

**Final Report**

**Value Scoping Session**

**Fultonvale and Colchester  
Schools**

Elk Island Public Schools  
Regional District #14

Submitted by



January , 2012

## TABLE OF CONTENTS

<i>Table of Figures</i> .....	2
<i>Executive Summary</i> .....	3
<i>Context</i> .....	6
<i>Organization Phase</i> .....	7
<i>Information Phase</i> .....	12
<i>Function Analysis</i> .....	17
<b>Function Diagram – High Level</b> .....	19
<i>Creativity Phase</i> .....	22
<i>Evaluation Phase</i> .....	23
<i>Development Phase</i> .....	25
Option 1: Build a new school on the existing Fultonvale site .....	25
Option 2: Major Modernization of Fultonvale site .....	26
<i>Summary</i> .....	28

**APPENDIX A            DETAILED FUNCTION ANALYSIS**

**APPENDIX B            CREATIVITY LIST**

**APPENDIX C            BLOCK DIAGRAMS**

**APPENDIX D            COST BENEFIT ANALYSIS**

## TABLE OF FIGURES

<i>Figure 1 – List of Participants</i> .....	9
<i>Figure 2 – Value Scoping Methodology</i> .....	13
<i>Figure 2 – Environmental Analysis</i> .....	18
<i>Figure 3 – Functional Diagram – high level</i> .....	19
<i>Figure 4 Evaluation Criteria</i> .....	24

## Executive Summary

Elk Island Public School Regional Division #14 is presently reviewing the ability to accommodate the students and teachers of the Colchester Public school. The high voltage power line proposed in the vicinity of Colchester school has created concern among the parents for the safety of their children. Alberta Infrastructure and the Alberta Education sponsored this Value Scoping workshop to determine a preferred option for the students of Colchester.

Treasury Board and Alberta Education guidelines require that the Elk Island Regional Division #14 review the utilization of any other schools in the immediate area prior to building any new facility. The workshop reviewed the ability to consolidate the students and teachers of the Colchester Public School and Fultonvale Elementary / High School into one learning facility. The facility must have the ability to accommodate the immediate and future needs of the local area students. The design capacity core criterion is for 700 students with the complementary space for teachers, administration and wrap around services. The opening capacity is designed for 600 students

The goals and results of this study are summarized below:

- To identify and clearly define the stakeholders' needs

*This was accomplished by conducting the introductory session where all of the stakeholder wants and needs were expressed. They were then translated into 124 "functions" and arranged into a logical functional analysis systems technique (F.A.S.T) diagram. Some of the functions were then described in terms of performance characteristics from the stakeholder perspective.*

- To brainstorm and evaluate potential options for meeting the identified needs

*Twenty six ideas were discussed during the workshop ranging from the construction of a new school for Colchester at a new location, to be determined, to combining the Colchester and Fultonvale students at the present Fultonvale location.*

- To build consensus of various stakeholders of needs and best value options

*Two options were carried forward into a concept drawing where detailed value and cost assessment was undertaken by the team members*

- To clearly identify the project scope of options that represent best value for money and meet stakeholder needs prior to project approval

*The analysis indicated that two options were viable*

- *build a new school on the Fultonvale site and demolish the existing schools or*
- *to undertake a major modernization of the Fultonvale school including permanent and modular additions*
- To provide accurate and relevant project costing and architect block diagrams for the preferred project scope options

*The project estimated capital and life cycle costs were identified for the conceptual design level with corresponding block diagrams created by the architect.*

*The capital cost estimate for the new build was \$21.0 Million with a calculated nPV of \$32.2 Million. The capital cost estimate major modernization of the existing Fultonvale School was \$19.0 Million with a corresponding Net Present Value (nPV) (25 years) of \$30.6 Million. NPV compares the value of a dollar today to the value of that same dollar in the future, taking inflation and returns into account. Note that this is a cost estimate at the conceptual phase and will be subject to refinements in subsequent phases of the project.*

- To build consensus of various stakeholders around project scope

*The project team evaluated both shortlisted scenarios with evaluation criteria derived by the project team. The evaluation score for the major modernization of the Fultonvale School was slightly higher than the new build scenario based on its overall greater satisfaction of the needs, school layout and the lower capital and nPV cost. The major concern of the major modernization option is the potential disruption to the students and teachers during construction. This issue could not be addressed at the workshop, in the*

**FINAL REPORT**

*form of a mitigation plan, with the level of detail available to the project team, but should be carried forward in the design criteria.*

The Value Scoping process allowed the stakeholders to undertake a rapid and comprehensive analysis of needs resulting in two viable options for the school complex. This process maximized the use of senior stakeholder's time which allowed their participation at the workshop. The outcomes of this approach allowed for some very open and frank discussions among the stakeholders including school administrations, parent representatives of the 3 schools, Elk Island Public School Regional District #14, Alberta Education and Alberta Infrastructure staff.

## Context

Elk Island Public School District #14 operates three public schools in the southern portion of Strathcona County.

School facility audits are undertaken every five years. These audits examine the condition of the architectural, structural, mechanical and electrical systems of a facility in addition to site elements and barrier free requirements.

The table below identifies the cost of the total maintenance events for the next five year period, based on information from the facility audit reports. The Facility Condition Index (FCI) is calculated by dividing the total 5-year maintenance cost by the school's replacement value. FCI is generally used to classify a school's overall condition (i.e. <15% represents good condition, 15-40% represents fair condition and >40% represents poor condition).

The adjusted student enrolment data provided below represents total number of students within each of the facilities with adjustments made for kindergarten and special education students. The facility's utilization rate is calculated by dividing the adjusted student enrolment by the school's total net capacity.

The following table outlines the maintenance needs at these facilities, condition and utilization rate.

School	Maintenance 5 years	FCI	Adjusted Student enrolment	Utilization rate
Colchester	\$1.9 Million	26.35%	204	67%
Fultonvale	\$3.9 Million	40.01%	291	51%
Ministik	\$1.0 Million	34.875	72	59%

Colchester was constructed in 1957 with a 36 m<sup>2</sup> addition in 1986. Fultonvale was constructed in 1975 with portable classrooms added in 1975, 1977 and 1980. The Ministik School was constructed in 1951 with an addition in 1952 and portable classrooms in 1975. The core of the Fultonvale and Colchester schools are physically sound masonry structures. All the schools require maintenance and upgrades that are identified in the condition assessment reports.

The proposed high voltage power line adjacent to the Anthony Henday expressway is the catalyst to consider the consolidation of the Colchester and Fultonvale schools. Presently Colchester provides Kindergarten to Grade 6 for the residents of their community and for the Goals 1 & 2 program for a wider

**FINAL REPORT**

area. Students graduating from Colchester move to Fultonvale for Gr. 7- 9. Students from Ministik also move to Fultonvale for Gr. 7-9.

The construction of the power line is proceeding in the winter of 2012 and is scheduled for completion in the spring of 2013, hence there is a need for a quick resolution and transition strategy for the Colchester students and the receptor school; Fultonvale.

### ***Value Scoping Sessions***

The 3 day Value Scoping session was planned and organized according to the typical 7-step VE job plan as follows:

- Organization phase
- Information phase
- Function Analysis/ Functional Performance Specification (FA/FPS) and cost analysis phase
- Creativity phase
- Evaluation phase
- Development and presentation phase
- Implementation and follow up phase

### **Organization Phase**

Organization was initiated with consolidation of project specific information and the distribution of this information and workshop schedule by the project manager to the consultant team. It was decided to hold the Value Scoping workshop at the Fultonvale Public School which is the central location, from January 9-11, 2012. This allowed for an on-site visit of the Fultonvale School and school grounds at the end of the January 9<sup>th</sup> session.



**FINAL REPORT**

An initial teleconference was held with staff from Alberta Infrastructure and Alberta Education to finalize the agenda and logistics. The first teleconference, January 4<sup>th</sup>, 2012 was attended by:

<b>Alberta Infrastructure</b>	Mark Latimer	<b>Alberta Education</b>	Michael Ediger
	Estella Tong		Laura Udell
	John Lovell	<b>The Fletcher Group</b>	Tom Fletcher
	Brian Dejong	<b>Group2 Architects</b>	Doug Ramsey
	Lyle Markovich	<b>Tech Cost Consultants</b>	Curtis Cameron

Follow up teleconferences and emails between Mark Latimer and Tom Fletcher occurred up to the first workshop on January 9<sup>th</sup>, 2012.

.

The following personnel were selected to participate in various stages of the workshop. The team members provided a wide array of experience that was needed to assure that all of the needs of the stakeholders were documented.

<b>Alberta Infrastructure</b>	Mark Latimer	<b>Fultonvale Elementary/Junior School</b>	M.J. Nam (Principal)
	Estella Tong		C. Chorney (parent rep)
		<b>Colchester School</b>	Bill Suter (Principal)
			Jennifer Matyjanka (parent rep)
			Gabriel Chemello (parent rep) (part)
			Carey Pressacco (parent rep) (part)
<b>Alberta Education</b>	Michael Ediger	<b>Ministik School</b>	Evelyn Gaudet (Principal)
	Laura Udell		Tanya Clubine (parent rep)
	Mike Padnessa		
<b>Elk Island Public School</b>	Bruce Beliveau, Superintendent	<b>The Fletcher Group</b>	Tom Fletcher
	Lori Tootoosis – Friesen, Trustee	<b>Group2 architects</b>	Doug Ramsey
	Basil David (Director of Facilities)	<b>Tech Cost Consultants</b>	Curtis Cameron
	Stan Easton (Ass't Director of Facilities)		Kevin Drake

**Figure 1 - List of Participants**

The Value Scoping workshop was facilitated by Tom Fletcher P. Eng., CVS.

The additional resources for the consultant project team were Doug Ramsey, Group2 Architects who provided the architectural expertise to the project team. Curtis Cameron and Kevin Drake from Tech Cost provided expertise for the cost scenarios.

Historical background information, RECAPP facility Evaluation reports (Colchester, Fultonvale & Ministik) and existing floor plans were provided to the consultant project team by Alberta Infrastructure. This was supplemented by general information obtained by a web search. Additional information, concerning the potential installation of the high voltage power lines in the vicinity of the Colchester school was also reviewed.

### ***Background Information***

The project team was provided with the following information

1. List of participants
2. Floor Plans for Colchester, Fultonvale and Ministik schools
3. RECAPP Facility Evaluation reports
4. Area Capacity and Utilization Report – Elk Island Public Schools

This information was supplemented by an internet literature search, which provided additional information concerning Strathcona County and the Elk Island Public School Regional Division #14.

### ***Pre-workshop Activities***

Project information and schedule was distributed to members of the consultant team 1 week prior to the workshop. The following websites were also referenced prior to the workshop to provide additional background information.

#### ***Reference Websites:***

- <http://www.strathcona.ab.ca/>
- <http://www.eips.ca/>
- <http://www.fultonvale.ca/>
- <http://www.colchesterschool.ca/>
- <http://www.ministikelementary.ca/>
- <http://www.aqs.gov.ab.ca>

### **Draft F.A.S.T Diagram**

After reviewing the available information, a draft function analysis diagram (F.A.S.T) was prepared by The Fletcher Group. This activity provides valuable information to the VE facilitator and the VE team to ensure all major function categories (basic, support, technical, and constraint) are addressed from a technical and client perspective.

### **School Layout Review**

Doug Ramsey , Group2 Architects had reviewed the existing floor plans for the 3 schools and prepared a conceptual plan using the Ministry guidelines for a new school with 700 students and another conceptual plan for a major modernization of the Fultonvale school. This information was discussed between Doug Ramsey and Tom Fletcher on January 8<sup>th</sup> at the Group2 office.

A preliminary site visit for the Colchester and Fultonvale Schools was also undertaken by Tom Fletcher on January 8<sup>th</sup>.

The cost consultant, Tech Cost also undertook some preliminary cost modelling in preparation for the workshop.

## Information Phase

The purpose of the information phase is to disclose all of the information that is available to the project team members and provide the team members with the opportunity to ask any questions about the project scope or any of the material discussed.

Mark Latimer, from Alberta Infrastructure and Mike Ediger from Alberta Education who co-sponsored the Value Scoping Session, introduced the project to the team members including expected goals and outcomes for the session from the provincial perspective. Bruce Beliveau, superintendent, Elk Island Public Schools commented that there is a “window of opportunity” in the present circumstance to meet all of the needs of the students if there can be agreement on a preferred solution. All of the VA team members introduced themselves and detailed their interests and goals and success criteria for these sessions.

Team members included representatives from Alberta Infrastructure, Alberta Education, Elk Island Public Schools, and principals from Colchester, Fultonvale and Ministik, parent representatives and the technical support from The Fletcher Group, Group2 Architects and Tech Cost consultants.

The summary of “success” comments were

- Comprehensive understanding of the needs of the user and stakeholder community with the emphasis being the best solution for the students
- Retain and continue to build a sense of community for this area
- Understanding of the Colchester School / proposed High Voltage power line and its impact on the Colchester school. Representatives from Colchester emphasized the importance of a rapid but comprehensive solution
- Need to develop a 20-30 year solution
- Accommodation for broader needs and wrap around services
- Adequate space allocation for students and teachers in the “new” or “major modernization” scenario
- Best learning outcome for students in the transition period and long term

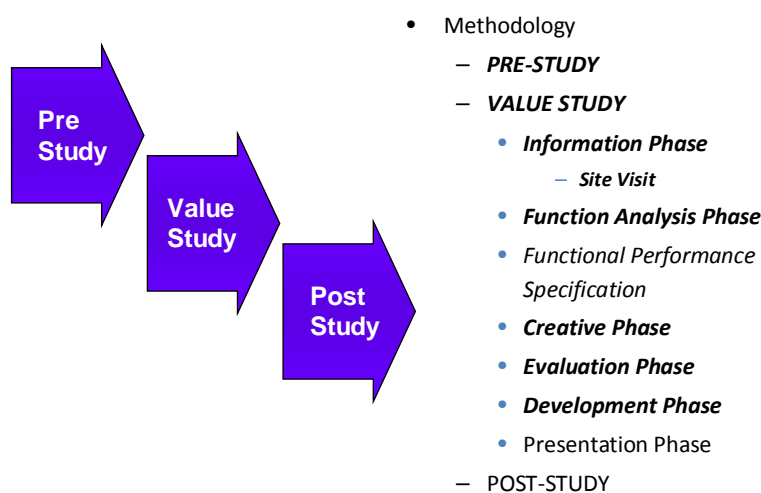
**FINAL REPORT**

- Special needs children from the Goals 1& 2 accommodated as well as other special needs students
- Ability to coordinate with day care , pre and after school care
- To develop a solution within the Provincial government guidelines

Tom Fletcher presented some introductory slides outlining the seven step Value Scoping process. One of the strengths of this methodology is the structured approach to identify all of the functions that must be accomplished before proposing solutions.

The first day consisted of the information session where all of the documentation of the 3 schools was presented to the team members. . The detailed steps are listed below.

## Value Scoping



### Figure 2 Value Scoping Methodology

The first day of the workshop concentrated on the information and function analysis phases. This gave all of the team members a good comprehensive understanding of “what” had to be done prior to developing solutions. The activities of first day were completed with a tour of all of the existing facilities at the Fultonvale School. M.J. Nam, principal of Fultonvale conducted the tour.

**FINAL REPORT**

Members of the VA team had the opportunity to ask questions to clarify any project specific details or concerns

**Existing conditions**

Doug Ramsey, Group2 Architects described the structure and condition of the Colchester, Fultonvale and Ministik schools. The summaries as described in the Facility Evaluation reports are indicated below. The core of Fultonvale and Colchester are in satisfactory condition.

**Colchester School**

- Located at 23358 Township Road 520 in Sherwood Park with a grade structure of K-6.
- Constructed in 1957 with an associated area of 2,514.0 m<sup>2</sup>. A 36.0 m<sup>2</sup> addition was constructed in 1986. Total area is 2,549.0 m<sup>2</sup>.
- The net student capacity of the school is 304. The 2010-11 adjusted student enrolment were 204 with a resulting utilization rate of 67%.
- The most recent facility evaluation was completed in October 2010. The information contained in the ReCAPP Facility Evaluation Report included:
  - Replacement cost (fire replacement): \$7,154,000
  - Total maintenance events next 5 years: \$1,885,327
  - 5 year facility condition index (FCI): 26.35%  
(0 to 15% - Good / >15 to 40% - Fair / >40% - Poor)

**Fultonvale Elementary Junior High School**

- Located at 52029 Range Road 224 in Sherwood Park with a grade structure of K-9.
- Constructed in 1975 with an associated area of 3,442.90 m<sup>2</sup>. Portables were added in 1975 (170.6 m<sup>2</sup>), 1977 (215.4 m<sup>2</sup>) and 1980 (708.15 m<sup>2</sup>). Total area is 4,537.0 m<sup>2</sup>.
- The net student capacity of the school is 511. The 2010-11 adjusted student enrolment were 291 with a resulting utilization rate of 51%.
- The most recent facility evaluation was completed in October 2010. The information contained in the ReCAPP Facility Evaluation Report included:
  - Replacement cost (fire replacement): \$9,663,000
  - Total maintenance events next 5 years: \$3,865,910
  - 5 year facility condition index (FCI): 40.01%

**FINAL REPORT**

**Ministik School**

- Located at 21246 Highway 14 in Sherwood Park with a grade structure of K-6.
- Constructed in 1951 with an associated area of 551.2 m<sup>2</sup> and added to in 1952 (139.4 m<sup>2</sup>) and 1993 (303.5 m<sup>2</sup>). Portables added in 1975 (160.5 m<sup>2</sup>). Total area is 1,154m<sup>2</sup>.
- The net student capacity of the school is 121. The 2010-11 adjusted student enrolment were 72 with a resulting utilization rate of 59%.
- The most recent facility evaluation was completed in January 2011. The information contained in the ReCAPP Facility Evaluation Report included:
  - Replacement cost (fire replacement): \$2,790,000
  - Total maintenance events next 5 years: \$972,821
  - 5 year facility condition index (FCI): 34.87

**Scope**

The project team developed the following mission statement which describes the critical elements of this project.

The mission is to;

***To provide an innovative K-9 school experience to fulfil the academic and social needs and to prepare the students for success in life***

When the mission is achieved the following benefits will also be achieved.

- ensure community identities
- transmit team, leadership, life and problem solving skills
- accommodate Colchester closure
- accommodate 700 students
- apply applicable standards



## **Project Risks**

The following potential risks were identified that may have an impact on the project. Subsequent phases should attempt to monitor and mitigate these risks.

- Provincial funding
- Potential power line activation in 2013
- Colchester community acceptance of school closure
- 2 year + design and construction window
- Disruption for students and teachers during construction

## Function Analysis

The **Function Analysis Phase** was conducted using two recognized techniques

- a. Intuitive Analysis
- b. Environmental Analysis

The result was the development of a comprehensive list of functions for the project. Each function was described in the VA/VE format using the “active verb” and “measurable noun” to describe what the function must do without specifying a particular solution. The functions were then organized into a logical sequence resulting in a functional tree or F.A.S.T. diagram. The benefits of this approach are the clear graphical description of the project and the ability to identify any “gaps” in the project in the concept phase of the assignment. The list of functions represents the major elements of this project. As the project progresses through the design phases, it is expected that some additional functions may be identified which can be included in the function diagram.

The environmental analysis in this context represents all of the entities that have some interaction with the present school facility. The interactors include the community, partners, Elk Island Public School Regional Division #14 etc. This relation is described in the form of functions that the facility “must” do. Note that the function analysis phase does not prescribe a particular solution. It is very important at this stage to be able to focus the group’s attention on “all” of the functions that must be accomplished prior to developing any particular solutions. This prevents the group from developing solutions that will only meet part of the needs of the facility which ultimately results in having to conduct much iteration to satisfy all of the needs.

The following is a graphical representation of the factors that affect the design.

### Environmental Analysis

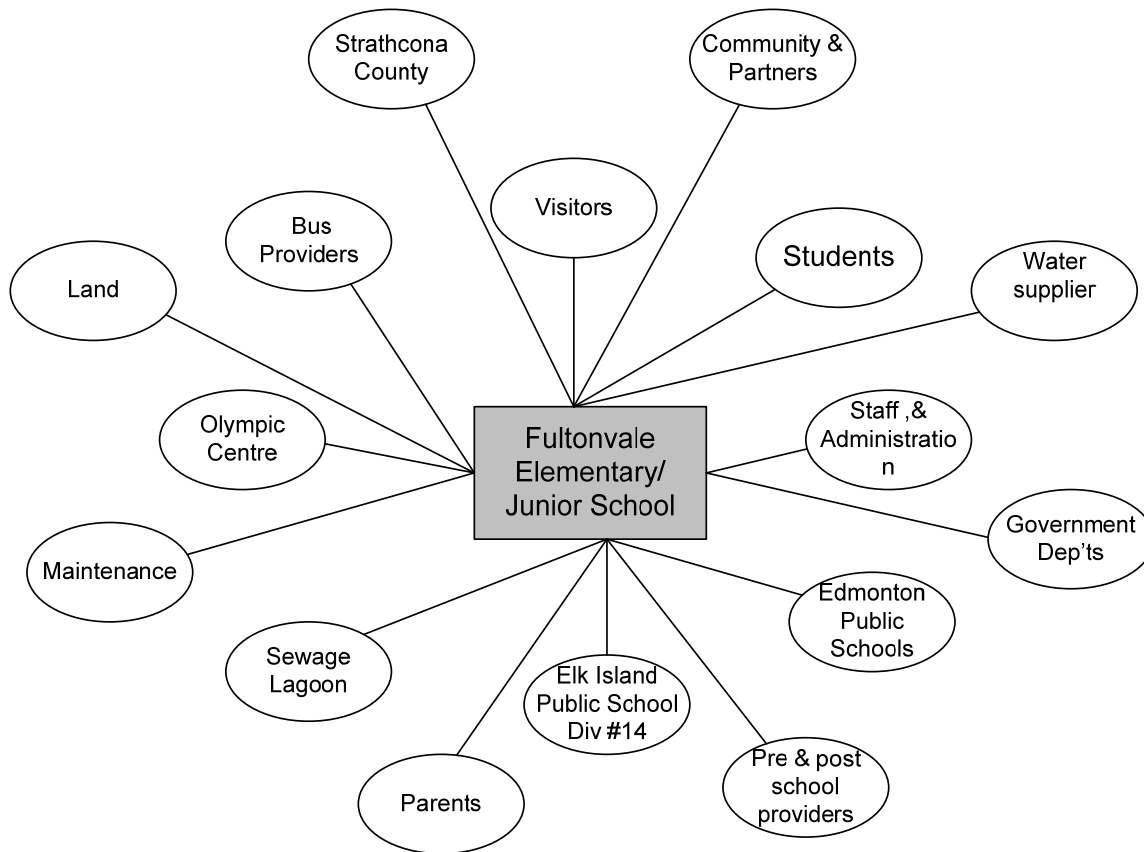
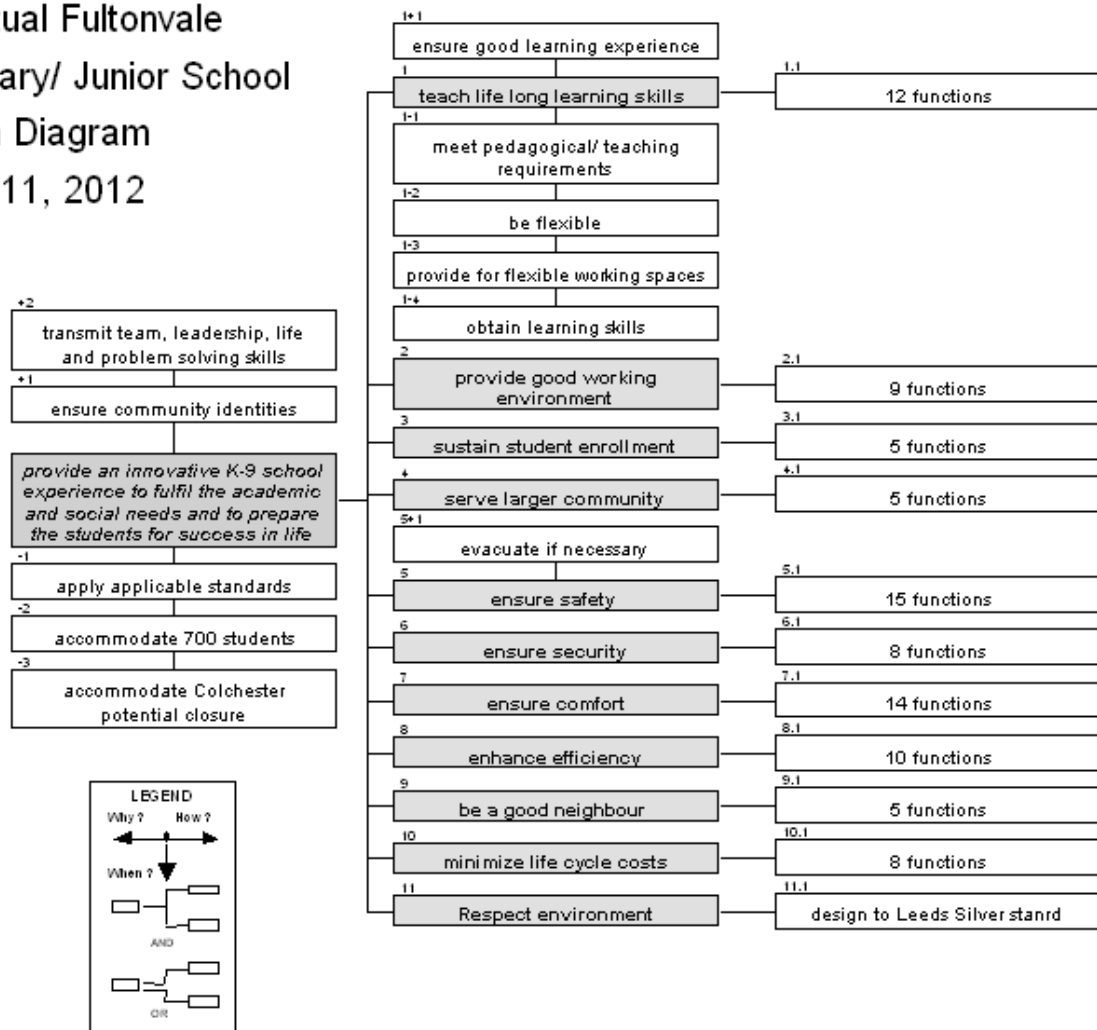


Figure 3- Environmental Analysis

## Function Diagram – High Level

The following high level function diagram was created using the list of functions created from the function analysis session

### Conceptual Fultonvale Elementary/ Junior School Function Diagram January 11, 2012



**Figure 3 - Function Diagram – high level**

In order to satisfy the mission or “how” the functions can be accomplished, eleven higher level functions must be accomplished namely:

1. **Teach Life Long Learning Skills.** The school facility must be able to supply an environment where life long learning skills can be taught. As a consequence, the facility can provide the teachers and

## FINAL REPORT

staff with the ability to meet pedagogical teaching requirements. It will also allow the teachers to be flexible in attaining these goals. The school provides a diverse curriculum including academic, CTS, gym, drama and outdoor education. The school is structured to meet the special needs of all of the students at this facility. It has a large specialized and integrated staff that can evaluate and monitor student needs at the facility. This is a basic function for the facility.

2. **Provide a good working environment.** The proposed design must provide a good working environment for staff, students and administration. This will include staff meeting and rest areas, classrooms that are ergonomically designed to meet the present and future needs of the students. These areas will meet the computer networking requirements of the students. They will also be designed to minimize extraneous noise yet provide the teacher with the ability to communicate with all students effectively. The construction activities will be scheduled in consultation with the school administration to limit noise in predefined sensitive noise locations. This is a technical and support function.
3. **Sustain Student Enrolment identifies** the need to provide social space and non curricular and recreational activities in addition to the basic requirement for academic learning. This supports the mission of the project to prepare students for success in life.
4. **Serve larger community;** The modernized facility should recognize the needs of the larger community to be able to access and utilize this facility in off school hours. This may include such functions a pre and post school daycare, public partnerships, joint programs with the Olympic Centre etc. These items should be considered in the design process.
5. The “**ensure safety**” function describes all of the functions necessary to ensure student and staff safety. The detailed functional diagram in Appendix A identifies a range of fifteen functional areas ranging from pick up/ drop off students, parking, evacuation procedures, fire control, and snow removal to separating age groups. All of these functions have procedures and standards that must be addressed in the later stages of this project. This can be accomplished by developing functional performance criteria or specifications prior to moving to the detailed design. Some of the students in the facility require special consideration and hence additional measures must be considered in the design process. This is also a basic function for this facility.
6. The “**ensure security**” function addresses eight higher level functions that concern items such as controlling access, detect intrusions, separating student and vehicle traffic and enclosing the perimeter of the property. The levels to which these are addressed will be developed in subsequent phases of this assignment.

## FINAL REPORT

7. The “**ensure comfort**” function addresses the issues concerning heating and air humidification and ventilation for good quality air. It also covers such functions such as noise control and multifunctional space for large meetings and lunch room space. There are special requirements to upgrade the facilities for universal access to the building and washrooms. Care must also be realized for any fluorescent lighting since some current systems increase the frequency of headaches. This is a support function.
8. **Enhance Efficiency** addresses the long term functions of parking and picking up students as well as appropriate access to the school building. Functions also addressed the need to optimize the layout to address travel times for the student, teachers and professional staff within the facility. In the short term, any construction must pay particular attention to disruption of the students since there is concern among the teachers and parents about excessive noise during the 2 year construction activities., especially for the Goals 1&2 program. This is a technical/ support function
9. The “**be a good neighbour**” function addresses the general aesthetic requirements of a school complex with respect to exterior finishes, landscaping, and overall maintenance. It also has outdoor sport facilities such as soccer fields that are shared with outside groups. The facility also provides meeting space for the wrap around associations. This is a support function.
10. **Minimize Life Cycle Costs** identifies the need to right size the school to conform to present standards, manage the asset (existing and future). For instance new schools do not have provision for basements nor cafeterias. Construction scheduling can also cause an increase in the project cost and schedule. This can be minimized if addressed in the constructability review prior to tender. This is a technical function as well as a constraint function.
11. **Respect Environment** functions under the present definition are restricted to issues such as following the principles of LEED. If adopted, this will be a technical as well as a constraint function.

The functions are described in the form of

- “Basic” functions for this project are functions 1, 5, 6 i.e. teach life long learning skills. If these functions are not addressed then the project cannot succeed
- Technical and Support functions are functions 2, 3, 4,7,8,9.
- Constraint function; function 10,11 are constraint functions

## Creativity Phase

Once the function analysis was completed and the participants fully understood the many functions that were to be accomplished to satisfy the needs, they were asked to describe other ideas that could fulfill these needs as described in the functions. This section initiates the attempt to try to find solutions that can meet the needs of the described functions.

The creativity session was conducted by opening the session for ideas that might meet the functional needs previously identified. The goal of this phase of the project is to be able to suggest high level alternatives. Subsequent design phases will undertake a more detailed look at the more specific functions identified in the functional tree.

The factors concerning any renovation or upgrade were instructed to be

- 50 year solution with costs normalized to a 25 year life cycle
- New footprint to be compliant with current space guidelines of the Alberta Education and Alberta Infrastructure
- Alberta government guidelines require that vacancy rates at adjacent schools be considered prior to any construction at a new location

Twenty six ideas were generated by the project team that ranged from minor improvements to building a new school. The list of ideas is included in Appendix B

## Evaluation Phase

All of the ideas proposed were sorted based on

- Is the idea within the scope of this project
- Is the idea feasible in terms of the RECAPP condition reports for major items and costs?
- Does this address the Colchester conflict with the proposed High Voltage power line
- Will it satisfy the needs identified in the function analysis?
- Capital cost?
- Overall life-cycle costs?

The original twenty seven ideas were reviewed by the project team members. Two scenarios emerged as credible options to meet the present and future needs. The list of ideas is shown in Appendix B

The two scenarios were to:

1. Build a new school on the Fultonvale School site followed by the demolition of the present structure
2. Undertake a major modernization, including permanent and modular additions to the existing Fultonvale school. The partial demolition of the site is detailed in Appendix C



The evaluation criteria developed by team members to evaluate each scenario is listed below:

Evaluation Criteria for these options		New Build on site	Major Modernization of Fultonvale
	<b>1 - negative impact</b>		
	<b>5 - neutral impact</b>		
	<b>10 - positive impact</b>		
1	Disruption -short term, 2 year, due to construction	7	3
2	Accommodate Colchester family	10	10
3	Supportable -Treasury Guidelines	5	5
4	accommodate Fultonvale family	10	10
5	meet current learning strategies	10	10
6	programming opportunities	10	10
7	environmental stewardship	4	10
8	community access	8	10
9	operational efficiency	10	9
10	maintainability	10	10
11	adaptable ( Interior/exterior)	10	10
12	long term footprint location	4	10
13	Parking- bus separation, scheduling	5	5
	<b>Point Total- Equal Weighting</b>	<b>103</b>	<b>112</b>
	<b>Capital Cost Estimate - Tech Cost (rounded)</b>	<b>\$21.0 M</b>	<b>\$19.0 M</b>
	<b>nPV Value</b>	<b>\$32.2 M</b>	<b>\$30.6 M</b>

Figure 4 – Evaluation Criteria

## Development Phase

### ***Option 1: Build a new school on the existing Fultonvale site.***

This would require the use of one of the existing playgrounds for a 2 year period while the new school is under construction. Upon completion, the existing school would be demolished and the playground would have to be re-established. This option as well as Option #2 allows for demolition of the Colchester school.

### **Description**

The new 700 Capacity K-9 School, Designed and Constructed with 700 capacity core, opening capacity will be 600. A new municipal waterline would be constructed in this option for a cost of \$130k. Total area is:

Demolition	7088 m <sup>2</sup>
New Core	4,723 m <sup>2</sup>
Modular	<u>1,205 m<sup>2</sup></u>
Total Area	5,928 m <sup>2</sup>

This design is based on the Alberta Education design template for a new school.

#### Advantages:

- Meets the requirements for students by square metre allocation
- Complies with Ministry standards
- Less disruption to students during construction
- Most efficient space allocation by area
- New start for communities
- Cost avoidance by joining 2 schools (O&M)
- Leed silver compliant

#### Disadvantages

- New building will be located on existing playground area
- Must move and relocate playground
- Replaced playground will be closer to street
- Need permission from the County to build a new building envelope
- Demolition of viable asset (Colchester + Fultonvale)
- Not optimal footprint on site for access,
- Additional cost of road to school entrance
- Footprint near property line will limit ability to fight fires from all sides of building
- Need municipal water for sprinklers
- Need permission and permits from the County to relocate building footprint to new envelope on property site

**Cost: Capital Cost \$21.0 Million; nPV \$32.2 Million**

## **Option #2 – Facility Modernization & New Additions & Modular’s**

Designed and Constructed with 700 capacity core, opening capacity will be 600.

Total area is:

Demolition	3,645 m <sup>2</sup>	
Preservation	3,443 m <sup>2</sup>	3,443 m <sup>2</sup>
Gym Expansion		776 m <sup>2</sup>
Other Expansion		740 m <sup>2</sup>
Modular		<u>1,205 m<sup>2</sup></u>
Total Area		6,164 m <sup>2</sup>

This design demolishes the outdated portable classrooms and replaces them with modern modular classrooms. The core of the building will be modernized but will retain most of the structural components and the exterior finishes of the building. The gym will be expanded and relocated to the north west corner of the building. The existing gym will be converted to an at grade ancillary space to facilitate universal access.

### Advantages

- Modernize to a 1 storey facility
- Meets requirements for students by square metre allocation
- Complies with ministry standards
- Reuse viable asset – concrete block construction, more durable finish, less maintenance
- New start for communities
- Consider Leed compliance
- A new larger Gym will be incorporated as part of the permanent addition within current envelop. This will be at the same elevation as the other parts of the school
- Can expand eastward with modules
- Optimal footprint on site, no additional cost for access roads
- Cost avoidance by joining 2 schools (O&M)
- Design flexibility within standards – stakeholder preferred
- Distance to Olympic Centre remains the same
- Construction activities could be a valuable learning experience (Sutter)
- Retain good 360 degree access for fire fighting

*FINAL REPORT*

**Disadvantages**

- Utilizes part of north east playground – must be reinstated
- More disruptive to students during construction
- Possible effect on baseball diamond operation
- Need for municipal sprinklers

**Cost: Capital Cost estimate \$ 19.0 Million; nPV (25 years) \$30.6 Million**

## Summary

The project team was requested to evaluate potential options for the modernization of the Fultonvale Elementary Junior High School, Strathcona Park Alberta using – Value Scoping /Management methodology (SAVE International). The goal was to develop a preferred solution that would be acceptable to the students, parents, Elk Island Public School Regional Division #14. The proposed solution also needed to consider the provincial standards as determined by Alberta Education and Alberta Infrastructure.

The mission for this project was developed by the project team which included members from Regional Division #14, representatives from Alberta Education, and Alberta Infrastructure.

The schedule for this study allowed for a site visit of the present school facilities and a 3 day workshop conducted from; January 9-11, 2012.

The Value Analysis function analysis identified over 124 distinct functions that have to be considered to enhance the opportunity to come to a mutually agreeable solution. The list of functions and functional tree diagram can be used throughout the project to monitor conformance to the identified needs. This also indicates how the costs are distributed by function rather than by material item.

Eleven key function areas were identified from which an evaluation criterion was determined to evaluate possible solutions.

Two potential options were suggested namely;

1. New Build on the Fultonvale site
2. Major Modernization, including permanent and modular additions of the existing Fultonvale School

The project team evaluated both shortlisted scenarios with evaluation criteria derived by the project team. The evaluation score for the major modernization of the Fultonvale School was slightly higher than the new build scenario based on its overall greater satisfaction of the needs, school layout and the lower capital and nPV cost. The major concern of the major modernization option is the potential disruption to the students and teachers during construction. This issue could not be addressed at the workshop, in the

*FINAL REPORT*

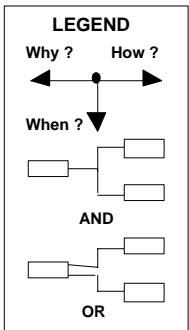
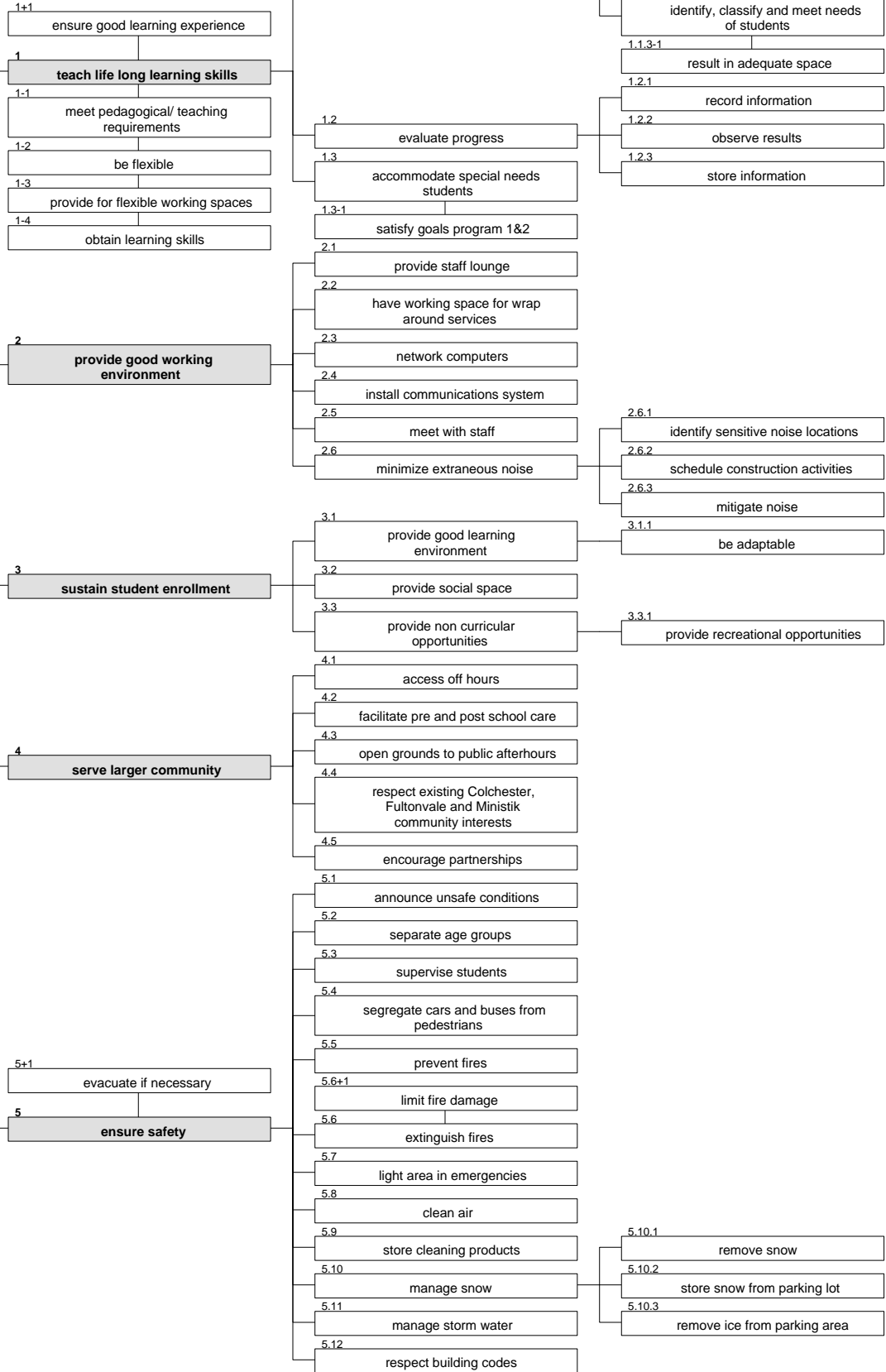
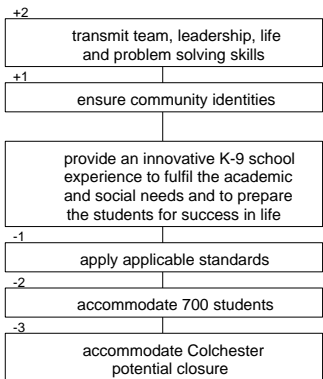
form of a mitigation plan, with the level of detail available to the project team, but should be carried forward in the design criteria.

This process also allowed the stakeholders to undertake a concentrated analysis. The benefits of this approach allowed for some very open and frank discussions to assist in the determination of a long term solution for the Fultonvale and Colchester communities.

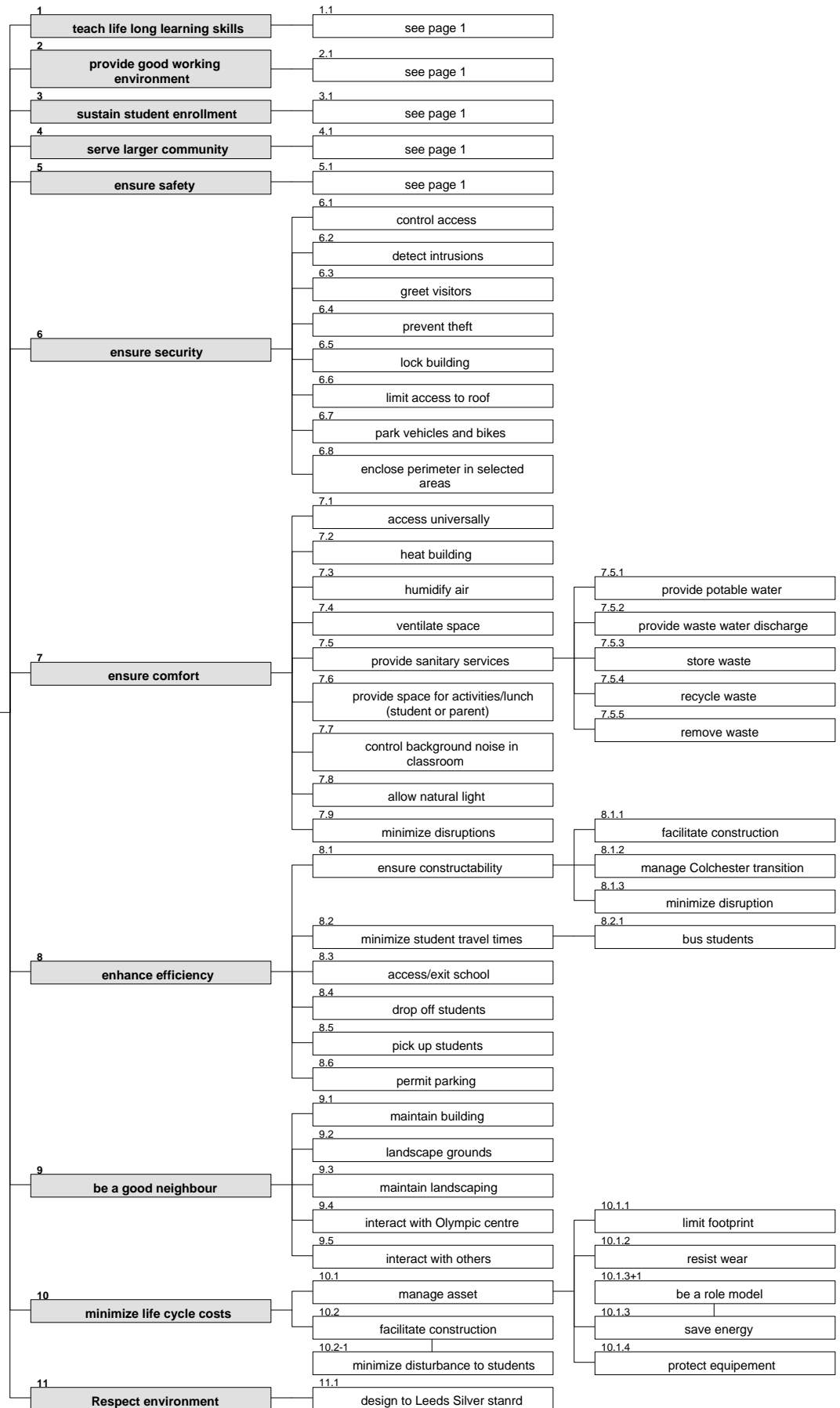
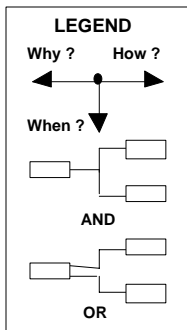
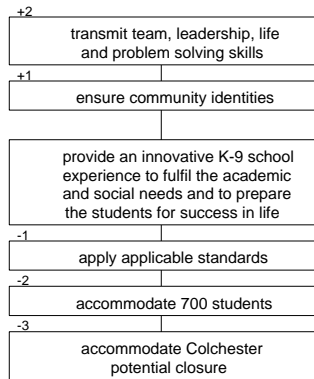
## **Appendix A - Detailed Function Analysis Diagram**

Conceptual Fultonvale  
 Elementary/ Junior School  
 Function Diagram  
 January 11, 2012

Page 1







## Appendix B – List of Creative Ideas

Idea #	Description	Y/N	
1	replace Fultonvale with new school on site with Fultonvale & Colchester	Y	Base Case
2	Major modification to Fultonvale to accommodate Colchester	Y	
3	New school for Colchester- new site	N	too many barriers,
4	Modernization to Fultonvale	N	
5	Modernization to Ministik	NA	
6	Incorporate Centre into overall plan- addition to centre	N	County of Strathcona,
7	Combine schools to increase feasibility of programs	see 1,2	
8	Build a new elementary school for Fultonvale and Colchester + use existing Fultonvale as jr high (133)	N	
9	Minister option to consolidate all school population + sell existing Colchester + Ministik		potential future considerations for planning purposes
10	new elementary + jr high to Sherwood Park or Fort Sask.	N	
11	do nothing	N	
12	move Colchester temporarily to Fultonvale for Sept 2013	see 1,2	temporary conditions
13	use Colchester as temp space for Fultonvale modernization		schedule won't permit
14	continue to use PODS, modify modernization to lbe now school design		
15	ensure flexible space part of design	see 1,2	
16	Rotate gym in modernization	N	
17	Replacement school 2 stories - to limit footprint	not required	
18	Scale phase 1 to existing enrollment	see 1,2	
19	explore swing/decant space at Olympic centre	see 1,2	
20	explore space at Ministik- 12 minutes, and or Colchester		transition strategy
21	explore community centres		transition strategy
22	partial decant, leave jr high at Fultonvale		transition strategy
23	partial relocation of students at Fultonvale on site during construction		transition strategy
24	bring new portables on site at Fultonvale		transition strategy
25	new Colchester, do nothing at Fultonvale or Ministik	N,see #3	
26	Develop K-3 new, use existing core of Fultonvale for Gr 4-9	N	

## **Appendix C Block Diagrams**

# STANDARD CORE SCHOOL (700 CAPACITY) OPTION ONE OPENING AT 600 CAPACITY

VALUE SCOPING SESSION - EIPS REGIONAL DIVISION NO. 14

SCALE : not to scale  
 FEBRUARY 10, 2012  
 PROJECT FILE: 12 002

**LEGEND**

CIRCULATION	LIBRARY	CLASSROOMS	ADMINISTRATION	ANCILLARY	WASHROOMS	GYMNASIUM	MECHANICAL/CUSTODIAL	STORAGE	SCIENCE	INFO SERVICES	CTS	BREAKOUT
-------------	---------	------------	----------------	-----------	-----------	-----------	----------------------	---------	---------	---------------	-----	----------



600 STUDENT K-9, 1A

MAIN FLOOR	4914 M2
SECOND FLOOR	195 M2
TOTAL	5109 M2
COMPARTMENT A	1360 M2
COMPARTMENT B	2308 M2
COMPARTMENT C	1248 M2
TOTAL	4914 M2

# FULTONVALE SCHOOL OPTION TWO - EXTENT OF DEMOLITION

VALUE SCOPING SESSION - EIPS REGIONAL DIVISION NO. 14

SCALE : not to scale

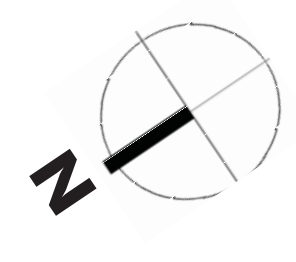
FEBRUARY 10, 2012

PROJECT FILE: 12 002



**LEGEND**

CIRCULATION	LIBRARY	CLASSROOMS	ADMINISTRATION	ANCILLARY	WASHROOMS	GYMNASIUM	MECHANICAL/CUSTODIAL	STORAGE	SCIENCE	INFO SERVICES	CTS	BREAKOUT	KITCHEN
-------------	---------	------------	----------------	-----------	-----------	-----------	----------------------	---------	---------	---------------	-----	----------	---------



## ***Appendix D – Cost Benefit Analysis***

Under separate cover