to build free form pools referred to as leisure pools. These pools often had limited deep water, many had limited lanes suitable for fitness swim, and larger pool decks to accommodate longer stays in a recreational setting. They often incorporated fun-oriented apparatus such as slides, Tarzan ropes, ball hoops and nets. Usually pool temperature is in the mid-range (approximately 29-30 degrees Celsius). These pools are attractive for recreational swimming, support activities such as aquafit programs that required fairly shallow (waist-deep) water, and are ideal for early level instructional programs. They are less viable for higher level instruction, do not always support lane swimming or competitive use. Consequently, leisure components are almost always combined with traditional pool tanks that accommodate these activities.
- **Therapeutic Pools**: Therapeutic pools are generally small tanks, fully accessible and often incorporating water jets, in-tank seating etc. The water is warmer (approximately 30-32 degrees Celsius). These pools accommodate therapeutic use by older adults and people with disabilities, as well as parent and tot users and very young swimmers. They are well used for true therapy programs for people with arthritis, fibromyalgia, initial post cardiac care etc.

GYMNASIUM PARTICIPATION TRENDS

Gymnasium Activities – Participation in activities such as basketball, volleyball and badminton continues to be popular, particularly among youth and young adults and where there are opportunities for unstructured or more flexible participation. Badminton continues to be a popular drop-in activity for young adult couples and seniors. Racquet sports (including indoor tennis, squash and racquetball) have declined nationally since their peak in the 80's. Squash participation has declined considerably nationally but continues to be popular among

university-aged males. Indoor soccer on the other hand has experienced significant growth in association with the growing popularity of soccer in Canada. While smaller communities typically use gym space for winter soccer programs, enclosed artificial turf fields are now common in most major centres.

Multipurpose Space Participation Trends

Well-designed multipurpose space provides virtually unlimited opportunities for community use. With appropriate lighting, flooring and fixtures, and an appropriate relationship to other multipurpose centre facilities (such as change-rooms and the kitchen) these spaces can be used for a wide range of fitness, sport, arts and cultural programs as well as social and educational events. This also prime rental space and can be a significant revenue source.

APPENDIX C

Sport and Recreation User Group Input

Introduction

The study process included meetings with the major organized sport and recreation groups using Miramichi facilities. Separate meetings were held with users of arenas and gymnasia/multipurpose space. Each organization was also asked to complete a questionnaire.

The following groups were invited to participate. While most groups participated, some elected not to provide input despite repeated requests. In these cases we have assumed that the groups are satisfied with their current arrangements and have no need for improved facilities or additional facility time.

Arena Users	Gym/Multipurpose Space Users
Miramichi Minor Hockey Miramichi Ringette Miramichi Figure Skating JMH Boys Hockey JMH Girls Hockey MVHS Boys Hockey MVHS Girls Hockey	Tai Chi Gymnastics Archery Tae Know Do - 2 clubs Basketball Soccer
Invited – But Did Not Participate	
Timberwolves Junior A Hockey	Volleyball

In addition to the groups noted above, a representative of the Swim Team was interviewed and provided information that was used in the needs assessment; however, the Swim Team was not asked to complete the questionnaire.

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Summary of Key Findings

Key findings are summarized below. Other information retrieved from the questionnaires is reported in the main body of the report.

Age/Residency Profile of Participants

Virtually all of the participants in arena user groups were 0-18 years of age. Between 75-98% of participants were residents of the City of Miramichi.

Gym/multipurpose space user groups reported a broader age range of participants; however 63% reported 75-100% of their participants were 18 years of age or younger. Only Tai-chi reported a majority of participants over the age of 55. All but two of these groups reported 80% or more of their participants were residents.

Membership Trends

In the last three to five years has the number of people participating in your programs/activities:	Arena Users % of respondents	Gym/Multipurpose Users % of respondents
Increased	17	38
Decreased	0	0
Fluctuated	33	13
Remained Stable	50	50

Five years from now, do you expect your membership will have increased, decreased or be about the same as it is today?	Arena Users % of respondents	Gym/Multipurpose Users % of respondents
Increased	33	38
Decreased	0	0
About the Same	67	63

FACILITY NEEDS

Can you adequately accommodate all interested participants in your programs with the ice time/gym time currently available to your organization in Miramichi?	Arena Users % of respondents	Gym/Multipurpose Users % of respondents
Yes	67	38
No	17	63
Not Sure	17	0

How many additional hours of ice/gym time per week are required to meet your **existing demand** (i.e. hours required to accommodate all interested participants and appropriate practices/events)?	Arena User	Gym/Multipurpose Users
Total Hours requested – all respondents	8	56

Are there **new** programs your organization would like to offer at arenas/gyms in Miramichi but are currently unable to due to a lack of ice/gym time (i.e. programs that you don't currently offer, but would like to if more ice time was available).	Arena Users % of respondents	Gym/Multipurpose Users % of respondents
Yes	33	38
No	50	38
Don't Know	17	0
Did not answer the question	0	25
Total Hours requested/week – all respondents	9	31

IMPACT OF THE LOCATION OF THE FACILITY

If a new Multiplex was built within the City of Miramichi, what impact, if any, would the location have on the number of people participating in your programs?	Arena Users % of respondents	Gym/Multipurpose Users % of respondents
No impact – our members would participate regardless of the location within the City	67	63
Minor impact – some of our members would not participate if a new location was less convenient	33	38
Major impact - many of our members would not participate if a new location was less convenient	0	0

FEES AND FUNDRAISING

Would you agree to a new or an increased fee if new and improved facilities were available for your use at a new Multiplex in Miramichi?	Arena Users % of respondents	Gym/Multipurpose Users % of respondents
Yes	33	50
No	17	0
Don't Know	33	50
Did not answer the question	17	0
Would your organization participate in a fundraising program for a new Multiplex in Miramichi?		
Yes	67	63
No	17	0
Don't Know	17	25
Did not answer the question		13

APPENDIX D

KEY INFORMANT INTERVIEWS

Key Informant Interviews

The following individuals were interviewed as part of the study process.

- Mike Noel, City of Miramichi, CAO.
- Suzanne Watters, Director, City of Miramichi, Community Wellness and Recreation Department
- Holly Allison, Aquatics Coordinator, City of Miramichi, Community Wellness and Recreation Department
- Jason Walsh, Senior Youth Coordinator, City of Miramichi, Community Wellness and Recreation Department
- Anna Dean, Facilities and Administration Coordinator, City of Miramichi, Community Wellness and Recreation Department
- Claude Schofield, Miramichi Swim Team
- Shemera LeBlanc and Pat O'Brien, Farmers Market
- Betty Morrison, M.O.R.E Services.
- Tim Dunn, Director of Finance and Administrative Services, Anglophone North School District
- Wilson Bell, Regional Services Commission.

3.0 SITE ASSESSMENTS

3.1 Site Assessments

The consultants' objective for the site assessment phase was to assist the City of Miramichi in their review of candidate sites for the proposed Recreation Multiplex. A49 and WSP used a multi-disciplinary team comprising of Civil and Traffic Engineers, an Architect, a Landscape Architect and an Urban Planner to conduct a multiple criteria location analysis. The multiple criteria location analysis involved a review of 18 criteria. This included:

Category A - Physical Criteria

- A1: Site Capacity
- A2: Site Access
- A3: Transit
- A4: Visibility & Legibility
- A5: Neighbourhood Compatibility
- A6: Site Synergies
- A7: Future Expansion Potential
- A8: Active Transportation (AT)
- A9: Security
- A10: Site Features

Category B: Economic Criteria

- B1: On-site Development Costs and Building Capital Costs
- B2: Site Servicing Costs
- B3: Site Acquisition Costs
- B4: Operating Expenses

Category C: Planning & Other Criteria

- C1: Population Catchment
- C2: Site Availability
- C3: Municipal Development Plan
- C4: Zoning Regulations

Following the multiple criteria location analysis, three of the top scoring sites were selected by the City of Miramichi to be further investigated through the development of schematic site plans. These plans were conceptual and illustrated the preferred site access point(s), building layout and orientations, and sitework layout. A cost estimation was developed for each site based on the plans, and outline specifications developed by the consultant team. This cost estimation provided the City of Miramichi with a range of estimated site development costs for the three top scoring sites.

The detailed Site Assessment, Concept Site Designs and Costing Reports are located in Appendix A.

4.0 CONCEPT DESIGN

4.1 Summary

The purpose of the concept design phase was to develop a more precise cost for a Recreation Multiplex to suit the City of Miramichi. This was determined first by developing a building program based on the research of the Needs Assessment and Business Plan, and confirmation from City Staff. A concept design was developed for the Recreation Multiplex which would respond to the three highest scoring sites in the Site Evaluation Phase. This design would inform the building cost estimation of the project.

4.2 Design Charrette

The Architecture and Landscape consultants met with Miramichi City Council, and City Staff on Saturday, September 12th, for an integrated design session called a Design Charrette. The charette began with the group establishing a vision for the facility against which any future designs should be tested. The following principles were identified by the group:

1. **Accessibility** - The Recreation Multiplex will be easily accessible from within the City. The building itself shall be designed to be accessible for all members of the public.
2. **Inclusivity** - The Recreation Multiplex will be a welcoming place for people of all demographics, ages, abilities, and cultures.
3. **Affordability** - The Recreation Multiplex will offer affordable recreation opportunities.
4. **Functionality** - The Recreation Multiplex will be comprised of program areas that offer functionality while balancing flexibility of spaces. This will be accomplished with the specialized design of items such as lighting, finishes, equipment and efficient space planning.
5. **Expandable** - The Recreation Multiplex will be designed to anticipate and allow for future expansion of additional building space, or outdoor recreation programming.
6. **Transparency** - The design of the Recreation Multiplex will include transparent materials within the exterior building envelope to allow views to the exterior, and views to the inside of the building. The interior of the building will prioritize transparency in the most public areas in order to promote the recreation activities within. Transparency will also aid in security of the facility and natural wayfinding. Mechanisms for privacy of program areas for user groups will be designed into the equipment of the building.
7. **Plan Compatibility** - The design of the Recreation Multiplex will be compatible with the City's Strategic and Municipal Plans.
8. **Iconic Design** - The Recreation Multiplex will be designed to a high level of design quality, incorporating local materials, landscaping and public art. The design will be a source of pride for the community.
9. **Landscape Integration** - The Recreation Multiplex will integrate with and draw inspiration from the existing Miramichi landscape. The site itself will be landscaped to engage facility users.
10. **Energy** - The Recreation Multiplex mechanical and electrical systems as well as the building envelope will be designed to optimize energy performance.
11. **Durability** - The Recreation Multiplex will be detailed and built of materials to support a durable building contributing to along lifespan.
12. **Marketable** - The design of the Recreation Multiplex, in aesthetics and function, will contribute to the Municipality's ability to market the facility to those within the region and to those outside the region interested in bringing their events to Miramichi.
13. **Technology/Operationally Efficient** - The Recreation Multiplex will be equipped with modern technology to aid in the operations of the facility, programming and recreation department.
14. **Urban Renewal** - The Recreation Multiplex will contribute to urban renewal within the region.
15. **Security** - The Recreation Multiplex will consider the occupants' security in the design of the facility and grounds.

A group discussion outlining the building program was facilitated by the consultants, and areas were adjusted according to the consensus of the participants with important input from City Recreation Staff. Following the program review, the group was broken into three teams and given program blocks to be used to identify important programmatic adjacencies and comparabilities on each of the three highest scoring sites. Each of the groups presented their program and ideas were discussed amongst the whole group.

4.3 Program

A building program was developed for the proposed Recreation Multiplex for the CIty of Miramichi. The consultant team started with the program developed in the Recreation Infrastructure Assessment and Comparison Study by Architecture49 in 2014, and modified it based on the Needs Assessment and Business Plan prepared by dmA Planning and Management Consultants as a part of this study, the consultant's knowledge of recent recreation trends and standards, discussions with City Staff and discussion during Design Charette.

The program has been divided into six categories for clarity. They include:

1. Arena
2. Aquatic Centre
3. Gymnasium
4. Multipurpose Space
5. Building Services
6. Shared Program

All program areas (square footages) are to be verified in a future detailed design phase.

Program Component	Net Square Feet	Net Square Metres	Notes
1.00 Arena			
1.01 Spectator Ice Surface	38,800	3,605	minimum 1800 seats
1.02 Home Team Change Room	800	74	private team room
1.03 8 Change Rooms	3,800	353	includes 2 barrier free @ 600sf, 4 @ 500sf and 2 @ 300
1.04 2 Referee Change Rooms	520	48	includes wc, lavatory and shower
1.05 Storage	1000	93	separated areas for user groups
1.06 Workshop/Maintenance	800	74	
1.07 Mechanical	900	84	
1.08 Refrigeration	1,100	102	
1.09 Electrical	300	28	
1.10 First Aid Room	100	9	contains first aid supplies, equipment and small cot
1.11 Resurfacer	1,000	93	includes ice melt pit and zamboni
TOTAL Arena	49,120	4,563	
2.00 Aquatics Centre			
2.01 Pool and Deck	14,000	1,301	6-lane competition and leisure pools
2.02 Multipurpose Room	500	46	party room/classroom
2.03 Change Rooms	3,800	353	male and female, for gymnasium users too
2.04 Universal Change Room	1,500	139	8 private change stalls, 2 barrier free change areas
2.05 Lifeguard Office	400	37	includes lifeguard changeroom, washrooms and shower
2.06 Head Lifeguard Office	120	11	area for desk and small meeting table
2.07 Aquatics Storage	650	60	for aquatics and programming equipment
2.08 First Aid Room	100	9	contains first aid supplies, equipment and small cot
2.09 Pool Services Storage	300	28	for pool maintenance storage
2.10 Pool Mechanical	1,500	139	size dependant on filtration method
2.11 Electrical	250	23	
2.12 Water	75	7	
2.13 Aquatics Viewing	1,000	93	sized for 100 viewers on bench seating + barrier free section for 8
TOTAL Aquatics	24,195	2,248	
3.00 Gymnasium			
3.01 Gymnasium	8,600	799	one large court or two cross courts, retractable bleachers
3.02 Gymnasium Storage	800	74	ensure height for equipment
3.03 Gymnasium Office	100	9	
TOTAL Gymnasium	9,500	883	

Program Component	Net Square Feet	Net Square Metres	Notes
4.00 Multipurpose Recreation			
4.01 Multipurpose Room	2,300	214	divisible into three smaller rooms
4.02 Multipurpose Storage	200	19	for tables, chairs, musical instruments, etc.
4.03 Community Kitchen	600	56	adjacent multipurpose room
4.04 Youth Centre	400	37	area includes storage closet, kitchenette
4.05 Boardroom	500	406	room to seat 20 people
4.06 Walking Track	4,400	49	concourse of arena (area added to ends in overall square footage).
4.07 Fitness Room	900	84	equipped for fitness programming (i.e. mirrors, barre)
4.08 Rock Climbing	700	65	adjacent lobby
TOTAL Multipurpose	10,000	930	
5.00 Shared Program			
5.01 Lobby	4,000	372	all program spaces are visible from lobby, community hub
5.02 Reception	150	14	reception desk open to lobby but secure
5.03 Public Washrooms	2,400	223	to be confirmed with building code review during schematic design
5.04 Food Services	500	46	commercial kitchen
5.05 Canteen	200	19	serving counter
TOTAL Shared Program	7,250	674	
6.00 Building Operations			
6.01 Offices	750	70	6 offices + open administrative space
6.02 Staff Room	150	14	includes small washroom, lockers and kitchenette
6.03 Mechanical Mezzanine	0	0	area included in building gross square footage, TBD in detailed design
6.04 Electrical Room	100	9	
6.05 LAN Room	75	7	IT services
6.06 Custodian	150	14	2 rooms (upper and lower floor)
6.07 Recycling	200	19	sink included in room, size may vary if LEED is pursued
6.08 Maintenance Staff Room	300	28	includes small washroom, lockers, kitchenette
6.09 Building Storage	2,000	186	general building storage
TOTAL Building Operations	3,725	347	
TOTAL NET AREA	103,790	9,645	
(x1.20) TOTAL GROSS AREA	124,548	11,571	

4.4 Design Brief

The consultant team has developed a conceptual building design based on the vision and designs that were generated during the Needs Assessment, Feasibility Study, and Design Charrette

The program is divided into 4 major pieces which all have distinct locations within the building, but which all connected visually and physically to the building lobby spaces. One enters the large lobby from a vestibule at either the front or back of the building, where they can see the Gymnasium, Arena, Walking Track, Aquatics Centre and Multipurpose Rooms above.

The lobby itself is a hub of activity with seating areas for resting or socializing, food services, table and chairs and a rock climbing wall that will continuously animate the space. Upon entering the main entrance of the building, visitors are met by a large feature stair that connects them to the second floor. The lobby is intersected above by two bridges which move people to the arena concourse and the multipurpose rooms.

Within the form of the building the lobby rises above all other program elements, marking it as the heart of the building and establishing entrance points from both sides.

The arena will seat a minimum of 1,800 people divided among two long sides. Below the seating bleachers will house the arena change rooms, and storage areas. The arena concourse will also double as a 3 lane walking track that can be used throughout the day. Upon entering the arena on the second floor there will be a balcony area where tables and chairs could allow spectator seating from a comfortable vantage point.

The arena is articulated with angled trusses which cantilever past the front face of the building. This cap is cut out to reveal windows and to create a rhythm to its long exterior. Natural wood is exposed in the massing while natural stone marks the base at some of the angled elements.

The aquatic centre will be featured at the front of the building with glazing allowing views from the lobby. There will be two basins, one for recreational users and another 6-lane 25 metre competition pool. Spectator seating makes up a balcony on the second floor, accessible by a stair or from the second level concourse. Low translucent glazing would be located in strategic locations based on the final site and potential views to the exterior. A party room is positioned at the pool deck edge and adjacent the lobby which can also be used as a classroom for aquatics programming.

The aquatic centre distinguishes itself on the exterior as a beacon to the surroundings for those who approach the building. Fun accent striping generates a large translucent lantern which will diffuse natural light to the inside, and glow at night to the outside.

The gymnasium is a double size gymnasium, allowing one full court basketball and volleyball court, two half courts for the same sports, and 6 badminton courts within its boundaries plus space for viewing bleachers. The gymnasium is placed adjacent the rock climbing wall, for compatibilities of the programs, and adjacent the change rooms which it will share with the aquatic centre. At the back, the gymnasium acts as a second smaller lantern, with the ability to position signage along the translucent glazing to create a billboard effect for viewing from afar. The accent striping continues the rhythm around the building. An exterior green area is positioned to the exterior adjacent the gymnasium.

There will be a large multipurpose room capable of being divided into three smaller rooms for programming efficiencies. The room will have the opportunity to overlook the aquatic centre. It will be positioned adjacent a community kitchen which can be used for serving events, but also for kitchen/cooking programming through the recreation department. A small lobby is provided in front of this room for gathering. Near the multipurpose room and on axis with the larger of the two bridges is an exit out to a communal roof deck that could be used for outdoor events, outdoor recreation such as yoga classes and informal gathering.

A fitness room with specialized finishes for recreation programming overlooks the lobby and gymnasium space. A large boardroom occupies a private area above the building's main entrance and overlooks the aquatic centre below.

The distinct areas within the building are reflected in it's massing on the exterior, all connected by the tall lobby core. A variety of exterior materials are used to animate the shapes, including natural wood and stone, translucent and transparent glazing, composite metal panels, and architectural block. Materials would be chosen to reflect the natural landscape of the Miramichi region. A large canopy lines the front of the arena and provides shelter to those connecting by bus or vehicle, or for those looking for covering outdoors. A smaller version of this canopy creates a protected area at the secondary entrance.

Once a site is chosen there will be ways in which this design can be further modified to emphasize its natural surroundings, views and opportunities to be seen from around the City.

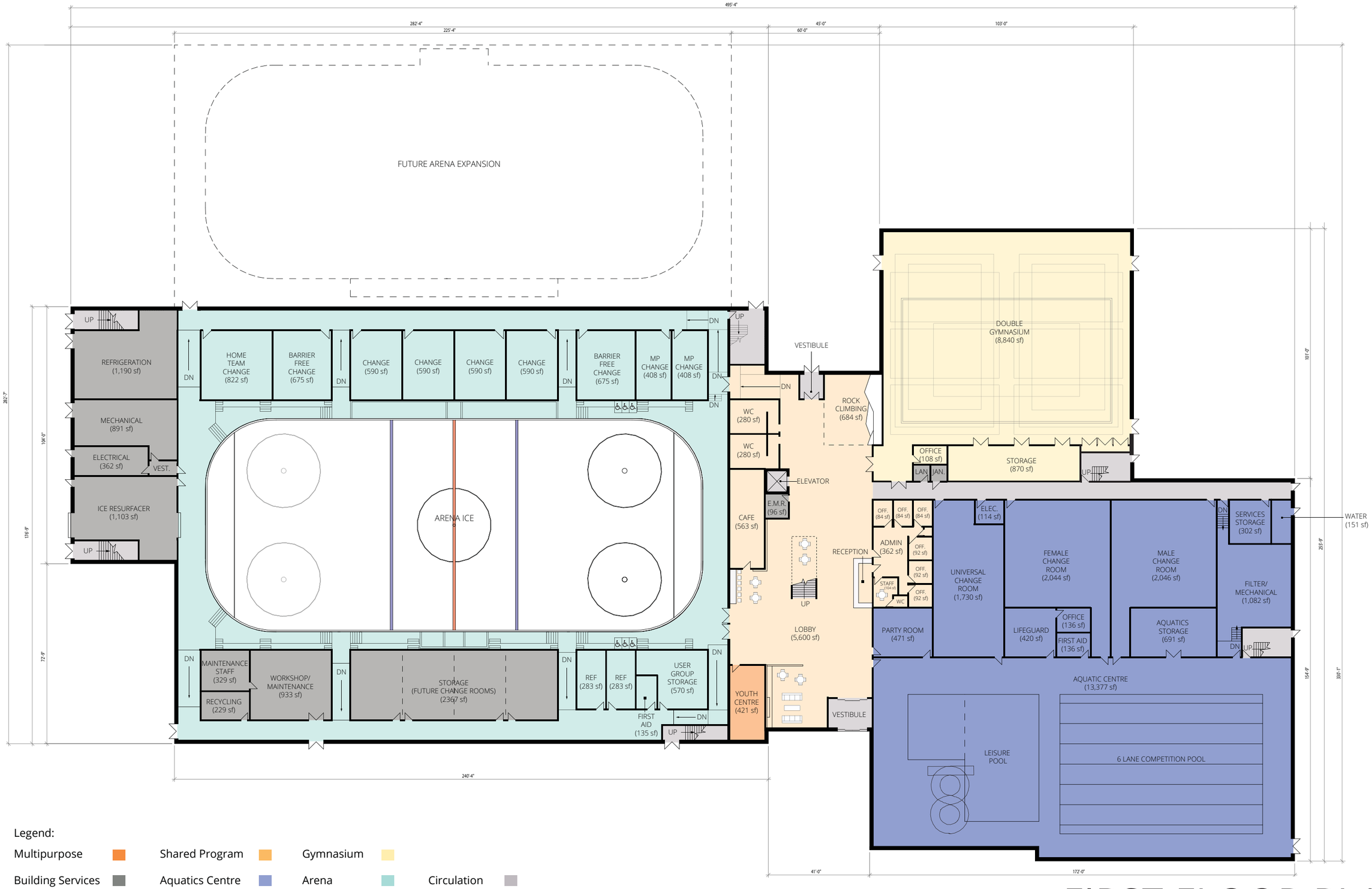
Most importantly the design provides an engaging hub in which to offer quality recreational, education and social opportunities of the highest standard to the residents of the City of Miramichi.

4.5 Drawings

The following pages include conceptual design drawings for a recreation Multiplex in Miramichi. The design is not site specific, and could be adapted to suit multiple sites.

CONCEPT PERSECTIVE

CONCEPT PERSECTIVE

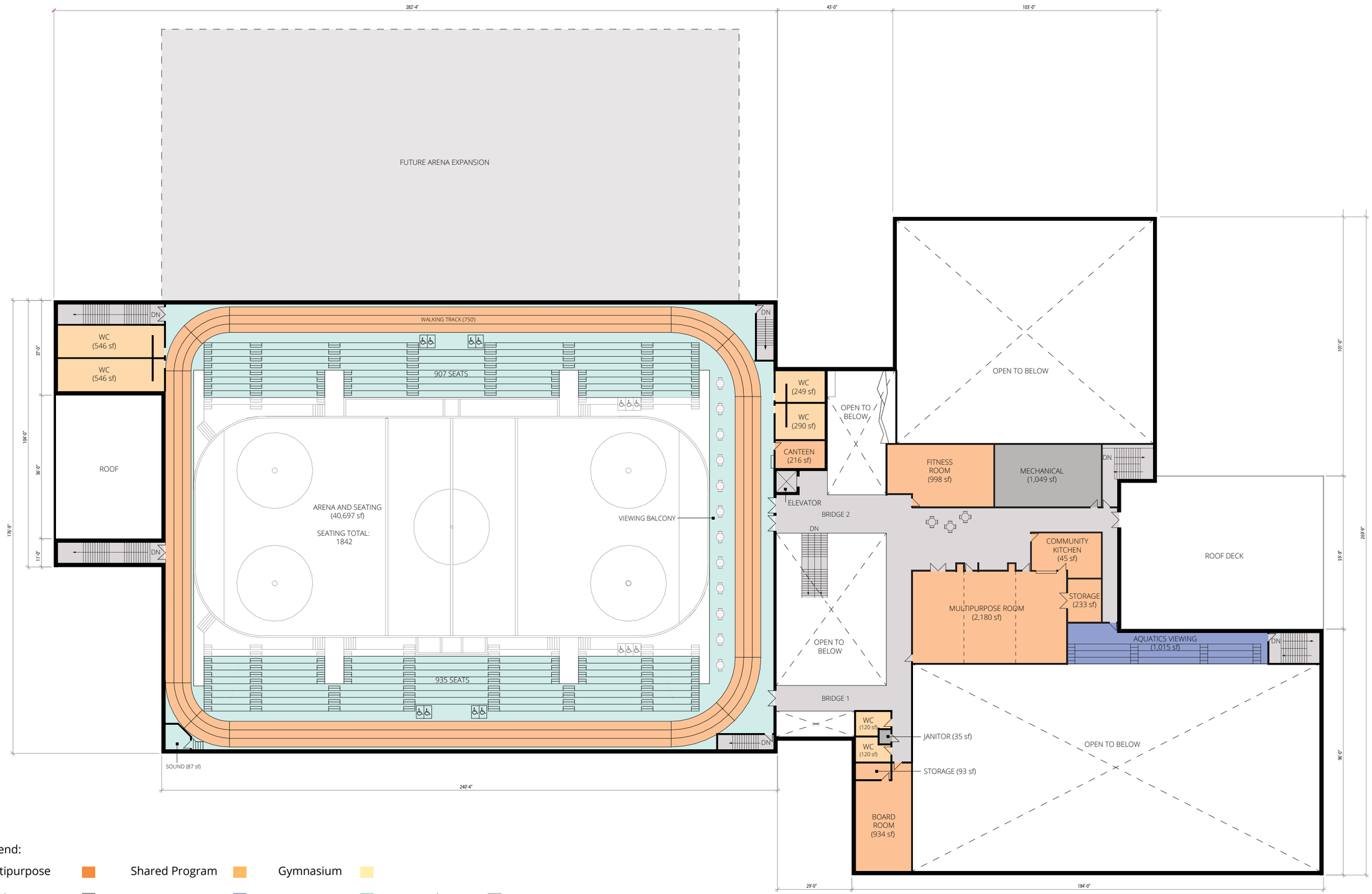


Legend:

Multipurpose		Shared Program		Gymnasium	
Building Services		Aquatics Centre		Arena	
Circulation					

FIRST FLOOR PLAN

Miramichi Multiplex Pre-Design Services

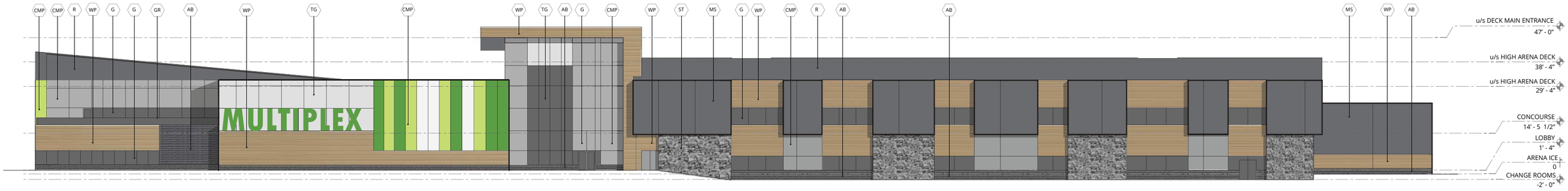


Legend:

Multipurpose | Shared Program | Gymnasium

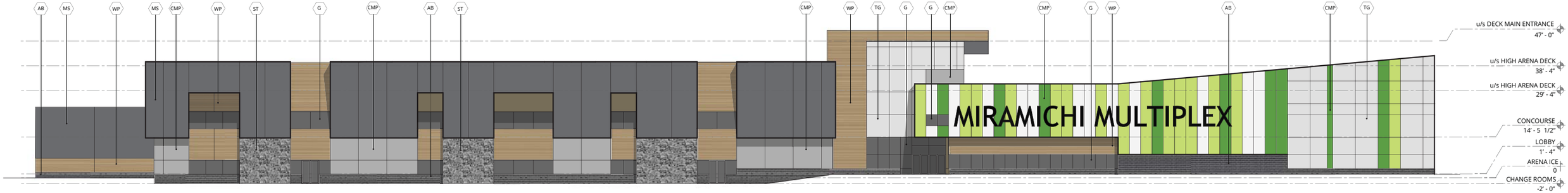
Building Services | Aquatics Centre | Arena | Circulation

SECOND FLOOR PLAN

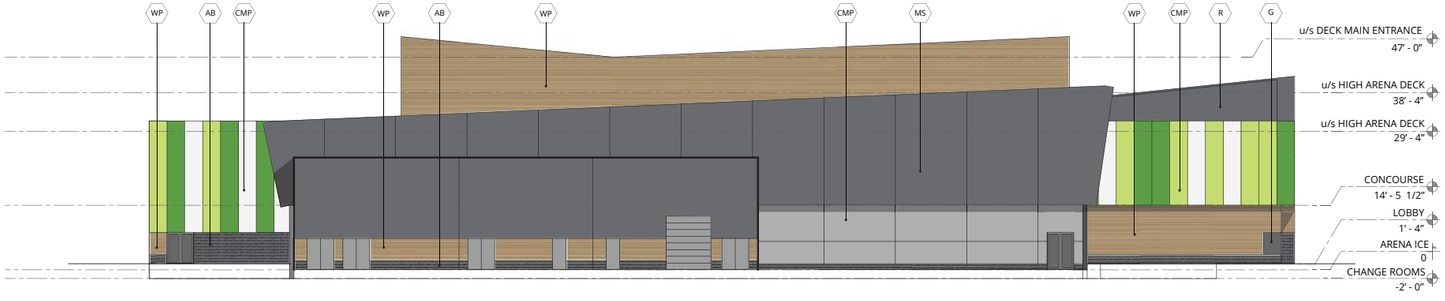


main entrance elevation

side elevation



back entrance elevation



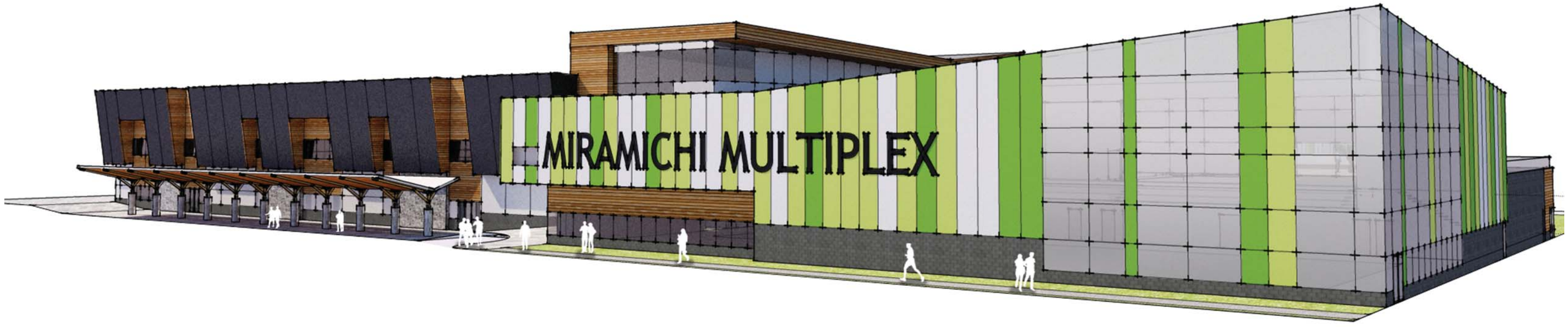
side elevation

MATERIAL LEGEND

CMP	COMPOSITE METAL PANEL
WP	WOOD PANELING
MS	METAL SIDING
G	GLAZING
TG	TRANSULCENT GLAZING
R	ROOFING
AB	ARCHITECTURAL BLOCK
GR	GLASS RAIL
ST	STONE

ELEVATIONS

Miramichi Multiplex Pre-Design Services



exterior view - aquatics centre

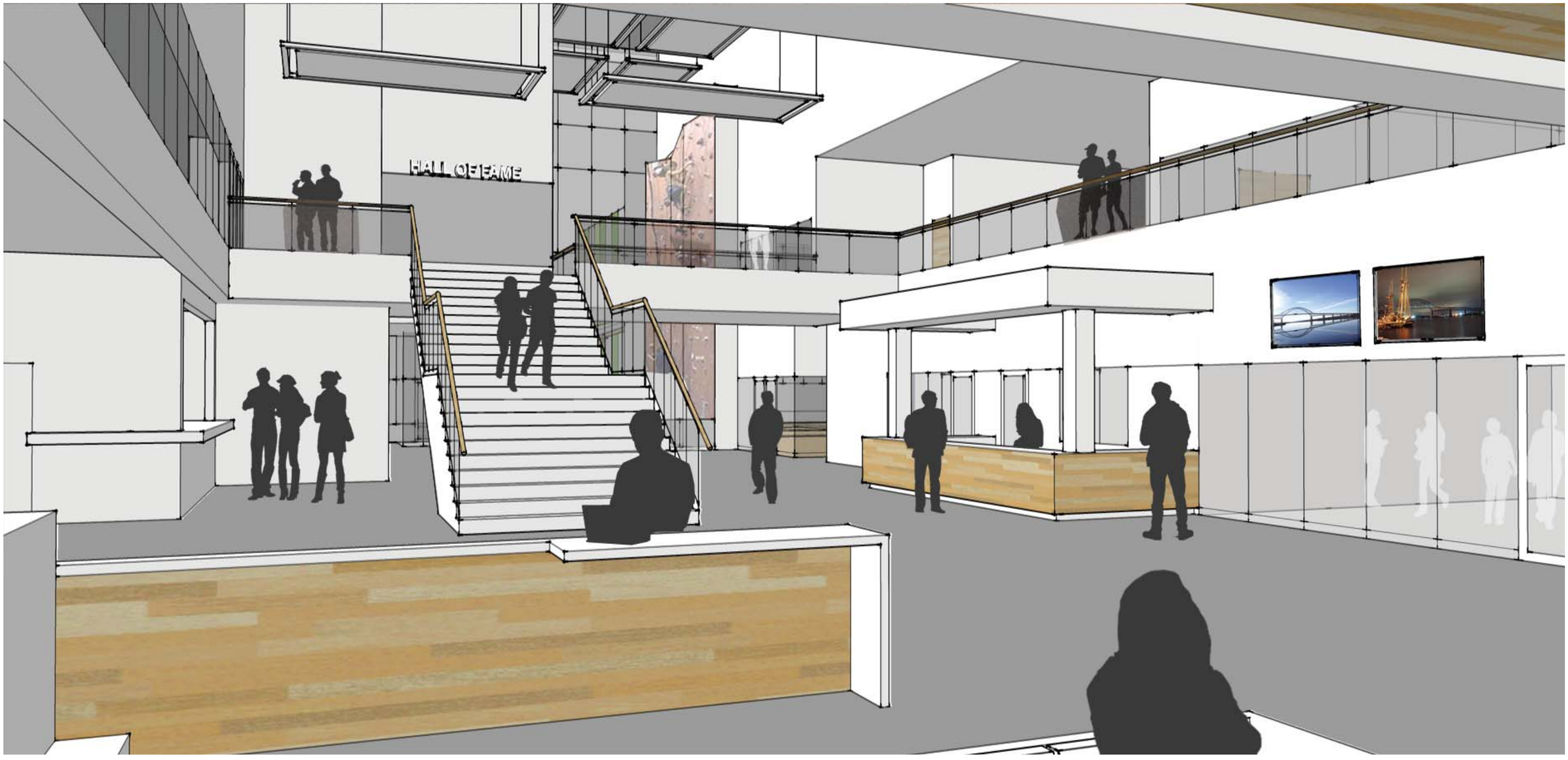
exterior view - primary entrance façade

3D BUILDING IMAGES

exterior view - secondary entrance façade

exterior view - gymnasium and rooftop deck

3D BUILDING IMAGES



INTERIOR LOBBY PERSPECTIVE

4.6 Outline Specifications

Civil

1.0 Earthwork

1.1 Clearing and Grubbing

.1 All developed areas to be cleared and grubbed prior to construction

.2 Timber and grubbed materials to be disposed of as per Owner's direction

1.2 Site Earthwork

.1 Earthwork includes all cut and fill required to bring site from grubbed state to subgrade

.2 Assume 0.5m minimum of overburden to be removed where existing grade remains unchanged

.3 Excavated material to be re-used on site where possible

.4 Imported material to meet borrow requirements as per NBDTI Specifications, latest edition

1.3 Rough Grading

.1 All developed areas to be brought to within 200mm of finished grade as indicated on plans

1.4 Excavating, Trenching and Backfilling

.1 Pipes to be bedded with Type 1 gravel and backfilled as per local standards

2.0 Exterior Improvements

2.1 Granular Sub-Base

.1 Granular sub-base to consist of 0-75mm crushed stone to NBDTI Specifications, latest edition

.2 Thickness of granular sub-base to be 300mm underneath asphalt unless noted otherwise

2.2 Aggregate Base Courses

.1 Aggregate base below to consist of 0-31.5mm crushed stone to NBDTI Specifications, latest edition

.2 Thickness of aggregate base underneath asphalt and walking trails to be 200mm unless noted otherwise

.3 Thickness of aggregate base underneath concrete curbs and sidewalks to be 150mm unless noted otherwise

2.3 Asphalt Paving for Building Sites

.1 Base course asphalt to be Type B asphalt as per NBDTI Specifications, latest edition

.2 Base course asphalt thickness to be 60mm unless noted otherwise

.3 Surface course asphalt to be Type D asphalt as per NBDTI Specifications, latest edition

.4 Surface course asphalt thickness to be 40mm unless noted otherwise

2.4 Concrete Walks, Curbs and Gutters

.1 All curbs to be concrete barrier type curb and gutter as per City of Miramichi Standard Municipal Specifications, latest edition

.2 All sidewalks to be 2.0m wide and have a concrete thickness of 100mm

3.0 Utilities

3.1 Site Water Utility Distribution Piping

.1 Watermain servicing to be PVC DR18 as per CSA Standard B137.3 - Assume 200mm diameter for sprinkler lateral and 50mm diameter for domestic lateral

.2 Fire hydrants to be as per City of Miramichi Standard Municipal Specifications, latest edition

.3 Assume one fire hydrant to be installed on site

3.2 Public Sanitary Utility Sewerage Piping

.1 Sanitary sewers to be PVC DR35 as per latest CSA Standard B182.2

.2 Sanitary manholes to be pre-cast concrete manholes as per CSA A257.4

3.3 Storm Utility Drainage Piping

.1 Storm sewers 300mm in diameter and higher to be reinforced concrete pipe as per the latest CSA Standard A257.2

.2 Storm sewers less than 300mm and more than 150mm in diameter to be PVC DR35 as per latest CSA Standard B182.2

.3 Storm sewers 150mm in diameter or less to be PVC DR28 as per latest CSA Standard B182.2

.4 Storm manholes to be pre-cast concrete manholes as per CSA A257.4

.5 Catch basins to be pre-cast concrete catch basins as per CSA A257.4

4.0 Exterior Improvements

4.1 Planting of Trees. Shrubs and Groundcovers

.1 All work in accordance with the Canadian Nursery Trades Association Standards for Nursery Stock, current edition.

.2 Contractor to maintain and warranty plant material for two full growing seasons from date of acceptance.

4.2 Topsoil & Finish Grading

.1 Topsoil to be rated to Canadian System for Soil Classification Rating 'B' or as otherwise indicated.

.2 Planting soil thickness for planting beds shall be minimum 600mm.

.3 Topsoil thickness for hydroseeded and general sodded areas shall be minimum 125mm.

.4 Topsoil thickness for sports fields shall be minimum 200mm.

4.3 Seeding and Sodding

.1 All sod to comply with the Canadian Nursery Trades Association standards, current edition.

.2 Contractor to maintain hydroseeded and sodded areas for one year following acceptance.

Structural

5.0 Foundations & Slab-on-Grade

5.1 Foundations

The foundations for the complex will bear on either undisturbed soil or on engineered structural fill having a minimum allowable bearing capacity of 150kPa. This bearing capacity must be confirmed by a geotechnical engineer prior to the commencement of design. The underside of footings will be a minimum of 1200mm below grade where frost protection is required, and a minimum of 600mm below grade elsewhere.

5.2 Slab-on-Grade

The slab-on-grade throughout the complex will be 100mm thick and reinforced with welded wire fabric. The slab-on-grade in the ice skating rink will be 150mm thick and to have a floor finish classification of Class C as defined in Table 19 of CSA A23.1-14 which is the classification for ice-rink slabs. Finishing will include specialized hand and mechanical screeding and a concrete mix compatible with finishing equipment will be supplied. The slab-on-grade in the remainder of the complex to have a floor finish classification of A as defined in Table 19 of CSA A23.1-14 which is the classification for institutional/ commercial floors.

5.3 Swimming Pool

The swimming pool will be constructed using cast-in-place concrete and will be designed to withstand hydrostatic pressures from inside the pool and soil pressure from outside the pool. A liner will be used to waterproof the pool.

6.0 Superstructure

6.1 Roof Framing

6.1.1 Arena

The arena roof will be framed with steel deck supported by long span open web steel joists. The joists will be supported on steel beams framed into steel columns. The joists will be designed to support the roof dead load, snow load, wind pressure, and loads from lighting, sound equipment etc. The scoreboard/ clock will be fastened directly to one of the rink walls and not suspended from the roof.

6.1.2 Aquatic Centre

The Aquatic Centre roof will be framed with timber deck supported by timber purlins that are in turn supported by structural steel beams and columns. The roof structure will be sloped to allow for drainage. The roof will be designed to resist dead load, snow load, wind pressure, and incidental loads from minor items which may be suspended from the roof.

6.1.3 Gymnasium

The gymnasium roof will feature long span open web steel joists spanning the full width of the gymnasium and will support an acoustic steel deck. The joists will be supported on steel beams framed into steel columns. The joists will be designed to support the roof dead load, snow load, wind pressure, and loads from lighting, curtains, and basketball nets.

6.1.4 Multipurpose Rooms

Roof construction over the multipurpose rooms will be steel deck supported by open web steel joists and steel beams.

6.2 Floor Framing

Intermediate floors will be framed with 62mm concrete slab on 38mm composite steel deck supported on open web steel joists. These floors will be designed for the dead load and a live load of 4.8kPa.

6.3 Bleachers

The bleachers will be constructed using pre-cast concrete sections supported on load bearing masonry walls. The bleachers will be designed for dead load and an assembly live load of 4.8kPa.

6.4 Bracing

Steel vertical bracing will be used within the wall cavity throughout the complex as necessary to provide lateral load resistance for each portion of the complex.

Architectural

7.0 General

This outline specification has been prepared as a preliminary overview of the architectural systems proposed for a new Recreation Multiplex in Miramichi to aid in preparing a cost estimate that will better reflect this building type. Detailed drawings and specifications would be completed during the design development phase of the project. The contractor shall apply a construction waste management strategy.

8.0 Sustainability

The new recreation multiplex for the City of Miramichi will recognize the environmental impact of the construction and operation of buildings by designing to a high sustainable standard. Measures will be investigated and sustainable products may be applied if they are deemed to be suitable for this project, cost effective and acceptable to the Owner. Materials will have low VOC content, and where possible will be sourced regionally. Careful consideration will be given to the building envelope design in order to avoid energy loss through thermal bridging.

9.0 Concrete

Refer to Structural outline brief for concrete foundations and slab on grade including the arena slab.

10.0 Masonry

.1 Exterior Concrete Masonry to be linear architectural block 90mm x 90mm x 390mm. Colour to be selected by Architect.

.2 Interior partitions will be concrete masonry units with a paint finish in arena, gymnasium and aquatic centre on ground floor. Concrete masonry units will also be used in the primary walls defining the Public Washrooms, Administration and Café/Food Service Rooms. Fire rated walls will be 190mm concrete masonry units.

.3 Exterior natural stone sourced from region.

11.0 Metals

.1 Refer to Structural outline brief for structural steel. Structural steel roof framing and columns will have intumescent paint at exposed columns which support floor assemblies above. Structural steel at pool will have an epoxy paint system. All open web steel joints and metal deck will be painted white (exact colour to be confirmed by Architect).

.2 Steel stairs will be metal with concrete filled pans at treads and steel rails and guards.

.3 Miscellaneous metals will include roof ladder, pit ladder for elevator, framing for overhead doors, checkerplate surrounds at service doors, steel bollards, and miscellaneous framing to support fixtures and equipment.

.4 Steel stud partitions will be used in first floor interior room partitions in administration area and in second floor room separations.

.5 Metal structure assembly for glass railing at second floor above lobby and feature stair. Construct of stainless steel pipe 40mm diameter. Cap and weld exposed ends of handrails, terminate at abutting wall with end flanges. Interior stair railing stainless steel.

12.0 Wood and Plastics

12.1 Rough Carpentry

Provide rough carpentry for:

.1 Roof parapets, electrical backboards, wood blocking/plywood for millwork and toilet accessory support backing.

.2 Exterior wood siding: Grade A Hemlock, variegated species colouring, milled, free from knots, blemishes or cracks. V-joint profile, nominal 1” x 8”. Water based tinted finish. Located in feature areas on exterior and front canopy soffit.

12.2 Finish Carpentry

Provide finish carpentry for:

.1 Window sills, trim, and locker bases

.2 Decorative wood finish in lobby (assume 3% of exposed wall surface on main floor).

12.3 Millwork

Provide the following millwork:

.1 Reception Area: Reception Desk and storage unit – MCP case bodies and fronts with solid surface countertops.

.2 Built-in millwork – MCP at Lifeguard/First Aid, Maintenance Staff Room, Community Kitchen, Boardroom, Administration Staff Room, Recycling Room, Arena First Aid

.3 Café/Food Services work and serving counters and storage – MCP case bodies and fronts, solid surface or stainless steel countertops.

.4 WC and change room vanities, solid surface with semi-recessed lavatories.

.5 Pool Change Rooms – solid colour reinforced composite benches; solid surfacing grooming station counters.

.6 Arena Change Rooms and players’ benches – solid maple slat benches.

13.0 Thermal and Moisture Protection

13.1 Moisture Protection

.1 Provide waterproofing at foundation walls and pits.

.2 Envelope air/vapour retarder at exterior sheathing.

13.2 Insulation

.1 Rigid Insulation: Below grade foundation using Thermomass application or equivalent, below grade at pool deck and tanks, below rink slab.

.2 Semi-Rigid Insulation: Cavity wall and curtain wall spandrel panel construction

.3 Foil-faced batt insulation: Lobby ceiling slab and walls adjoining the arena environment.

.4 Acoustic fiberglass insulation at interior partitions.

13.3 Composite Wall Panels

.1 Exterior composite wall aluminum panel system at exterior envelope.

.2 Provide a parapet cap and closure.

.3 Sub girts sized as per manufacturer’s recommendations and to structural spacing of the primary steel.

.4 Metal siding and trim to match metal siding colour.

.5 Colours to be selected by Architect from full colour range.

13.4 Preformed Metal Siding

.1 Preformed metal siding panels at exterior envelope.

.2 Sub girts sized as per manufacturer's recommendations and to structural spacing of the primary steel.

.4 Siding based on corrugated 7/8", 22 gauge.

.5 Colour to be selected by Architect from full colour range.

.6 Metal siding and trim to match metal siding colour.

13.5 Roof Systems

.1 Insulated roof system on metal deck:

.1 2-Ply SBS modified bitumen system

.2 Roof sheathing system

.3 Polyisocyanurate board insulation layered to achieve National Energy Code thermal performance requirements or better

.4 Air/vapour barrier membrane

.5 Roof underlay board

.6 Metal roof deck assembly (see structural)

.2 Finished roof deck off multipurpose room.

13.6 Fire Resistant Building Systems

.1 Provide at building structural and floor and wall separations. Fire resistant building systems and materials include concrete, CMU, rated GWB and steel stud, and intumescent paint on steel.

.2 Firestopping as required at fire separations at exit corridors, service rooms and at penetrations in rated walls and ceilings.

13.7 Miscellaneous

.1 Aluminum louvres with architectural profile, non-draining with misc. metal supports for spans greater than 5' o.c.

14.0 Openings

14.1 Exterior Glazing Systems and Glass

.1 Aluminum Curtain Wall System, Kawneer system 1 or equivalent, assume 10% SSG (capless verticals).

.2 Operable windows, awning.

.3 Exterior transparent glazing to be low 'e' coated argon-filled, sealed insulated units solarban 60 or equivalent.

.4 Exterior translucent glazing to be polycarbonate translucent wall assembly insulated non-cell glazing system with structural core. Colour to be selected by Architect from full colour range. Panel joint system to be extruded in one single formable length. 4" CPI Quadwall system or equivalent.

.5 Structural railing glass 12mm clear tempered units at second floor above lobby and feature stair.

.6 Acrylic Skylights, allow for skylights above feature stair and rock climbing wall.

.7 Interior borrowed lights with glazing will be clear anodized aluminum frames with fixed tempered glass.

14.2 Doors

.1 Interior doors; stained and clear coated wood veneer doors in hollow metal frames c/w tempered glazing sidelights in hollow metal frames

.2 Interior service doors; painted hollow metal doors in pressed steel frames.

.3 Exterior doors and frames; clear anodized aluminum thermally broken. Frames will be prepared to accept door alarm contacts.

.4 Exterior service doors and frames to be painted thermally broken hollow metal doors with pressed steel frames.

.5 Metal overhead doors; motorized, insulated sectional steel doors at ice resurfacer room to exterior and to arena.

.6 Automatic bi-parting aluminum sliding doors at lobby main vestibule c/w breakaway doors and sidelights.

.7 Aluminum accordion sliding grilles; anodized manually operated security grille at reception to enclose front desk.

.8 Aluminum rolling counter shutters; manual operation at canteen and café/food services.

.9 Finish hardware for all doors, interior and exterior; heavy duty, barrier free hardware typical with power assisted operators to be provided at all public entrances.

15.0 Finishes

	Item	Type	Location
Flooring			
FT	Porcelain Tile	12” x 24” rectangular format 1”x1” unglazed c/w all bullnoses, coves and trims, Carborundum grit in showers and on stairs 4”x8” unglazed for swimming pools and decks	Public corridors, lobby and public washrooms, vestibule, lobby feature stairs. Aquatic centre shower and w/c areas. Arena change room shower and w/c areas. Aquatic centre change rooms, deck and pools
SVS	Sheet Vinyl Safety Flooring	Safety flooring	Concession, kitchens, locker area of aquatic centre change rooms
SF	Sheet Flooring	Linoleum	Multi-purpose room
SK	Skate Flooring	Rubber sports floor 3/8” thick	
WD	Wood Flooring	Fixed Resilient Wood Floor	Gymnasium, fitness room
CS	Concrete Sealer + Densifier	Water based sealer Penetrating sealer	Service spaces, mech and elec, Arena risers, concourse
Wall Finish			
GWB	Painted Gypsum Board		Administration, community kitchen, boardroom
HGWB	High Impact Painted Gypsum Board	Abuse-Resistant Panels	Lobby, w/c’s, multipurpose room, fitness room, gym office, youth centre
WT	Ceramic Tile	2”x2”, 2”x4”, unglazed c/w all bullnoses, coves and trims, tile backer board	WC’s Shower Areas, Café/food services, canteen, Aquatic Centre
WP	Wood Panel	2’x4’, 4’x8’ birch veneer, stain finish	Accent areas in Lobby (assume 30%)
Ceiling Finish			
ACT1	Acoustic Tile	Typical (2’x2’, 2’x4’ Acoustic Tile)	Administration, board room, change room corridor, multipurpose room, fitness room, youth centre
ACT2	Moisture Resistant Acoustic Tile	Typical (2’x2’, 2’x4’ Acoustic Tile)	Aquatic Centre and Gymnasium Change Rooms, Public w/c’s
GWB	Painted Gypsum Board		Assume 25% of Public Area ceilings

16.0 Specialties

The following specialties will be included:

.1 Washroom partitions will be solid phenolic colour reinforced composite doors and partitions.

.2 Lockers at pool change rooms, lifeguard office, gymnasium office and maintenance staff room.

.3 Folding panel partitions for multipurpose room divider, wood veneer end stacking, top supported, hinged closure, automatic bottom seal and sound rating of STC 50.

.4 Washroom accessories will be heavy duty.

.5 Arena boards + glass panels: 5” aluminum framed system with HPDE facing and tempered glazing on stanchions. Arena complete with players benches and penalty time keepers boxes. Motorized lift gate at end. Arena to have black Kevlar safety netting.

.6 Climbing wall to be modular panel with liquid acrylic finish c/w geodesic shapes (assume 6 shapes).

.7 Prefabricated electric fireplace for lobby

.8 Interior wayfinding and informational signage.

.9 Exterior building signage, and exterior pylon sign.

.10 Gym scoreboard

.11 Arena jumbotron

.12 Arena Dressing Room clocks

.13 Acoustic wall panels in gymnasium, multi-purpose room, fitness room, and at Arena ends

.14 Gymnasium divider curtain

17.0 Equipment

.1 Commercial kitchen equipment will be included to outfit café/food services on main floor. Canteen on Level 2 and Community Kitchen to be outfitted as a warming kitchen.

18.0 Furnishings

The following furniture will be included:

.1 Pinhole blinds for pool exterior glazing.

.2 Arena folding seats

.3 Recessed foot grilles in vestibule areas.

.4 Tack/communication boards

.5 Additional furniture to be part of a separate Furniture, Fixtures and Equipment contract.

19.0 Special Construction

19.1 Swimming Pools

.1 Swimming Pool Construction:

.1 Ferrous metals: only stainless steel type 316 to be used in contact with pool water, either in the in-tank equipment, or on deck equipment, unless indicated otherwise.

.2 Fill under tanks: washed clear gravel or crushed stone.

.3 Rigid insulation extruded polystyrene

.4 For concrete, see concrete section and structural outline specifications.

.5 Concrete reinforcement: epoxy coated dowels on the pool side of waterstops.

.6 Ribbed PVC waterstops

.7 Caulking: two component polysulphide, colour white adjacent white grout; light grey in other areas of pool tanks.

.8 Joint filler at all expansion joints where indicated, 12 mm rigid extruded polystyrene insulation

.9 Ceramic tile: see floor finishes.

.2 Pool Equipment and Accessories:

.1 Provide Water Umbrella: 1800mm dia. x 3000mm (H) PVC stem umbrella c/w stainless steel shroud and PVC flange (Schedule 80). Supply PVC anchor bolt jig to suit.

.2 Provide fiberglass slide with fully enclosed circular section at top of slide. Fibreglass to be translucent finish from manufacturer's extended colour range to be selected by Architect. Radius exposed corners 4mm.

.3 Provide touch pad holders, guard chairs, pool grab rails, starting platform, cup anchors, land anchors, wedge anchors, escutcheons, stanchion sockets and steps.

19.2 Ice Refrigeration Plant and Piping

.1 Refer to Mechanical outline specification.

20.0 Conveying Systems

.1 Elevator will be hydraulic passenger two stop elevator with a 3500lb capacity. Stainless Steel interior finish.

Mechanical

21.0 General

.1 This outline specification has been prepared as a preliminary overview of the mechanical systems proposed for the new Miramichi Multiplex in Miramichi, NB, with sufficient detail for the layperson to understand the overall concept. Complete details of the mechanical systems design will be refined during the Detailed Design Process.

.2 The following Codes, Standards, Handbooks and Manuals will form an integral part of the design for the Mechanical Systems:

- National Building Code of Canada (NBC)
- National Fire Code of Canada (NFC)
- National Plumbing Code of Canada (NPC)
- National Energy Code of Canada for Buildings
- ASHRAE Standard 62.1- Ventilation for Acceptable Indoor Air Quality
- CSA Standard B51- Boiler, Pressure Vessel, and Pressure Piping Code
- NFPA 10 - Standard for Portable Fire Extinguishers
- NFPA 13 - Standard for the Installation of Sprinkler Systems
- NFPA 17A - Standard for Wet Chemical Extinguishing Systems
- NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations
- CSA B139-Installation Code for Oil-Burning Equipment
- ASHRAE Handbooks
- SMACNA
- The Government of New Brunswick and all Authorities having jurisdiction.

All work will be done in accordance with the latest edition of all referenced documents.

.3 Various measures will be designed into the mechanical systems to minimize the overall energy consumption of the Facility. Some, but not all of these, are discussed in the sections that follow. For example an oil fire plant is proposed to reduce electrical demand when the refrigeration waste heat is insufficient to meet the building load. Similarly in-floor heat will be used where possible allowing for reduced temperature settings in each zone and thus reduced heating cost.

22.0 Plumbing

.1 Plumbing Systems to be provided as necessary in accordance with the NBC and NPC.

.2 Drainage/Vents to be ABS below grade and Cast iron to CSA B70-M and DWV Copper to ASTM B306 above ground.

.3 Water piping to be Copper to ASTM B88.

.4 Fiberglass insulation with APT jacket to be provided on all water. PVC jacketing system will be used in all exposed areas.

.5 Fixtures to have the following features: Commercial plumbing fixtures to be specified throughout; Vitreous china fixtures to be equal to Crane or American Standard; Public Toilets to be vitreous china c/w electronic flush valves; Public Urinals to be vitreous china c/w electronic flush valves; Public Lavatories to be vitreous china c/w electronic faucets; Dressing Room Lavatories to be stainless steel c/w gooseneck spout for filling of water bottles; Private Toilets to be vitreous china c/w electronic flush valves; Drains to be equal to Zurn.

.6 All faucets used in the facility to be low flow type. Showers to be electronic timed and low flow.

.7 Domestic hot water for the complex will be provided through a storage tank arrangement. Heat for the storage tanks units will be provided from heat reclaim from refrigeration plant and supplemented with an oil fired boiler system as described herein.

.8 Site Utilities Connection: Water will be provided from Municipal system c/w water meter assembly; Sewer and Storm water will be connect to Municipal system.

23.0 Arena Refrigeration System

.1 The arena refrigeration system will be constructed as a design build, while meeting the minimum performance specifications as outlined below.

.2 A heat recovery system arrangement will be incorporated into the design to allow the transfer of rejected heating energy within the facility to optimize operating efficiencies.

.3 The refrigeration ice making system will be indirect glycol ammonia systems, with dehumidification system for event arena. Ammonia heat pump technology will be incorporated to recover energies from the ice making plant.

.4 All ammonia systems to be provided in accordance with CSA Standard B51- Boiler, Pressure Vessel, and Pressure Piping Code as well as CSA B52 – Mechanical Refrigeration Code and the NB Authority such that the facility will be registered as a refrigeration plant suitable to operate as a guarded plant under periodic supervision.

.5 De-humidifiers to incorporate indirect heating and cooling glycol coils from the refrigeration plant to

control humidity as well as provide ventilation for the space.

.6 The refrigeration system is to be an indirect glycol system utilizing Ammonia as the primary refrigerant. A minimum of two (2) compressors will be provided to maximize operating efficiencies.

.7 A heat recovery package on the ammonia discharge gas to be provided to heat warm glycol for ice surface underslab frost protection and to heat water for the snowmelt pit, as well as provide hot water for ice resurfacing.

.8 A heat recovery package on the ammonia discharge gas utilizing a high temperature ammonia heat pump will recover high grade heat to the facility hydronic heating system (up to 160°F). This design to incorporate thermal storage tanks to allow for heating of the facility while the ice surface is satisfied.

.9 The refrigeration plant will be capable of full floating head pressure control, schedule ice temperatures, and control ice surface temperature via IR Camera.

.10 This system will be controlled by facility EMCS System as described later under 8.0 Facility EMCS System.

24.0 HVAC System

.1 All spaces for the facility will be ventilated using Custom Heat Recovery Ventilators (HRVs) or Custom Air Handling Units (AHUs). Ventilation and air flow to be provided to all spaces to be in accordance with ASHRAE Standard 62.1- Ventilation for Acceptable Indoor Air Quality.

.2 All areas requiring exhaust, not serviced by an HRV system to have exhaust fans, exhausting air to the minimum requirements of ASHRAE 62.1.

.3 The ventilation/air conditioning system will be installed to provide comfort temperatures, and amounts of outdoor air as required by ASHRAE standards.

.4 Variable Frequency Drives (VFDs) will be used on all AHU and HRV fans to minimize energy consumption at the time of Testing, Adjusting and Balancing (TAB). These will also be used to reduce air flow for variable air volume systems and CO2 control strategies, used in the control sequences for the HVAC systems.

.5 Through the HRVs and AHUs, supply air is distributed to the various spaces through their associated duct system. All spaces to have individual electronic controls controlled through the EMCS System. Spaces with similar temperature are grouped as zones.

.6 On air systems serving multiple spaces VAV boxes will be provided on each zone complete with hydronic terminal reheat coils. In the heating mode or when the zone is unoccupied, as sensed by its local occupancy sensor, the VAV boxes will move to their minimum air flow position. In the cooling mode they move to the maximum air flow position if the zone is occupied. Heating and cooling to the spaces is controlled by its local EMCS thermostat, space heat, hydronic duct reheat coil and VAV box. The EMCS system maintains a precise temperature in each zone through the EMCS controls. In zones with multiple spaces the average temperature of the spaces served by VAV box is used.

.7 Spaces requiring air conditioning will have chilled water coils in their associated AHUs. These coils will be tied into the chiller system associated with the cooling plant for the complex.

.8 In general all heat for the building to be radiation distribution to the low temperature or high temperature hot water piping systems. The in-floor heat will be through the low temperature system and the AHU/HRV coils, radiators, unit heaters, etc, as appropriate, will be through the high temperature system. Oil fired boilers supplement the system when the waste heat is insufficient to meet the building heating demand.

.9 An energy recovery system will be incorporated into the design of the HVAC/refrigeration systems for this facility.

.10 The main heating component of this system is an ammonia heat pump reclaim package as part of the refrigeration plant. Energies recovered are stored in a heat reclaim storage tank for utilization in the facility heating, domestic hot water and flood water systems, etc. Supplementary heat is provided to the loop or individual systems, as required, from the oil fired boiler plant.

.11 In-floor heating for the facility will be based on low temperature heat source (approx. 130°F design temperature) to take advantage of the heat reclaimed from the refrigeration plant. This would include in-floor heat, force flow heaters selected for low temperatures operation and/or fan coils with coils selected for low temperature operation.

.12 Humidifiers on the air handlers maintain a minimum humidity of 30% to maintain comfort conditions.

.13 Event Arena: A refrigerant type de-humidifiers with indirect coils from the refrigeration plant to provide cooling and heating to be incorporated into main HVAC system provided to control humidity. The Refrigerated Floor will have the following features: 1 85 x 200’ with buried header system; warm glycol floor piping @ 24” c.c.; 4” headers; cold glycol floor piping @ 4” c.c.; 6” headers

.14 Aquatic Centre: Packaged pool dehumidification systems located in mechanical penthouse will be provided to maintain humidify levels within the space. The units will be complete with pool water heaters and energy recycling on airside to recover the energy from the dehumidification process and return it to the pool/space; Auxiliary heat for the pool heating water will be provided through low temperature heat exchanger connected to the heat reclaim system and oil fired plant as required to meet Demand. Auxiliary heating for the pool space will be provided through energy recycling on main dehumidification system and supplemented through supplementary low temperature heating coil in packaged system and connected to the heat reclaim system and oil fuel fired plant as required; An auxiliary air cooled condenser to be incorporated into system to allow excess energy from the pool space be rejected.

25.0 Pool Filtration and Treatment

.1 Pool Filtration and Treatment will consist of an independent standalone filtration and water treatment system to be provided for each pool and/or whirlpool. Systems to provide a turnover rates as follows:

.2 Recreational Pool -6 hours; Competition Pool -6 hours; Whirlpool -30 minutes. Filter filtration for recreational and lap pools is proposed to be a DE system filtration for whirlpool is proposed to be a high speed sand filter system.

.3 Water treatment for each pool to be independent and is proposed to be a U-V disinfectant system with residual chlorine being provided through a liquid chlorine injection system. Acid based system to be incorporated to control Ph levels. A microprocessor based programmable controllers to be incorporated to control Ph, ORP, conductivity and temperature monitoring. System to be capable of remote monitoring and control.

.4 The pool water to be primarily heated via recovered heat from the refrigeration plant.

26.0 Fire Protection

.1 A Sprinkler System to be installed in accordance with NFPA-13 and local regulations. Water to be supplied from the municipal water supply. The sprinkler will be a wet pipe system for all areas except spaces subject to freezing. A galvanized dry pipe system to be provided in any areas subject to freezing.

.2 Fire Extinguishers to be installed as required by NFPA 10 - Standard for Portable Fire Extinguishers.

.3 The Grease extraction system and hood for the Kitchen will be protected in accordance with NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.

27.0 EMCS Control System

.1 An Energy Management Control System in accordance with the requirements of the NMS Master Specification Division 25, with feature described therein, to be provided for the building. The system will be fully BACnet compliant with an Energy Management System, internet accessible computer graphic controls for systems. Where available from manufactures built-in BACnet controls will be supplied with all major pieces of equipment including the Aquatic and Arena systems. The final features for this system will be determined during the detailed design phase.

28.0 Sustainable Development Strategy

.1 The mechanical systems incorporated into this facility will support, where economically viable, the sustainable development strategy.

.2 Systems to be designed to optimize energy performance following the MNEC Board renewable energy resources will be utilized where applicable.

.3 In addition, consideration for elimination of HCFC's and Halon refrigerants will be investigated and alternate refrigerants provided where available.

.4 The potential for a thermal utility may be considered and applied if they are deemed to be cost effective and budget allowances are sufficient to support. The concept design incorporates a heat reclaim system that has the potential to provide thermal energy for a thermal utility at approx. 130°F +/-. A significant amount of these energies will be used within the facility but if a thermal utility is to be considered, the heat reclaim system should be increased in size to maximize recovery.

Electrical

29.0 General

.1 This outline specification has been prepared as a preliminary overview of the electrical systems proposed for the new Miramichi Multiplex in Miramichi, NB. A basic description of the power distribution, lighting, lighting control, communication, security and life safety systems for the proposed facility have been included to summarize discussions and concepts developed to date.

.2 The electrical design will be based on the latest applicable standards and guidelines including, but not limited to the following items:

- Canadian Electrical Code CSA C22.1- 2012 (CEC)
- National Building Code of Canada (NBCC)
- Canadian Standards Association (CSA)
- Underwriters Laboratories of Canada (ULC)
- Illuminating Engineering Society of North America (IESNA) Standards and Guidelines

.3 To facilitate the continued long term facility operation and projected life expectancy, the electrical systems and equipment selection will be based on the most up to date technologies to reflect the design requirements. Equipment selection will be based on proven technologies readily available and serviceable in the Miramichi area. All material will be new, specification grade, to conform to Canadian Standards Association (CSA) requirements. The main points to be addressed with all system design are to include, as the basis of the electrical design, the following minimum criteria:

- Reliability and continuity of the electrical system
- System flexibility and simplicity of operation
- Provision for maintenance of system components with minimum downtime
- Capacity for future modifications and extensions
- Provision for energy conversation
- Standardization of electrical equipment

.4 It is inherent that all of the above factors need to be integrated into the electrical system to allow for the ongoing operation of the facility.

30.0 Site Utilities

.1 It is anticipated that a 1200 Amp, 600V, 3 phase, 4 wire service size will be required to serve the new facility and possible future expansion of a second ice pad. The NB Power owned pad mount utility transformer will be located on site, and will be located in consultation with NB Power.

.2 Communication services will be provided to the site in coordination with the owner and the communications service providers. A spare conduit to be placed between the main telecommunication room and property line for future needs. Where possible, communication conduits will be run in the same trench.

31.0 Electrical Distribution System

.1 The main electrical room will be located in a dedicated electrical room on the main floor. The main secondary service feeders from the pad mount transformer to the main distribution panel (MDP) will be provided in conduit within the building as per code. The electrical service will be a 600V, 3 phase, 4 wire system with an estimated size of 1200 amps.

.2 Power will be distributed at 600V to electrical closets located throughout the facility and to 600V motor and refrigeration loads. In the electrical closets power will be transformed down to 120/208V in order to serve the majority of the building loads. Electrical closets will house distribution panels for lighting and

normal power. At this time there is no intent provide the building with back-up power.

.3 Surge Protection devices (SPD) will be provided on the main electrical service as well as 600V distribution panelboards and MCCs. Critical communication and security head-end equipment will be connected through a UPS, which also provides surge protection.

.4 To reduce harmonics within the electrical system, harmonic mitigating, high efficiency transformers may be utilized. Transformers with good voltage regulation and relatively low impedances will assist in reducing the effect of building load harmonics. This strategy will be developed during detailed design based on the amount of electronic components such as computers, security systems, uninterruptible power supplies, audio appliances, radios, recorders etc. All circuits will be with dedicated neutral per phase; shared neutrals will not be allowed.

.5 Grounding will be provided from all pertinent electrical equipment to the ground bus. All equipment that is capable of carrying electrical current will be bonded to the ground at the electrical room. The equipment to be bonded includes, but is not limited to the following: metal raceways, cable trays, equipment enclosures, metal structures, low-tension systems and miscellaneous metal systems.

.6 All wiring throughout the facility will be installed in conduit systems. All building wiring will be copper with a minimum 600 V insulation rating. Minimum conductor size will be #12 AWG for power system wiring requirements. All empty conduits will be complete with a pull wire. Conductors for motors will be installed in flexible plastic jacketed raceways with liquid tight connectors. Flexible metallic raceways will be used for connections to transformers and for connection drops from ceiling junction boxes to luminaires. Raceways and cables passing through floors and fire-rated walls will have sleeves filled with fire-rated sealing compound.

.7 All floor-mounted distribution equipment will have a housekeeping pad.

.8 All electrical equipment will come with a plastic engraved lamicoid for identification. A naming convention will be determined as the project progresses.

32.0 Mechanical System Connections

.1 All mechanical motors will be provided with power service from the main electrical network. Smaller motors that are less than 0.37 kW will to be supplied by a 120 V source, while motors that are larger than 0.37 kW will be supplied by a 600 V, three (3) phase source. Each motor will be provided with all motor protection switches, starters, and disconnect switches necessary for their operation. Local disconnect switches will be provided at each motor. Variable Frequency Drives (VFDs) will be utilized where the mechanical load is expected to vary during its operation and to increase efficiency. Reduced voltage (soft start) drives will be employed for larger mechanical loads to minimize the impact on the electrical systems.

.2 Where sufficiently concentrated in mechanical rooms, 600V motor starters and VFDs will be housed in a motor control center (MCC).

.3 Heat tracing for piping will be provided, if required.

33.0 Lighting and Lighting Controls

33.1 General

.1 The lighting design will be integrated with the overall architectural design of the facility to meet the functional requirements of the space, while also adhering to the energy utilization goals of sustainable design. A visually successful environment will be produced by integrating the lighting system with the spatial and aesthetic elements of the facility. The lighting system will provide high quality illumination that provides adequate illumination while optimizing capital costs, maintenance costs, and ongoing energy maintenance costs.

.2 The lighting levels provided within the facility will generally conform to IESNA requirements for the various task areas and take into account the power requirement guidelines identified in ASHRAE.

.3 In general, LED lamp sources will be utilized for their inherent properties of energy efficiency and good colour rendition. All luminaires will be supplied complete with mounting brackets, drivers and all necessary accessories necessary for their operation. The majority of the lighting system is intended to operate at 120 V.

.4 In general lighting throughout the facility will be controlled with a low voltage lighting system with local switches, occupancy sensors and vacancy sensors. There will be a provision to provide unswitched “night lights” throughout the facility.

33.2 Interior Lighting

.1 Lighting for the Main Ice Surface will consist of LED high bay fixtures. Calculations will be performed to determine an optimal and efficient lighting layout. Suspension height of the fixtures to be as high as possible to maximize the clearance from the ice surface. Lighting levels on the ice surface at full output will be 600 lux maintained. As with all interior lighting, the ice surface lighting will be controlled by a low voltage lighting control system. The system will maximize the ability for building users and operators to conserve lighting energy and customize spaces to user needs and preferences. For the ice surface in particular, we will set up several control points where the lighting is capable of being controlled. These locations will be determined through consultation with the building operators. The control points will consist of switches that will allow the user to easily control ice surface lighting. With a low voltage system we also have the ability to set up scenes, such that pushing one switch allows, as an example, for all lights be dimmed to 50%.

.2 The Pool Area will also be illuminated using LED high bay fixtures. Fixtures will be located such that they are not placed over the actual pool area providing a safe and easily maintained system. Lighting levels over the pool area at full output will be 600 lux maintained. Lighting in the pool area will be controlled by the low voltage lighting system with local switches allowing the user to adjust lighting controls. Accent lighting will also be provided to allow for some special effects lighting.

.3 The Multipurpose Room and Gymnasium will also be illuminated with LED high bay fixtures controlled by the low voltage lighting system through local switches and occupancy sensors.

.4 Locker and Change Rooms will be illuminated using surface mounted or chain suspended vandal resistant, vapour proof LED fixtures. Fixtures will be approximately 1'X4'. Locker and change room lighting will be controlled by the low voltage system with local occupancy sensors in each room.

.5 General interior and common space will in general consist of a combination of recessed or surface mounted LED troffers and LED pot light fixtures. Lighting in every space will be controlled through occupancy sensors.

33.3 Exterior Lighting

.1 Exterior lighting to the site will be provided through pole and building-mounted LED luminaires. Pole-mounted luminaires will be provided to illuminate all areas in the parking area, as well as any driveways/roadways. Building-mounted luminaires will be provided near doors and exits. All exterior luminaires will be full cut-off and dark sky compliant. Outdoor lighting will be photocell and timer controlled.

34.0 Exit and Emergency Lighting

.1 Emergency and exit lighting will be provided throughout the building and will be designed to meet the requirements of the National Building Code of Canada. Exit lighting will be "Running Man" type conforming to CSA Standard C-860 installed in accordance with the National Building Code. Exit lighting will utilize LED lamp technology. Emergency lighting will consist of a combination of wall mounted battery units, and wall mounted remote heads. Emergency and exit lighting in the around the ice surface and locker rooms will be provided with wire guards to provide protection from physical damage.

35.0 Communications

.1 The communication demarcation point will be in a dedicated Main Communications Room (MCR). The communication service will consist of service for telephone, fiber and cable television. The main communication services will terminate on a plywood backboard in the MCR.

.2 The backbone of the communication network will be provided via a fibre network of cabling from the MCR to each of the sub communication rooms located strategically throughout the building. Fiber optic cable servicing each closet is expected to be a minimum 12 strand multi-mode or single mode cable, plus a 25 Pair CAT3 cable to support analog requirements. The quantity and type of fiber optic strands and cables will be finalized during design; however spare capacity will be included for future developments.

.3 The horizontal cabling (from the sub communications rooms to the outlets) for voice, data and security systems will be copper media extending to each outlet. Cabling will be terminated on patch panels. Cabling will be rated category 6 for all horizontal cabling to all outlets. Communication outlets will generally be provided at offices, meeting rooms and any other locations required by the owner. Wireless access point infrastructure will be provided in consultation with the owner.

36.0 Fire Alarm System

.1 The fire alarm system will be a fully addressable, microprocessor based, single stage system. The fire alarm system will be designed to meet the requirements of the NBCC. The fire alarm system will be integrated with the buildings sprinkler system and will be tied via communications link to the owners monitoring station. The main fire alarm control panel will be located in the Main Communications Room with a remote annunciator located at the main entrance to the building.

.2 The signaling devices will be visual strobe lights and combination horn/strobe lights located to meet NBCC and CAN/ULC standards. Initiating devices such as smoke and heat detectors will be intelligent type with capability to compensate for changes in environmental and climatic conditions. All devices will be addressable and include manual pull stations at all exits, smoke detectors in stairwells, electrical rooms and within elevator shafts, control modules for mechanical unit shutdown, isolation modules for fire zone isolation, and monitor modules for fire sprinkler flow valves and supervisory valves.

.3 The fire alarm system will be fully commissioned, tested and verified as required to meet CSA Standards for Verification of Fire Alarm Systems.

37.0 Sound System

.1 Five separate sound systems will be provided, one for each of the following spaces:

- Rink
- Aquatics
- Multi-propose Room
- Gymnasium
- Common Areas

.2 Each system will be design to suit the area. For example the rink sound system will be sufficiently sized and powerful enough to meet the requirements of the teams. Large center cluster speakers, coupled with additional stadium seating sound reinforcement speakers will be the backbone of the system with additional speakers being placed in all change rooms, official rooms and etc. Microphone outlets will also be placed at the time keepers bench and at other locations as required. Microphone stands complete with 50' cords will be provided to allow for announcements from center ice. An auxiliary output will also be provided at the time keepers bench for connection of IPOD's and etc.

.3 The Aquatics sound system will also be designed to provide a variety of needs such as interface with underwater speaker systems for synchronized swimming, aqua aerobics, special competitive events as well as background music. Special attention will be given to provide a system that can with stand harsh environments associated with a pool. Once again microphone and auxiliary outputs will be provided.

.4 The Gymnasium and Multi-purpose Room will come complete with a sound system that will allow the user the ability to play music, or use as a local public address system for ceremonies. Again outputs for microphones and auxiliary inputs will be provided.

.5 The system will be integrated with the building-wide public address system, and will utilize the same speakers. Public address announcements will over-ride local inputs.

38.0 Security Systems

.1 Perimeter areas of the building subject to intrusion risk will be protected by a combination of glass

break and intrusion sensors. Those detection elements will be monitored by the main security panel and the owners monitoring station.

.2 The video surveillance system will be based upon IP technology and include a range of cameras appropriate to different locations such as general circulation, entrances, exterior and pool area.

.3 All video surveillance system equipment will be supported by UPS power supply for uninterrupted operation.

39.0 Other Systems

.1 An electronic bulletin board messaging system will be provided with a number of ceiling and/or wall mounted LCD monitors strategically placed within the facility to give the public and event participants “real time” notification of activities within the facility. The system will be controlled through a computer at the main office.

.2 Provisions will be built into the main power distribution system to allow for the staging of special events, for certain productions that require power. This will be accomplished using a distribution center with cam lock connections that will be located near the service area for use.

2.0 COST ESTIMATION

5.1 Summary

The following cost estimation report is based on the conceptual design developed in Section 4 of this report and reflects the Construction Costs of the project. In addition to construction costs, every project also has soft costs which make up the project budget. These costs include items such as professional fees; legal fees; the cost of the land; and furniture, fixtures and equipment. Soft costs are typically 20% to 25% of the overall project budget. Below is a summary of the estimated project costs for the Miramichi Multiplex. Site development costs were estimated for three sites, therefore two cost streams are shown to represent the range of project costs depending on which site is chosen.

Lowest Range of Site Development Costs Included

Construction Costs:	$35,468,800
Site Development Costs:	$3,764,500
Soft Costs (25% Construction Costs):	$13,077,767
Overall Project Budget Estimate:	**$52,311,066**

Highest Range of Site Development Costs Included

Construction Costs:	$35,468,800
Site Development Costs:	$8,278,200
Soft Costs (25% Construction Costs):	$14,582,333
Overall Project Budget Estimate:	**$58,329,333**

MIRAMICHI MULTIPLEX
NEW CONSTRUCTION
MIRAMICHI, NEW BRUNSWICK

CLASS 'C' ESTIMATE

December 21, 2015

Hanscomb

MIRAMICHI MULTIPLEX
NEW CONSTRUCTION
MIRAMICHI, NEW BRUNSWICK

CLASS 'C' ESTIMATE

Prepared For:

ARCHITECTURE49 INC.
1640 MARKET STREET
HALIFAX, NOVA SCOTIA
B3J 2C8

TEL: (902) 429-5490
FAX: (902) 429-2632

Prepared by:

HANSCOMB LIMITED
7071 BAYERS ROAD,
STARLITE GALLERY, SUITE 301
HALIFAX, NOVA SCOTIA
B3L 2C2
halifax@hanscomb.com
www.hanscomb.com

TEL: (902) 422-3620
FAX: (902) 422-7883

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A - DETAILED ELEMENTAL COST ESTIMATE

B – DRAWINGS & DOCUMENTATION

1. INTRODUCTION

1.1 Purpose:

This Class 'C' Estimate is intended to provide a realistic allocation of direct and indirect construction costs for the Miramichi Multiplex, New Construction, located in Miramichi, NB, with exceptions of items listed in 1.4 below.

1.2 Methodology:

From the documentation and information provided, quantities of all major elements were assessed or measured where possible and priced at rates considered competitive for a project of this type under a stipulated sum form of contract in Miramichi, NB.

Pricing shown reflects probable construction costs obtainable in the Miramichi, New Brunswick area on the effective date of this report. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the work.

1.3 Specifications:

For building components and systems where specifications and design details are not available, quality standards have been established based on discussions with the design team.

1.4 Exclusions:

This Class 'C' Estimate does not provide for quantities of works or costs in excess of what is specified in this estimate for the following items:

- Professional Fees and Expenses
- Phased Construction Premiums
- Location Premiums
- Escalation Allowance
- Development Charges
- Permits (Building, Plumbing, Access, etc)
- Legal Fees and Expenses
- Value Added Taxes (GST, HST, QST, etc.)
- Financing Fee’s & Carrying Costs
- Fund Raising Requirements
- Owner’s Staff and Associated Management
- Owner Furnished Material or Associated Labour
- Owner FF&E Budget

1. INTRODUCTION

- Loose Furniture, Furnishings and Equipment
- Removal or Mitigation / Remediation of contaminated soils
- Removal of Asbestos or Mitigation of any Hazardous Material
- Removal of P.C.B. Contaminated Electrical Equipment
- Rock Excavation (blasting or chipping) & Removal
- Trucking Beyond 10km Return (excavation work)
- Removal of Buried Obstructions (Foundations, boulders, debris, etc)
- Mitigation of Water Conditions
- Winter Conditions Affecting the Work
- Removal of Un-exploded Ordinance / Explosives
- Site development not included in this estimate. Separate estimates have been completed for the three proposed site locations.

2. DOCUMENTATION

- This Class 'C' Estimate has been prepared from the documentation included in Appendix B of this report.

All of the above documentation was received from Architecture49 Inc. and was supplemented with information gathered in meeting(s) and telephone conversations with the design team, as applicable.

Design changes and/or additions made subsequent to this issuance of the documentation noted above have not been incorporated in this report.

3. COST CONSIDERATIONS

3.1 Cost Base: All costs are estimated on the basis of competitive bids (a minimum of 5 general contractor bids and at least 3 subcontractor bids for each trade) being received in December 2015 from general contractors and all major subcontractors and suppliers based on a stipulated sum form of contract.

3.2 Escalation: No allowance has been made for construction cost escalation that may occur between December 2015 and the anticipated bid date of the project. Unit rates used for any change orders are not included and may be subject to escalation. It0 is recommended that the Project Manager make an allowance for escalation in their overall Project Budget.

3.3 Contingencies: An allowance of 10.0% has been included to cover design and pricing unknowns. This allowance is not intended to cover any program space modifications but rather to provide some flexibility for the designers and cost planners due to the early stage of the design.

An allowance of 5.0% has been made to cover construction (post contract) unknowns to mitigate potential change order conditions.

3.4 Unit Rates: The unit rates in the preparation of this Class 'C' Estimate include labour and material, equipment, subcontractor's overheads and profits.

3.5 Taxes: No provision has been made for any value added taxes (GST, HST, PST, QST, etc.). It is recommended that the owner make separate provision for Tax Requirements in the project budget as applicable.

3.6 Statement of Probable Costs: Hanscomb has no control over the cost of labour and materials, the contractor's method of determining prices, or competitive bidding and market conditions. This opinion of probable cost of construction is made on the basis of experience, qualifications and best judgment of the professional consultant familiar with the construction industry. Hanscomb cannot and does not guarantee that proposals, bids or actual construction costs will not vary from this or subsequent cost estimates.

3. COST CONSIDERATIONS (cont'd)

3.6 Statement of Probable Costs: (continued)

Hanscomb has prepared this estimate in accordance with generally accepted principles and practices. Hanscomb's staff is available to discuss its contents with any interested party.

3.7 Ongoing Cost Control:

Hanscomb recommends that the Owner and design team carefully review this document, including line item description, unit prices, clarifications, exclusions, inclusions and assumptions, contingencies, escalation and mark-ups. If the project is over budget, or if there are unresolved budgeting issues, alternative systems/schemes should be evaluated before proceeding into the next design phase.

Requests for modifications of any apparent errors or omissions to this document must be made to Hanscomb within ten (10) days of receipt of this estimate. Otherwise, it will be understood that the contents have been concurred with and accepted.

It is recommended that a final update estimate be produced by Hanscomb using Bid Documents to determine overall cost changes that may have occurred since the preparation of this estimate. The final updated estimate will address changes and additions to the documents, as well as addenda issued during the bidding process. Hanscomb cannot reconcile bid results to any estimate not produced from bid documents including all addenda.

4. GROSS FLOOR AREAS

GROSS FLOOR AREA:

Description	SF
First Floor	89,775
Second Floor	37,760
Total Gross Floor Area	**127,535**

5. CONSTRUCTION COST ESTIMATE SUMMARY

COST SUMMARY:

Element			Cdn $
Shell		$	11,541,200
Interiors		$	6,480,300
Mechanical - Bldg		$	7,508,300
Electrical - Bldg		$	2,387,400
Total - Excluding Site		**$**	**27,917,200**
General Requirements	10.0%	$	2,791,700
Total Construction Estimate - Excluding Allowances		**$**	**30,708,900**
Design & Pricing Contingency	10.0%	$	3,070,900
Escalation Contingency	0.0%	$	-
Construction Allowance	5.0%	$	1,689,000
Total Construction Estimate - Contingencies		**$**	**35,468,800**

Site Development Costs:
Site Development Costs were developed separately and are therefore not included in the above Costs. The site development costs had a range from $3,764,500 to $8,278,200

Appendix
A - DETAILED ELEMENTAL COST ESTIMATE

Project	: **MIRAMICHI MULTIPLEX**		Report date : 21 Dec 2015
	: **NEW CONSTRUCTION**		Page No. : 1
Location	: **MIRAMICHI, NEW BRUNSWICK**	**ELEMENTAL COST SUMMARY**	Bldg Type : 550
Owner	: **City of - Ville de Miramichi**		C.T. Index : 0.0
Consultant	: **Architecture49 Inc.**		GFA : 127,535 SF

Element	Ratio to GFA	Elemental Cost Quantity	Elemental Cost Unit rate	Elemental Amount Sub-Total	Elemental Amount Total	Rate per SF Sub-Total	Rate per SF Total	%
A SHELL		127,535 SF			11,541,200		90.49	37.6
A1 SUBSTRUCTURE					1,132,500		8.88	3.7
A11 Foundations	0.704	89,775 SF	11.70	1,047,730		8.22		
A12 Basement Excavation	0.018	2,343 CY	18.30	42,880		0.34		
A13 Special Conditions	0.000	Sum	41,860.00	41,860		0.33		
A2 STRUCTURE					5,719,500		44.85	18.6
A21 Lowest Floor Construction	0.704	89,775 SF	8.60	774,300		6.07		
A22 Upper Floor Construction	0.296	37,760 SF	51.50	1,943,090		15.24		
A23 Roof Construction	0.726	92,575 SF	32.40	3,002,150		23.54		
A3 EXTERIOR ENCLOSURE					4,689,200		36.77	15.3
A31 Walls Below Grade	0.035	4,442 SF	33.00	146,590		1.15		
A32 Walls Above Grade	0.427	54,422 SF	44.70	2,431,800		19.07		
A33 Windows & Entrances	0.037	4,724 SF	78.70	371,650		2.91		
A34 Roof Coverings	0.726	92,575 SF	13.70	1,268,260		9.94		
A35 Projections	0.000	Sum	470,940.00	470,940		3.69		
B INTERIORS		127,535 SF			6,480,300		50.81	21.1
B1 PARTITIONS & DOORS					1,182,200		9.27	3.8
B11 Partitions	0.592	75,554 SF	12.60	948,350		7.44		
B12 Doors	0.001	128 LVS	1,827.20	233,880		1.83		
B2 FINISHES					1,431,600		11.23	4.7
B21 Floor Finishes	1.000	127,535 SF	5.50	695,870		5.46		
B22 Ceiling Finishes	1.000	127,535 SF	2.80	357,840		2.81		
B23 Wall Finishes	2.613	333,279 SF	1.10	377,880		2.96		
B3 FITTINGS & EQUIPMENT					3,866,500		30.32	12.6
B31 Fittings & Fixtures	1.000	127,535 SF	10.60	1,354,700		10.62		
B32 Equipment	1.000	127,535 SF	1.30	171,800		1.35		
B33 Elevators	0.000	1 No	90,000.00	90,000		0.71		
B34 Pool & Pool Equipment	0.000	Sum	2,250,000.00	2,250,000		17.64		
C SERVICES		127,535 SF			9,895,700		77.59	32.2
C1 MECHANICAL					7,508,300		58.87	24.4
C11 Plumbing & Drainage	1.000	127,535 SF	10.40	1,326,360		10.40		
C12 Fire Protection	1.000	127,535 SF	3.40	438,120		3.44		
C13 HVAC	1.000	127,535 SF	32.10	4,092,350		32.09		
C14 Controls	1.000	127,535 SF	5.50	701,440		5.50		
C15 Ice Rink Refrigeration	0.000	Sum	950,000.00	950,000		7.45		
C2 ELECTRICAL					2,387,400		18.72	7.8
C21 Service & Distribution	1.000	127,535 SF	6.00	765,220		6.00		
C22 Lighting, Devices & Heating	1.000	127,535 SF	7.90	1,007,520		7.90		
C23 Systems & Ancillaries	1.000	127,535 SF	4.80	614,670		4.82		
NET BUILDING COST - EXCLUDING SITE					**$ 27,917,200**		218.90	90.9
D SITE & ANCILLARY WORK		127,535 SF			0		0.00	0.0
D1 SITE WORK					0		0.00	0.0
D11 Site Development				0		0.00		
D12 Mechanical Site Services		Sum		0		0.00		
D13 Electrical Site Services		Sum		0		0.00		
D2 ANCILLARY WORK					0		0.00	0.0
D21 Demolitions				0		0.00		
D22 Alterations				0		0.00		
NET BUILDING COST - INCLUDING SITE					**$ 27,917,200**		218.90	90.9
Z1 GENERAL REQUIREMENTS & FEE					2,791,700		21.89	9.1
Z11 General Requirements & Fee		10.0 %		2,791,720		21.89		
TOTAL CONSTRUCTION ESTIMATE - EXCLUDING ALLOWANCES					**$ 30,708,900**		240.79	100.0
Z2 ALLOWANCES					4,759,900		37.32	
Z21 Design & Pricing Allowance		10.0 %		3,070,890		24.08		
Z22 Escalation Allowance		0.0 %		0		0.00		
Z23 Construction Allowance		5.0 %		1,688,990		13.24		
TOTAL CONSTRUCTION ESTIMATE - INCLUDING ALLOWANCES					**$ 35,468,800**		278.11	
_ VALUE ADDED TAX (GST/HST)					0		0.00	
__ Value Added Tax (GST/HST)		0.0 %		0		0.00		
TOTAL CONSTRUCTION ESTIMATE					**$ 35,468,800**	**$**	**278.11**	

MIRAMICHI MULTIPLEX
NEW CONSTRUCTION
MIRAMICHI, NEW BRUNSWICK

Report date : December 2015

Page No. : 2

A1 SUBSTRUCTURE		Quantity	Unit rate	Amount
A11 Foundations				
1 Foundations c/w concrete strip footings, column footings, frost walls, piers/pedestals , foundation walls, excavation, backfill, dampproofing/waterproofing,etc.		89,775 SF	11.00	987,530
2 Allowance for Elevator pit			Sum	9,500
3 Allowance for ice melt pit located in zamboni indoor parking area		1 No.	15,000.00	15,000
4 Sump pits, allow		3 No.	5,500.00	16,500
5 6" Perimter drainage tile c/w geotextile liner, granular base and backfill, allow		1,600 LF	12.00	19,200
A11 Foundations	**TOTAL : $**	89,775 SF	11.67	1,047,730
A12 Basement Excavation				
1 Basement excavation to pools c/w imported backfill to pool walls, allow 10' deep		4,629 SF	6.40	29,510
(Competition pool)				
- excavation		1,714 cy	11.00	18,854
- backfill		205 cy	52.00	10,660
2 Basement excavation to pools c/w imported backfill to pool walls, allow 8' deep		2,123 SF	6.30	13,370
(Leisure pool)				
- excavation		629 cy	11.00	6,919
- backfill		124 cy	52.00	6,448
A12 Basement Excavation	**TOTAL : $**	2,343 CY	18.30	42,880

A1 SUBSTRUCTURE		Quantity	Unit rate	Amount
A13 Special Conditions				
1 Allowance for dewatering c/w mat foundations to pool areas		6,752 SF	2.50	16,880
2 Alowance for extra over to pool foundations		6,752 SF	3.70	24,980
A13 Special Conditions	**TOTAL : $**	1 #Sum	41,860.00	41,860

A2 STRUCTURE		Quantity	Unit rate	Amount
A21 Lowest Floor Construction				
1 6" reinforced concrete rink slab c/w concrete and appropriate admixtures, 2 layers of 6mil-poly vapour barrier, 4" rigid insulation and thermal break		17,200 SF	14.30	245,960
2 Slab thickening to dasher boards perimeter, allow			Sum	18,700
3 6" thick concrete slab on grade to remaining areas around rink		29,646 SF	8.00	237,170
4 4" thick reinforced concrete slab on grade to remaining areas		36,214 SF	7.00	253,500
5 Pool slab - included in pool cost in element B34 Pool and Pool Equipment (6715 SF)			NIL	
6 Extra over for ramps, steps, raised floors and first step of seating		3,588 SF	2.50	8,970
7 Miscellaneous thickenings for masonry walls, etc.			Sum	10,000
A21 Lowest Floor Construction	**TOTAL : $**	89,775 SF	8.62	774,300
A22 Upper Floor Construction				
1 Elevator shaft, allow 10" CIP reinforced concrete		1,148 SF	27.00	31,000
2 Climbing wall, allow 10" CIP reinforced concrete		978 SF	27.00	26,410
3 Stairwell, allow 8" CIP reinforced concrete		6,269 SF	25.00	156,730
4 Structural steel framing to upper floor c/w steel beams, columns, OWSJ, miscellaneous supports and bracing		28,916 SF	35.00	1,012,060
			Carried Forward :	1,226,200

A2 STRUCTURE		Quantity	Unit rate	Amount
A22 Upper Floor Construction	(Continued)		**Brought Forward :**	1,226,200
5 Extra over metal decking c/w 100mm concrete topping, WWF, screed, cure and finish		28,916 SF	6.50	187,950
6 Tiered seating consisting of precast concrete 'L' shaped sections c/w miscellaneous structural steel support, stairways, etc. (Arena)		7,829 SF	45.90	359,350
7 Tiered seating consisting of precast concrete 'L' shaped sections c/w miscellaneous structural steel support, stairways, etc. (Aquatic area)		1,015 SF	45.90	46,590
8 Allowance for catwalk platforms suspended from roof structure in rink area			Sum	45,000
9 Metal framed and pan stairs c/w concrete infill, handrails, landings and paint finish		10 Flight	7,800.00	78,000
- arena		1 flight	8,500.00	8,500
- access from outside to upper floor of arena		3 flight	7,000.00	21,000
- stair next to gym		1 flight	8,500.00	8,500
- stairs to aquatics viewing		1 flight	8,500.00	8,500
- half height stairs from level 1 to lower filter/mech. room		2 flight	4,000.00	8,000
- half height stairs from level 2 up to sound booth		1 flight	3,500.00	3,500
- feature stair in main lobby		1 flight	20,000.00	20,000
A22 Upper Floor Construction	**TOTAL : $**	37,760 SF	51.46	1,943,090
A23 Roof Construction				
			Carried Forward :	0

A2 STRUCTURE		Quantity	Unit rate	Amount
A23 Roof Construction	(Continued)		**Brought Forward :**	0
1 Roof construction c/w structural steel framing, steel beams, columns, OWSJ, miscellaneous supports, bracing and 38mm metal roof deck		29,633 SF	23.70	703,150
- low roof at arena over mech/elect. and ice resurfacer room		2,352 sf	22.50	52,920
- high roof over level 2 of area in above areas		2,016 sf	22.50	45,360
- roof over gymnasium		10,403 sf	26.00	270,478
- low roof at area b/w gym & aquatics		4,683 sf	22.50	105,368
- high roof to remaining areas b/w gym & aquatics		10,179 sf	22.50	229,028
2 Roof construction over arena c/w structural steel beams, columns, long span joists/trusses, miscellaneous framing and 76mm acoustic metal roof deck		42,478 SF	34.00	1,444,250
3 Allowance for increased roof area to arena due to exterior wall tilt		2,800 SF	34.00	95,200
4 Roof construction over aquatics centre c/w structural steel beams, columns and timber decking supported by timber purlins		17,664 SF	43.00	759,550
A23 Roof Construction	**TOTAL : $**	92,575 SF	32.43	3,002,150

A3 EXTERIOR ENCLOSURE		Quantity	Unit rate	Amount
A31 Walls Below Grade				
1 Allowance for reinforced concrete wall to pool		4,442 SF	33.00	146,590
A31 Walls Below Grade	**TOTAL : $**	4,442 SF	33.00	146,590
A32 Walls Above Grade				
1 Aluminum composite panel system c/w steel stud back up		13,783 SF	66.00	909,680
2 Wood paneling c/w steel stud back up		11,096 SF	33.00	366,170
3 Metal siding c/w steel stud back up		16,331 SF	36.00	587,920
4 Translucent glazing		6,191 SF	46.00	284,790
5 Architecural block c/w CMU back up		4,777 SF	37.00	176,750
6 Stone veneer c/w steel stud back up		2,244 SF	43.00	96,490
7 Mechanical louvres, allow			Sum	10,000
A32 Walls Above Grade	**TOTAL : $**	54,422 SF	44.68	2,431,800
A33 Windows & Entrances				
1 Aluminum glazing		3,765 SF	70.00	263,550
2 Aluminum entry doors c/w frame, hardware and finish		17 No.	5,147.10	87,500
- doors - single		3 no.	2,500.00	7,500
- doors - double		13 pair	5,000.00	65,000
- doors - bi-parting aluminum sliding c/w breakaway doors and sidelights		1 no.	15,000.00	15,000
3 Hollow metal doors, thermally broken c/w pressed steel frame, hardware and finish		4 No.	2,625.00	10,500
- doors - single	(Continued)	3 no.	1,500.00	4,500
			Carried Forward :	361,550

A3 EXTERIOR ENCLOSURE		Quantity	Unit rate	Amount
A33 Windows & Entrances	(Continued)		**Brought Forward :**	361,550
3 Hollow metal doors, thermally broken c/w pressed steel frame, hardware and finish	(Continued)			
- doors - double		2 pair	3,000.00	6,000
4 Metal over head doors, allow 10'wide x 12' high		1 No.	7,500.00	7,500
5 Allowance for automatic door openers		1 No.	2,600.00	2,600
A33 Windows & Entrances	**TOTAL : $**	4,724 SF	78.67	371,650
A34 Roof Coverings				
1 2ply SBS modified bitumen roof finish c/w insulation, air/vapour barrier and roof underlay board		92,575 SF	13.50	1,249,760
2 Allowance for roof hatch			Sum	3,500
3 Allowance for skylights above feature stair and rock climbing wall			Sum	15,000
A34 Roof Coverings	**TOTAL : $**	92,575 SF	13.70	1,268,260
A35 Projections				
1 Parapet constrcution c/w exterior finish and back up		6,677 SF	40.10	267,750
- wood		1,445 sf	28.00	40,460
- aluminum composite panel		2,557 sf	61.00	155,977
- metal siding		1,782 sf	31.00	55,242
- roof finish		893 sf	18.00	16,074
2 Soffit assembly to overhang, allow		1,185 SF	3.50	4,150
3 Timber canopy structures		2 No.	99,520.00	199,040
- canopy 1, allow	(Continued)	4,320 sf	38.00	164,160
			Carried Forward :	470,940

A3 EXTERIOR ENCLOSURE		Quantity	Unit rate	Amount
A35 Projections	(Continued)		**Brought Forward :**	470,940
3 Timber canopy structures	(Continued)			
- canopy 2, allow		918 sf	38.00	34,884
A35 Projections	**TOTAL : $**	1 #Sum	470,940.00	470,940

B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount
B11 Partitions				
1 8" Concrete block		59,711 SF	13.50	806,100
2 Abuse resistant GWB c/w 89mm steel stud and batt insulation		6,544 SF	8.00	52,350
3 Glazing to partitions		1,805 SF	40.00	72,200
4 Sealants / firestopping			Sum	12,700
5 Blocking, allow			Sum	5,000
B11 Partitions	**TOTAL : $**	75,554 SF	12.55	948,350
B12 Doors				
1 Solid core wood doors c/w hollow metal frame, hardware and finish		74 No.	1,162.20	86,000
- doors - single		62 no.	1,000.00	62,000
- doors - double		12 pair	2,000.00	24,000
2 Hollow metal doors c/w frame, hardware and finish		24 No.	2,062.50	49,500
- doors - single		15 no.	1,500.00	22,500
- doors - double		9 pair	3,000.00	27,000
3 Aluminum doors c/w frame, hardware and finish		2 No.	10,000.00	20,000
- doors - double		1 pair	5,000.00	5,000
- doors - bi-parting aluminum sliding c/w breakaway doors and sidelights		1 no.	15,000.00	15,000
4 Metal over head doors, allow 10'wide x 12' high		1 No.	7,500.00	7,500
5 Aluminum accordian sliding grilles, manual opperation		35 LF	300.00	10,500
6 Aluminum rolling counter shutters, manual operation		31 LF	500.00	15,500
7 Allowance for automatic door openers		4 No.	2,600.00	10,400
			Carried Forward :	199,400

B1 PARTITIONS & DOORS		Quantity	Unit rate	Amount
B12 Doors	(Continued)		**Brought Forward :**	199,400
8 Allowance for side-lites/glazing			Sum	30,000
9 Allowance for master keying		128 Lvs	35.00	4,480
B12 Doors	**TOTAL : $**	128 LVS	1,827.19	233,880

B2 FINISHES		Quantity	Unit rate	Amount
B21 Floor Finishes				
1 Porcelain tile		29,220 SF	11.10	323,760
- P1 - 12" x 24"		15,367 sf	9.00	138,303
- P3 - 4" x 8" unglazed		20,606 sf	9.00	185,454
2 Sheet vinyl safety flooring		1,144 SF	7.00	8,010
3 Sheet flooring - linoleum		2,137 SF	5.50	11,750
4 Skate flooring - rubber sports floor 3/8" thick		12,304 SF	8.00	98,430
5 Fixed resilient wood floor to Gymnasium & Fitness room		10,500 SF	13.00	136,500
6 Concrete hardener and sealer		48,711 SF	2.00	97,420
7 Allowance for baseboard to all of the above			Sum	20,000
8 Finish to pool floor - carried in B34			NIL	
B21 Floor Finishes	**TOTAL : $**	127,535 SF	5.46	695,870
B22 Ceiling Finishes				
1 ACT1		6,342 SF	4.70	29,810
2 ACT2 (moisture resistant)		8,076 SF	6.00	48,460
3 Suspended GWB, allow 25% of public area		2,540 SF	6.00	15,240
4 Paint to exposed structure		110,578 SF	2.30	254,330
5 Allowance for feature ceiling finishes to reception and main public corridor			Sum	10,000
B22 Ceiling Finishes	**TOTAL : $**	127,535 SF	2.81	357,840

B2 FINISHES		Quantity	Unit rate	Amount
B23 Wall Finishes				
1	Paint to GWB	189,213 SF	1.00	189,210
2	Paint to CMU	122,832 SF	1.20	147,400
3	Paint to concrete	13,686 SF	1.20	16,420
4	Wood paneling to lobby area, allow 30%	1,739 SF	8.00	13,910
5	Ceramic tile	1,367 SF	8.00	10,940
6	Finishes to pool walls - carried in B34		NIL	
B23 Wall Finishes	**TOTAL : $**	333,279 SF	1.13	377,880

B3 FITTINGS & EQUIPMENT		Quantity	Unit rate	Amount
B31 Fittings & Fixtures				
1	Allowance for solid phenolic washroom partitions	50 No.	1,200.00	60,000
2	Washroom and shower accessories	9 No.	1,500.00	13,500
3	Lockers, allow raised double tier	150 No.	350.00	52,500
4	Folding panel partitions, allow	720 SF	50.00	36,000
5	Arena boards and glass panels c/w players benches, penalty time keepers boxes, motorized lift gate and black kevlar safety netting, railings and guardrails		Sum	412,000
6	Modular panel climbing wall with liquid acrylic finish c/w geodesic shapes, allow		Sum	60,000
7	Prefabricated electric fireplace to lobby, allow		Sum	1,500
8	Interior wayfinding and information signage, allow		Sum	7,500
9	Exterior building signage c/w exterior pylon sign, allow		Sum	93,000
	- large lettering	36 no.	500.00	18,000
	- pylon signage		sum	75,000
10	Gym scoreboard, allow large	1 No.	14,500.00	14,500
11	Arena jumbotron, allow		Sum	50,000
12	Arena dressing room clocks, allow	9 No.	350.00	3,150
13	Acoustic walls panels to gymnasium, multi-purpose room, fitness room and arena ends		Sum	50,000
14	Millwork, allow		Sum	100,000
15	Miscellaneous metals, allow		Sum	50,000
			Carried Forward :	1,003,650

B3 FITTINGS & EQUIPMENT		Quantity	Unit rate	Amount
B31 Fittings & Fixtures	(Continued)		**Brought Forward :**	1,003,650
16 Arena seating, allow		1,842 No.	125.00	230,250
17 Hardwood bench style seating to aquatic spectator area, allow		188 m	100.00	18,800
18 Rink specialties c/w skate sharpening, rink and hose reel, laser temperature sensor, etc.			Sum	25,000
19 Pinhole blinds to pool exterior glazing, allow			Sum	60,000
20 Recessed foot grilles in vestibule areas, allow		140 SF	50.00	7,000
21 Allowance for tack and communication boards			Sum	10,000
B31 Fittings & Fixtures	**TOTAL : $**	127,535 SF	10.62	1,354,700
B32 Equipment				
1 Allowance for commercial kitchen equipment			Sum	81,800
- Cafe/Food services			sum	54,000
- Canteen			sum	15,500
- Community kitchen, warming only			sum	12,300
2 Gymnasium equipment			Sum	60,000
3 Gymnasium divider curtain			Sum	30,000
4 All other furniture & equipment is assumed to be part of a furniture and equipment			NIC	
B32 Equipment	**TOTAL : $**	127,535 SF	1.35	171,800

B3 FITTINGS & EQUIPMENT		Quantity	Unit rate	Amount
B33 Elevators				
1 Allowance for hydraulic passenger two stop elevator with 3500lb capacity c/w stainless steel interior finish			Sum	90,000
B33 Elevators	**TOTAL : $**	1 No	90,000.00	90,000
B34 Pool & Pool Equipment				
1 Allowance for pool and pool equipment			Sum	2,250,000
B34 Pool & Pool Equipment	**TOTAL : $**	1 #Sum	2,250,000.00	2,250,000

C1 MECHANICAL		Quantity	Unit rate	Amount
C11 Plumbing & Drainage				
1 Fixtures & rough-in		127,535 SF	2.00	255,070
2 Domestic water		127,535 SF	2.70	344,340
3 Non-potable water		127,535 SF	1.70	216,810
4 Sanitary drainage & vent		127,535 SF	2.80	357,100
5 Storm drainage		127,535 SF	0.90	114,780
6 Miscellaneous c/w setting out, sleeving, tagging, identification, testing, etc.		127,535 SF	0.30	38,260
C11 Plumbing & Drainage	**TOTAL : $**	127,535 SF	10.40	1,326,360
C12 Fire Protection				
1 Fire main			Sum	30,000
2 Sprinkler system		127,535 SF	3.00	382,610
3 Fire extinguishers		127,535 SF	0.20	25,510
C12 Fire Protection	**TOTAL : $**	127,535 SF	3.44	438,120
C13 HVAC				
1 Heat generation		127,535 SF	0.40	51,010
2 Ice rink system - included in C15			INC	
3 Liquid heating / cooling transfer - main		127,535 SF	2.00	255,070
4 Liquid heat transfer		127,535 SF	11.20	1,428,390
5 Solar heating		127,535 SF	0.80	102,030
			Carried Forward :	1,836,500

C1 MECHANICAL		Quantity	Unit rate	Amount
C13 HVAC (Continued)			**Brought Forward :**	1,836,500
6 Air distribution equipment		127,535 SF	9.50	1,211,580
7 Air distribution ductwork & devices		127,535 SF	6.30	803,470
8 Exhaust & ventilation		127,535 SF	0.80	102,030
9 Humidification		127,535 SF	0.10	12,750
10 24/7 cooling		127,535 SF	0.20	25,510
11 Testing, adjusting & balancing			Sum	50,000
12 Commissioning			Sum	25,000
13 Miscellaneous c/w setting out, sleeving, tagging, identification, testing, etc.		127,535 SF	0.20	25,510
C13 HVAC	**TOTAL : $**	127,535 SF	32.09	4,092,350
C14 Controls				
1 Controls		127,535 SF	5.50	701,440
C14 Controls	**TOTAL : $**	127,535 SF	5.50	701,440
C15 Ice Rink Refrigeration				
1 Ice rink refrigeration (single)			Sum	950,000
C15 Ice Rink Refrigeration	**TOTAL : $**	1 #Sum	950,000.00	950,000

C2 ELECTRICAL		Quantity	Unit rate	Amount
C21 Service & Distribution				
1 Distribution		127,535 SF	3.00	382,610
2 Feeders		127,535 SF	2.50	318,840
3 Metering		127,535 SF	0.30	38,260
4 Grounding		127,535 SF	0.20	25,510
C21 Service & Distribution	TOTAL : $	127,535 SF	6.00	765,220
C22 Lighting, Devices & Heating				
1 Lighting		127,535 SF	4.00	510,140
2 Exit and emergency lighting		127,535 SF	0.40	51,010
3 Lighting control		127,535 SF	0.70	89,270
4 Devices & power connection		127,535 SF	1.60	204,060
5 Mechanical connection		127,535 SF	1.20	153,040
C22 Lighting, Devices & Heating	TOTAL : $	127,535 SF	7.90	1,007,520
C23 Systems & Ancillaries				
1 Fire alarm		127,535 SF	1.50	191,300
2 Communication cabling & conduit		127,535 SF	1.40	178,550
3 Security access & CCTV system		127,535 SF	0.80	102,030
4 CATV system			Sum	2,500
5 Public address system		127,535 SF	0.80	102,030
6 Miscellaneous c/w permits, inspections, close out documents, firestopping, etc.		127,535 SF	0.30	38,260
C23 Systems & Ancillaries	TOTAL : $	127,535 SF	4.82	614,670

Appendix
B - DRAWINGS LIST

APPENDIX B - DRAWING LIST

DRAWINGS

Number	Title	Dated	Received
SK-01	First Floor	n/a	11-Dec-15
SK-02	Second Floor	n/a	11-Dec-15
SK-03	Elevations	n/a	11-Dec-15
SK-04-08	Perspectives - 5 in total	n/a	11-Dec-15
SK-09-10	Canopy Elevations - for Front & Back Canopies	n/a	18-Dec-15
	Outline Specifications	Dec 2015	15-Dec-15

6.0 NEXT STEPS

6.1 Next Steps

The results of the Market Assessment, Business Plan, Site Assessments, Concept Design and Costing studies included in this report offers the City of Miramichi a more precise estimate of the cost to construct a recreation Multiplex that would meet the current and project future recreation needs of the City of Miramichi. The next important step is for the City to decide if it will pursue its development. Should this mandate be approved the following items will need to be addressed:

Site

The City must choose a site on which to develop the Multiplex. Should this site not be owned by the City it will have to be purchased, but not before understanding its geotechnical and environmental conditions by undergoing testing.

Operational Plan

A recreation multiplex will be operated unlike any other facility owned by the City of Miramichi. In Section 4.0 of the Market Assessment Business Plan it was recommended that the City undertake a comprehensive operational review of the Department prior to the opening of the Multiplex. The operational plan will confirm those points which are assumptions in this study to identify more accurate projections of costs and revenues.

Funding/Fundraising

This multi-million dollar infrastructure investment will likely require funding from three levels of government and/or private partners. Naming rights, for the building, or parts of the building (i.e. arena, aquatic centre) can provide private businesses with a highly visible marketing opportunity. A fundraising campaign could engage Miramichi residents and local businesses to donate funds to support the development of the Multiplex. Donors are typically honored with a display which is physically incorporated into the building design in a high traffic area.

City Integration

The City should consider the potential positive spin-off and development implications of the Multiplex to businesses and residents nearby the chosen location. It will be important for the facility to integrate within its chosen neighbourhood, and within the City as a whole. Items such as public art and possible exterior recreation programming (i.e. playgrounds, community gardens) should be considered early in the process so that they may be well integrated into the final design.

Method of Delivery

The City will have to choose which method of project delivery it will execute for the Multiplex. The most common options include:

1. Design-Bid-Build (Traditional Delivery Method)
2. Construction Managed
3. Design-Build

In Design-Bid-Build the client hires an Architect to develop design and construction documents for a project. The Architect hires subconsultants including Engineers, Landscape Architects, Code Consultants and other specialists. The construction drawings and specifications the consultant team produces are tendered and contractors bid on the work to carry out the construction.

In Design-Build a contractor is awarded the contract to build the building which meets the specifications developed by and Architect working as the Owner's Advocate. The contractor hires an Architect of their own to do the final building design and construction documents.

The third common delivery method, Construction Managed, is also used when an ambitious schedule is necessary. A construction manager is hired by the client to tender separate contracts to construction subcontractors. An Architect is hired by the client to work directly with the Construction Manager to prepare design and construction documents for the tender packages.

Basic Architectural Services

Regardless of the delivery method, the following basic Architectural Services are typical:

1. Schematic Design - Following a selection of a site for the Multiplex, a consultant team would develop a conceptual architectural form and floorplan for the building based on collaboration between the client. This stage will confirm the investigatation into different types of construction materials, and systems, and is when the team will obtain detailed site information. A Class C cost estimate with an order of magnitude of +/- %15 would be developed. The work of the Pre-Design Study contains information which would guide schematic design. The design could change somewhat based on what site is picked, and an important building code review would need to be carried out.

2. Design Development - The selected concept from the Schematic Design Phase is then refined and developed in more detail. The consultant team would prepare and coordinate the designs for architectural, structural, mechanical, electrical, civil and landscape work. Outline specifications are developed in more detail and presentation documents such as drawings, models and computer renderings are produced. A Class B cost estimate with an order of magnitude of +/- %10 would be developed.

3. Construction Documents - Following the approval of the Design Development documents, detailed drawings and specifications will be developed in order to direct the contractor and sub-contractors in preparation of their bid to carry out the work on the project. A Class A cost estimate with an order of magnitude of +/- %5 is developed.

4. Construction Procurement - Depending on the project delivery method, the Architectural team assists the client with the selection of the contractor.

5. Contract Administration - In contract administration, the Architect reviews progress during the construction of the building, on behalf of the client, and prepares regular reports. The consultant team assists in realizing the project by providing the contractor with technical interpretations and information. Progress payments are reviewed by the consultants and substantial completion is determined setting the start date on a warranty period.