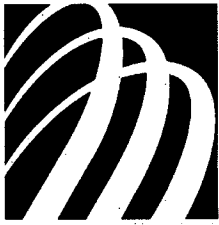




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# **STRATEGIC FACILITIES PLAN FOR THE NEW WESTMINSTER SCHOOL DISTRICT**

September 2007



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September 2007

Report	Strategic Facilities Plan for the New Westminster School District
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Client	School District 40 (New Westminster)
Project Number	0667
Date	2007 09 25



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# SUMMARY

## Key Challenges

A successful facilities plan for the New Westminster School District (NWSD) must:

- ▶ Reduce the degree of uncertainty regarding future enrolment.
- ▶ Provide a plan for a third middle school to complete the district's transition to a consistent middle school grade configuration.
- ▶ Provide a cost effective plan for the replacement of the aging New Westminster Secondary School (NWSS).
- ▶ Indicate how elementary students will be accommodated.
- ▶ Maximize the potential for each of NWSD's existing school sites given that no new schools sites are likely to be provided.

## Comparison of Scenarios

The development of a strategic facilities plan focused on a critical comparison of two grade configurations:

- ▶ Scenario A, completion of the junior middle model (K-5, 6-8, 9-12) that NWSD began several years ago.
- ▶ Scenario B, shift to a senior middle grade configuration (K-6, 7-9, 10-12).

The main reason for exploring the senior middle grade configuration was the initial promise of reducing the NWSS site development challenges, since the secondary school associated with Scenario B would be smaller than the secondary coupled with Scenario A. Of course, we had to consider all the cost implications of each grade configuration, including the impact of each scenario on all NWSD schools.

## Future Enrolment and Capacity Utilization

After examining the prospects for future housing in New Westminster, we concluded that the overall enrolment in NWSD schools would grow over the next fifteen years. More specifically, secondary and middle school enrolments are expected to increase for the next few years before declining, rebounding and reaching a plateau. Our forecast for enrolment in the elementary grades is for continuous modest increases over each of the next fifteen years.

For the most part, NWSD schools are over capacity, and, with the anticipated growth in enrolment, this lack of space will increase. In fact, we calculated that the number of new spaces required would increase from the current shortage of about 400 spaces to a need for more than 1,200 spaces in fifteen years. Of course, the provision of a new middle school would reduce the total need for additional space considerably. However, it is clear that a major



challenge for the future will be to add space to the inventory of existing school facilities.

### Guiding Principles

We formulated each scenario in response to the following guiding principles:

- ▶ Elementary schools must serve neighbourhoods.
- ▶ School facilities must be fully utilized.
- ▶ Programs of choice (French Immersion and Montessori) should be located to optimize utilization of school facilities.
- ▶ Programs of choice should be provided in each of NWSD's three zones.
- ▶ Dual track (a single program of choice co-located with a regular program) is preferred over single or triple track arrangements.
- ▶ Locate other, non-school, functions in surplus space only.
- ▶ Strive for a consistent middle school model throughout the district.
- ▶ Strive for optimal school sizes.
- ▶ Involve public and private partners in the development and operation of schools.
- ▶ Provide opportunities to accommodate future growth.
- ▶ Reduce overall cost to implement NWSS replacement and new middle school.

### Key Features of the Scenarios

Figure 1 summarizes how various schools would change capacity in each of the scenarios.

**Figure 1: Key Features of Scenarios A and B**

School	Scenario A: Junior Middle	Scenario B: Senior Middle
NWSS	2,000 spaces (Grades 9-12)	1,500 spaces (Grades 10-12)
New Middle	500 spaces (Grades 6-8)	575 spaces (Grades 7-9)
John Robson	300 spaces (K-5)	375 spaces (K-6)
Howay	Add 100 spaces (K-5)	Add 225 spaces (K-6)
Richard McBride		Add 100 spaces (K-6)
Queen Elizabeth	Add 125 spaces (K-4)	Add 200 spaces (K-5)

Once we established sizes for the NWSS replacement and the new middle school, our main pre-occupation was on balancing enrolment and utilization among the nine elementary schools. We accomplished this optimization through a series of moves, including the proposed re-location of some of the programs of choice.



The preliminary cost estimate to implement either of the scenarios was in the order of \$84 million.

### Evaluating the Scenarios

We evaluated the two scenarios using criteria organized into three broad groups — economic, educational/operational and strategic. Most of the 17 evaluation criteria were re-statements of the guiding principles.

Scenarios A and B both meet most of the objectives and follow the guiding principles:

- ▶ Both replace NWSS and provide a new middle school.
- ▶ Both create the necessary elementary space.
- ▶ Both make good use of the existing sites and facilities.

Considering the economic criteria, implementation of Scenarios A and B are close, with Scenario B rated slightly higher:

- ▶ The capital costs for Scenarios A and B are essentially equivalent.
- ▶ Scenario B is likely to cost less to operate and will have slightly less environmental impact.

Considering educational and operational criteria, Scenarios A and B are very close with each having strengths:

- ▶ Scenario A provides more program options for students in Grades 6 and 9.
- ▶ Scenario A embodies the slightly preferred grade configuration (Grades 6-8) for middle school.
- ▶ Scenario B keeps Grade 6 and 9 students in schools closer to home.
- ▶ Scenario B creates a preferred smaller size for the secondary school and preferred larger sizes for three elementary schools.

Considering the strategic criteria, Scenarios A and B are very close with each having strengths:

- ▶ Scenario A's major advantage is that it involves fewer changes to the existing situation.
- ▶ Scenario B diminishes the challenges associated with building on the NWSS site that, in turn, allows more expansion potential.

The choice between these two scenarios is very close, especially since the cost of the two scenarios is essentially the same. Therefore, the Board's decision should be guided by educational, operational and strategic considerations.



# 1. INTRODUCTION

## 1.1 PROJECT OBJECTIVES AND PROCESS

The purpose of the project was to prepare a strategic facilities plan for NWSD. The last strategic facilities plan for the district was conducted in 2001.

The overall objectives of the facilities plan were to optimize the utilization and enhance the effectiveness of school facilities. The focus of the project was to compare the benefits and costs of a junior middle grade configuration (K-5, 6-8, 9-12) with a senior middle grade configuration (K-6, 7-9, 10-12). We labeled these two approaches as Scenario A (junior middle) and Scenario B (senior middle).

Initially, our work on this project focused on interaction with a small group of senior administrators. We also reviewed policy and preliminary findings with the Board. We then reviewed our preliminary conclusions in a series of public consultation sessions. Key ideas from these consultations are included in this report, particularly in the section evaluating the scenarios.

This report was not finished until after the Board made a decision to adopt Scenario A. We have written the report largely as if this decision had not yet been made. However, we have included a few comments in the evaluation section on some considerations regarding how to make the most of Scenario A and mitigate some of the shortcomings about Scenario A that were revealed over the course of the project.

## 1.2 CRITICAL CHALLENGES

NWSD is a compact urban school district with one large secondary school (New Westminster Secondary School — NWSS), two middle schools and nine elementary schools. Any facilities plan must respond to two key challenges:

- ▶ Several years ago NWSD adopted a junior middle grade configuration and built two of three planned middle schools. The provision of a third middle school is a necessary component to complete the transition to the middle school model.
- ▶ NWSS is in poor condition and must be replaced. A previous plan to replace the secondary school was stalled due to significant cost overruns. A cost effective plan for a replacement secondary school is the second critical component in any facilities plan.

We expect the enrolment in NWSD schools to increase. However, the extent of the enrolment increase is unclear due to many variables, including uncertainty regarding the speed and scale of residential development as well as the number of school-aged children that will live in the new housing. Reducing the degree of uncertainty regarding future enrolment was a key challenge for the project.





Beyond the provision of a third middle school and the replacement of NWSS, the facilities plan must indicate how the elementary students will be accommodated. This was a particularly challenging aspect of the project with the senior middle grade configuration, since in this scenario Grade 6 students would be retained at the elementary schools.

### 1.3 LACK OF AVAILABLE SCHOOL SITES

NWSD has expended considerable effort over the last several years to find a site that would be suitable for a new middle school. NWSD officials resolved that no suitable site is available. Furthermore, even if a site could have been found, there has been no indication that the Province would provide the necessary funding to purchase a site. Finally, the NWSD Board was not willing to expropriate private property where this would have been required to assemble a suitable school site.

The result is that the Westside middle school must be co-located with a replacement secondary school on the existing NWSS site. More generally, we concluded that it is imperative to maximize the potential of each of NWSD's existing school sites.

The following summarizes some of the sites that were explored and rejected as potential locations for the Westside middle school:

- ▶ Grimston Park is a City-owned triangular property bounded by Twentieth Street, Seventh Avenue and the Skytrain line. The plan was to have a combination park and school. The option was rejected due to development limitations and additional costs associated with the sloped land as well as the cost of acquiring additional adjacent properties.
- ▶ Riverside Park is a small City-owned property bounded by Fifth Avenue, Sharpe Street, Sixth Avenue and Fourteenth Street. The City would provide the park and road space, but NWSD would still have to purchase considerable additional property. The option was rejected primarily due to the cost of property acquisition.
- ▶ Moody Park is a major City-owned property bounded by Tenth Street, Eighth Avenue, Eighth Street and Sixth Avenue. The plan was to build a middle school on part of the park and share some of the playing fields. The plan was rejected by the City due to the high value of the park for public use.
- ▶ Lord Tweedsmuir Elementary site was considered as a location for either the new middle school alone or for both a replacement elementary school and a new middle school. The option of replacing the existing school with a new middle school was rejected because it would have required either another site for a new elementary school or significant expansion to the other Westside elementary schools. The option of adding a middle school to the Tweedsmuir site was rejected because it



would have required the acquisition of several adjacent properties at a very high cost.

## 1.4 DEVELOPMENT OF THE NWSS SITE

One of the findings in the review of the previous plan to replace NWSS and build a new Westside middle school on the NWSS site was that the many constraints associated with the development contributed to the cost overrun. Many of the challenges associated with the previous plan remain:

- ▶ Construct a large secondary school and a new middle school on the NWSS site.
- ▶ Keep the existing secondary school operational during the construction (NWSD still very much wants to avoid the cost and disruption associated with moving NWSS operations to alternative temporary facilities).
- ▶ Maintain the Massey Theatre facility (and implement the necessary seismic upgrading to the structure of the theatre block).
- ▶ Do not build on the property occupied by the privately owned Royal City Christian Centre.
- ▶ Do not build on the property occupied by the City's Mercer Stadium or Moody Park Arena (NWSD intends to explore the possibility of modifying this constraint).

Figure 2 shows the existing NWSS site.

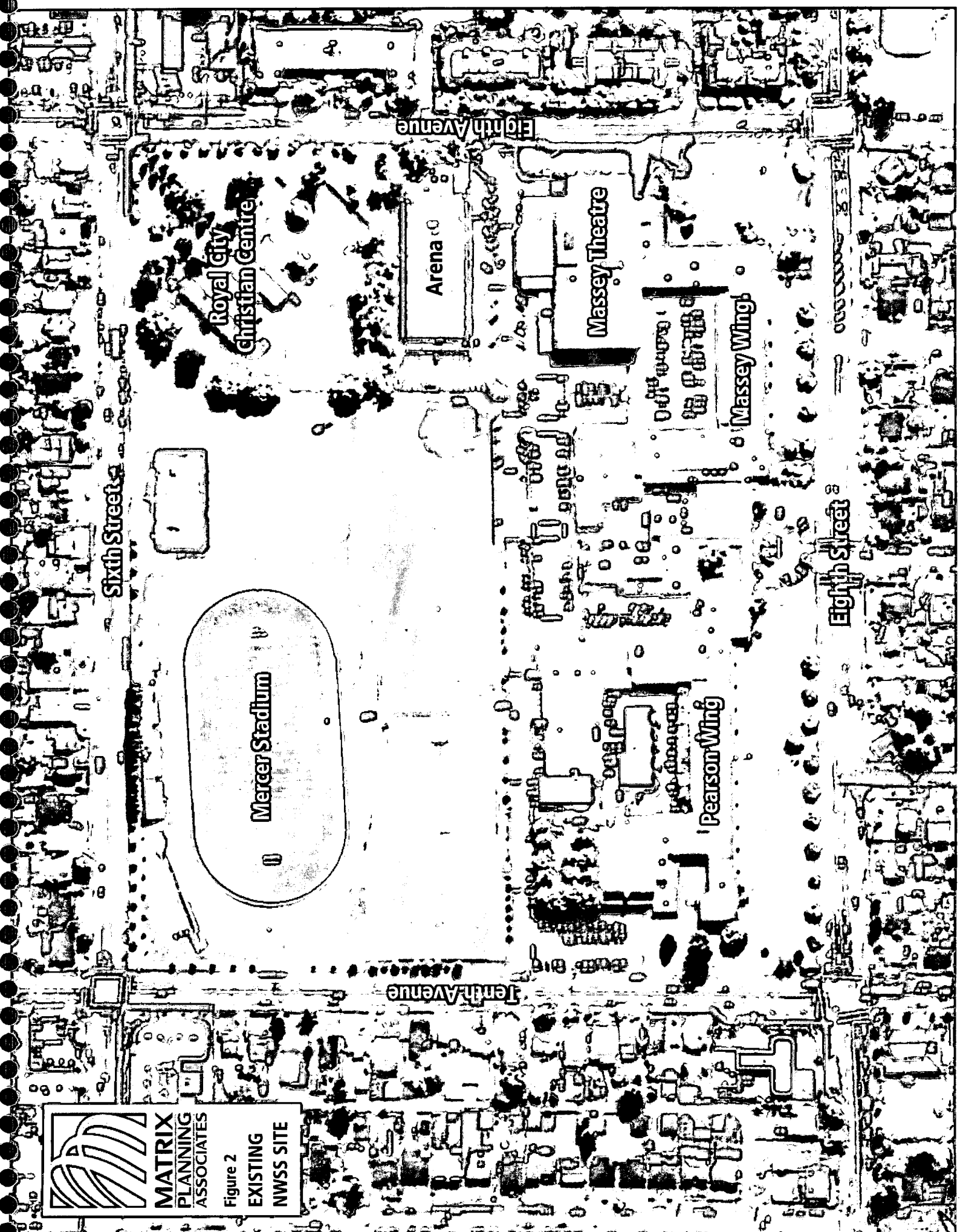
While addressing the specific issues associated with the development of the NWSS site was not part of our study, we recognized that the overall facilities plan for NWSD could mitigate or exacerbate the challenges of site development. One of the considerations in formulating alternative long-range plans was to reduce the space demands on the NWSS wherever practical. More generally, our goal was to have a comprehensive facilities plan support the most cost-effective plan for the development of the NWSS site.

The main reason for exploring the senior middle grade configuration was the promise of reducing the NWSS site development challenges since the secondary school associated with the senior middle scenario would be smaller than the secondary coupled with the junior middle grade configuration. Of course, we had to consider all the cost implications of each grade configuration, not just the impact on the development of the NWSS site. The senior middle scenario would require more capacity at the elementary level.



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Figure 2  
**EXISTING  
NWSS SITE**





## 2. EXISTING SITUATION

### 2.1 THREE ZONES

NWSD has the same boundaries as the City of New Westminster.

As illustrated in Figure 3, NWSD is divided into three zones: Westside, Eastside and Queensborough. While the boundary between the Westside and Eastside is somewhat permeable, the single bridge link tends to isolate Queensborough.

Figure 4 illustrates the distribution of students and demonstrates our observation that the catchment boundaries for NWSD elementary schools are well defined with major streets and other natural boundaries. There are limited opportunities to re-define catchment boundaries to balance enrolment between elementary schools. Figure 4 also illustrates the fairly even distribution of students across the district.

### 2.2 EXISTING SCHOOL FACILITIES

Appendix A is a summary of site and facility information about existing NWSD school facilities. The information is organized into property and facility groups.

The property information summarized in Appendix A shows:

- ▶ The site area of each school in hectares is compared with the allowed site area for a new school of the same capacity according to the Ministry of Education (MoE) space allocation guidelines.
- ▶ 'Actual/Allowable' is the ratio of the actual site area to the allowable site area — most of the sites are smaller than the allowed area.
- ▶ 'Expandability on Site' is an assessment by NWSD facilities personnel of how readily the school could be physically expanded.
- ▶ 'Daycare on site' indicates those schools with a facility for before and after school care on site — Note 9 defines the terms used to describe the facilities used.

The facility information summarized in Appendix B indicates:

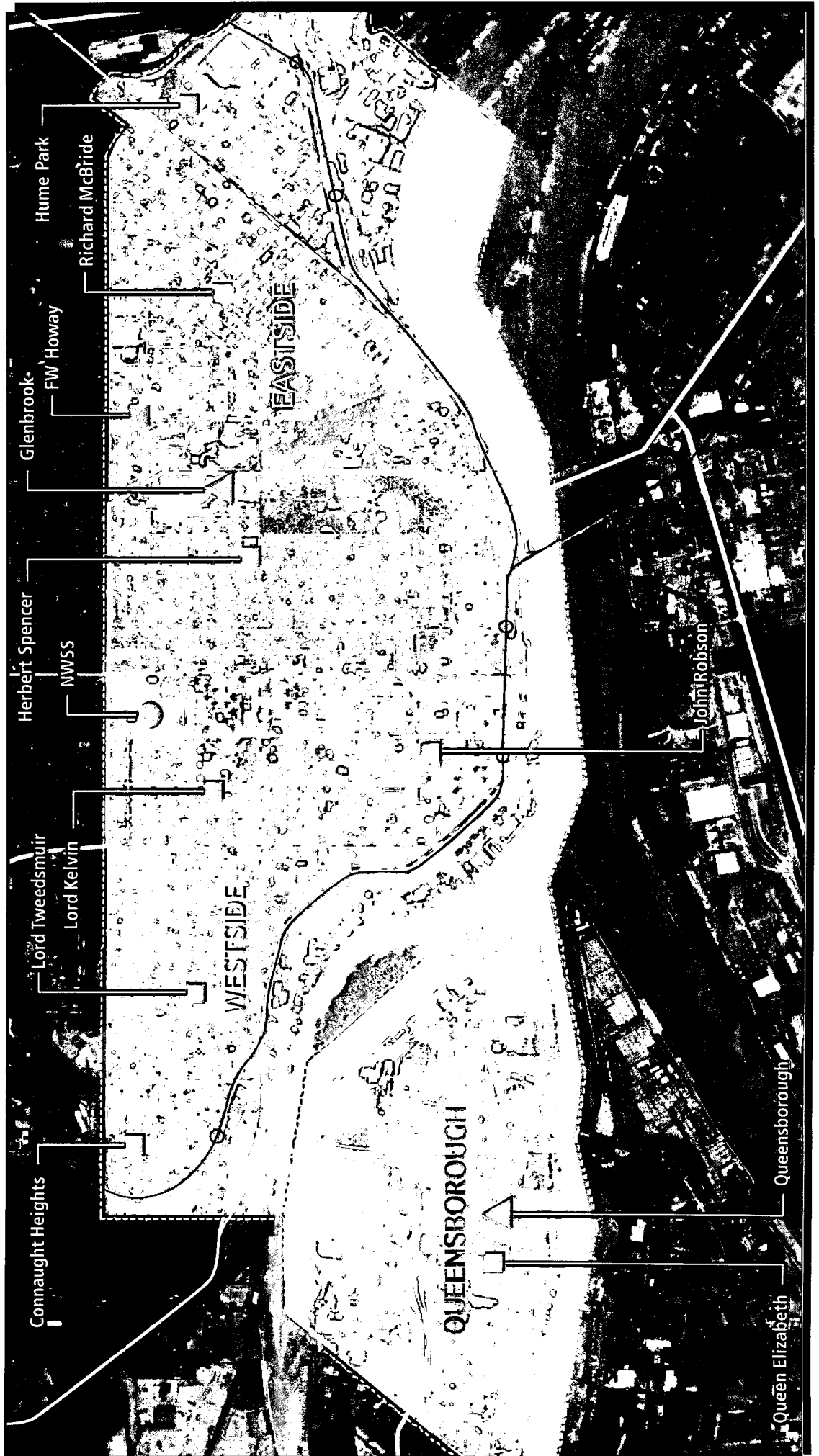
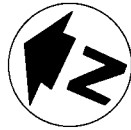
- ▶ The nominal capacities of the schools for Grades 1 to 12 — the definitions of nominal and operating capacities are described later.
- ▶ The gross building area in square metres is compared with the allowable area for a new a new school of the same size according to MoE space allocation guidelines.
- ▶ The ratio of the actual site area to the allowable site area — many of the schools are larger than the allowed area with some schools being substantially larger (those that are more than 20% bigger are shown in red).



**New  
Westminster  
Zones**

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Figure 3

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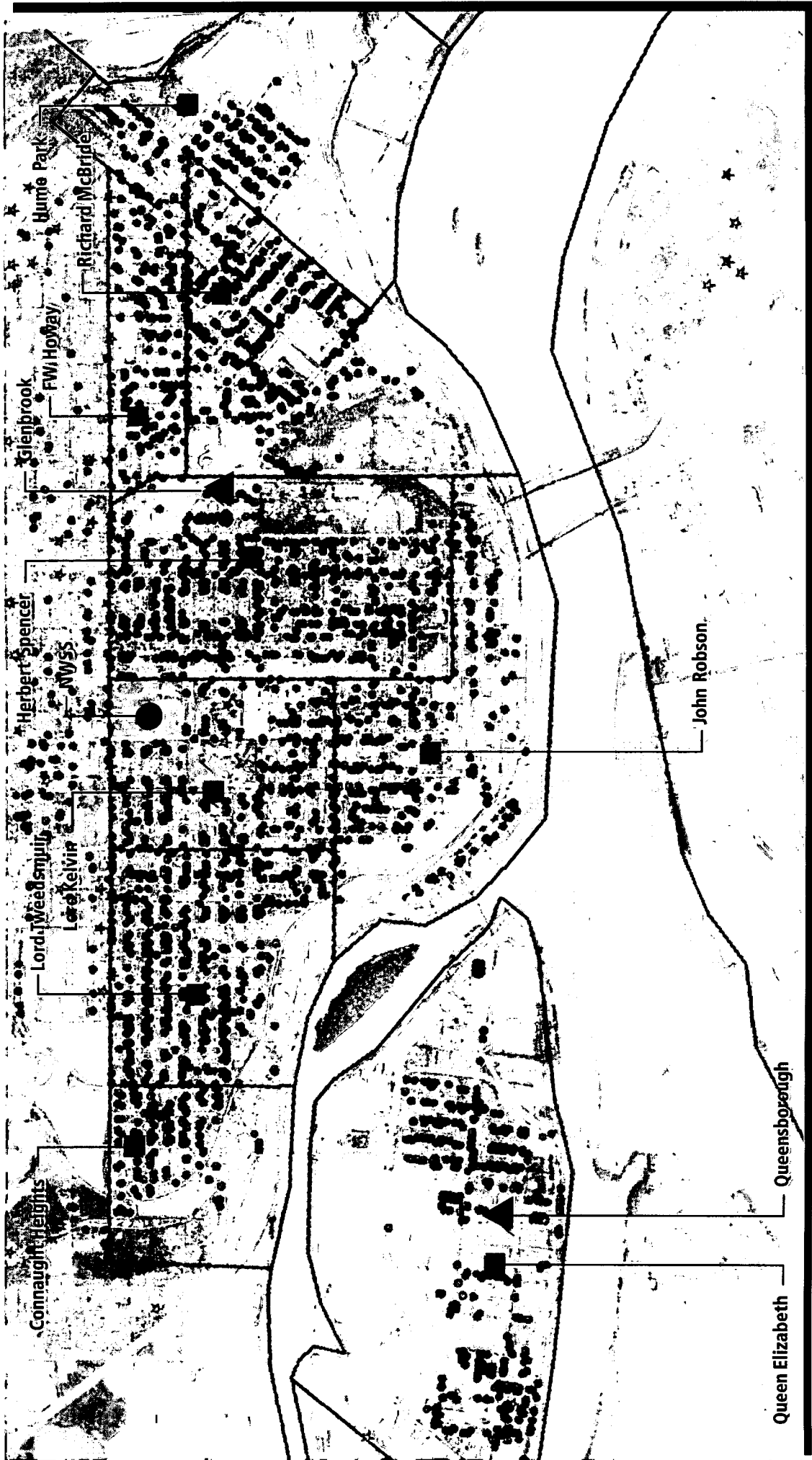
New  
Westminster  
Students

Project 0667

2007 08 31

Figure 4

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Connaught Heights  
Lord Tweedsmuir  
Lara Kelvie  
Herbert Spencer  
Glenbrook  
FW Howay  
Richard McBride  
Hume Park  
John Robson  
Queensborough  
Queen Elizabeth



- ▶ The number of portable classrooms on each school site as of April 2007 is listed — the number of portables is generally an indicator that the school is overutilized or otherwise deficient.
- ▶ The year the main part of the school was built — notes qualify this date for several schools that were constructed in phases.
- ▶ The three columns that summarize the seismic condition of NWSD schools are from a recent study that assessed schools constructed before 1984.
- ▶ The seismic risk of the schools was rated on a five-point scale as Low, Low-Moderate, Moderate, Moderate-High or High.
- ▶ The 'seismic priority' is the ranking assigned to each school in NWSD's 2007/08 Capital Budget submission.
- ▶ The cost to upgrade the seismic deficiencies of each school is presented — these costs have not been updated since the 2004 report.
- ▶ 'Renovations in Capital Plan' is the amount shown in the latest capital plan submission for planned renovations to the school.
- ▶ 'Overall Facility Audit Score' is based on a multi-faceted assessment that was conducted by all school district officials in 2000 and updated as part of this project — scores of less than 50% are in red.
- ▶ 'Overall Condition' is our conclusion about each facility — this assessment is described further in this section.

## 2.3 NEED FOR FUTURE INVESTMENT IN FACILITIES

As outlined in Appendix A, NWSD's school facilities can be placed into four groups. Each of these groups has implications in terms of the need for future investment.

The first group (labeled 'best' in Appendix A) comprises three schools that are new or nearly new, have audit scores over 90% and are seismically sound:

- ▶ Glenbrook Middle
- ▶ Queensborough Middle.
- ▶ Herbert Spencer Elementary.

These three schools are in very good condition and will not require any significant capital investment over the next several years unless an expansion is required or the role of the school is changed.

The second group (labeled 'good' in Appendix A) comprises four schools with audit scores of 70-89% and some seismic deficiencies:

- ▶ Queen Elizabeth Elementary.
- ▶ Howay Elementary.
- ▶ Connaught Heights Elementary.



- ▶ Hume Park Elementary (NWSD has received funding to complete a seismic upgrading at Hume Park in the 2007/08 Capital Budget).

These four facilities have considerable useful life but will require modernization. NWSD can expect to invest in upgrades to these schools over the next several years.

The long-range plan for NWSD should consider the facilities in Groups 1 and 2 as major assets, and formulate a strategy that includes a clear role for each of these schools.

The third group (labeled 'marginal' in Appendix A) comprises three schools with audit scores of 60-69% and significant seismic deficiencies:

- ▶ Lord Tweedsmuir Elementary.
- ▶ Lord Kelvin Elementary.
- ▶ Richard McBride Elementary.

Detailed technical studies of these schools may determine that replacement is more cost-effective than renovation. At the very least, these schools will require major investment in upgrading over the next several years.

The fourth and final group (labeled 'marginal' in Appendix A) comprises five schools with audits scores under 40% and significant seismic deficiencies:

- ▶ John Robson Elementary.
- ▶ NWSS.

As mentioned, earlier detailed studies of NWSS determined that replacement was more cost-effective than renovation. Although the feasibility study for John Robson has yet to be completed, it is possible (perhaps even likely) that it will conclude that replacement is a more cost-effective option than the major renovations that would be required to address the considerable deficiencies.

The long-range plan for NWSD should take into account that major investments will need to be made for the schools in Groups 3 and 4, if these schools continue as part of the preferred delivery model for the district.

## 2.4 EXPANSION CAPACITY

### NWSS

As highlighted earlier, NWSD is 'land poor'. Not only are there no available new sites for schools, several of the existing sites are severely constrained. With our goal of making the best use of existing sites, it is important to identify which of the existing sites have potential for accommodating expansion. The following is our assessment of the expansion potential of NWSD's school properties, beginning with the most constrained sites.

Although the constraints associated with building a replacement school on the NWSS site are considerable, our belief is that the large site (it is by far





NWSD's biggest school site) must be developed to its fullest potential. The current plan to build the middle school on the NWSS site, while not ideal from some points of view, substantially increases the utilization of the site.

#### **Hume Park Elementary**

The Hume Park Elementary site is very small and is only adequate with the use of adjacent park space. This site has no expansion potential beyond the addition of a portable (which is already on site). This is a very small school that is operating as an annex to Richard McBride. Unless significant land can be acquired (to allow a substantially larger school), there is no point in considering expansion for this school, as modest expansion would still create a school that is too small.

#### **Herbert Spencer Elementary**

The Herbert Spencer Elementary site is a very constrained site that is already intensively developed with underground parking (very unusual for a school). While nothing is impossible, any expansion of this school would be very expensive and may involve functional compromises. The acquisition of property would be very difficult and certainly expensive. It is most practical to consider this optimally sized school as having a fixed capacity.

#### **Glenbrook Middle**

The circumstance with the Glenbrook Middle site is similar to Herbert Spencer with an intensely developed site in an established neighbourhood. Some very limited expansion may be possible, but would be relatively expensive. NWSD is able to offer sufficient outdoor space for Glenbrook students through the shared use of the City-owned Terry Hughes Park. There is no practical way to enlarge the Glenbrook site.

#### **Lord Kelvin Elementary**

The 'pod' design of Lord Kelvin Elementary could be expanded through 'in-fill'. Alternately, the site could be expanded if the City would agree to donate the road bordering Moody Park (this option has been explored with the City in the past). Given the building's condition, it is probably better to consider any potential expansion as part of a replacement project. Given that at 400 spaces, Lord Kelvin is at the upper end of the optimal capacity for an elementary school, it would be best if this school were not expanded.

#### **John Robson Elementary**

Like Lord Kelvin, the John Robson Elementary site is smaller than MoE would allow. However, the site is adequate with a school of Robson's size. Since the feasibility study for this school is likely to conclude that replacement is the most cost-effective option, there is an opportunity to replace the existing school with a somewhat larger school if required.



#### **Connaught Heights Elementary**

Although the site is small, there is room for modest expansion to Connaught Heights Elementary, if required. There are already two portables on the site. Like Lord Kelvin, Connaught Heights could be expanded through 'in-fill' of the spaces between the 'pods'.

#### **Queensborough Middle**

The Queensborough Middle site is adequate and could accommodate modest expansion, if required.

#### **Queen Elizabeth Elementary**

The Queen Elizabeth Elementary site could accommodate significant expansion. There are already three portables on the site.

#### **Richard McBride Elementary**

The Richard McBride Elementary site could accommodate significant expansion. Any plans for permanent expansion may be best postponed to the time when this facility is replaced.

#### **Lord Tweedsmuir Elementary**

The Lord Tweedsmuir Elementary could accommodate significant expansion. There are already nine portables on the site. Although a definitive conclusion would require a technical study, our initial thinking is that plans for permanent expansion may be best postponed to the time when this facility is replaced.

#### **Howay Elementary**

The Howay Elementary site could accommodate significant expansion. In fact, it would be good to expand this school to bring the capacity closer to an optimal size as well as make the best use of the property.

## **2.5 EXISTING ENROLMENT AND CAPACITY UTILIZATION**

Figure 5 organizes the schools into the three zones as shown in Figure 2. In addition, the table presents a summary of the existing capacities, enrolment and capacity utilization for NWSD schools.

Figure 5 also indicates the location of the programs of choice:

- ▶ Late French Immersion (LFI) is at NWSS, Queensborough (Grade 8 only) and Glenbrook.
- ▶ Early French Immersion (EFI) is at Lord Tweedsmuir and Herbert Spencer (and planned for Robson starting with kindergarten and Grade 1 in the 2007/08 school year).
- ▶ Sigma is the secondary alternate program located on site at NWSS.
- ▶ Montessori is at Lord Tweedsmuir and Richard McBride.



The 'nominal capacity' of a school is based on 25 students per classroom for Grades 1-12 and 40 half-time pupils per kindergarten room. The 'operating capacity' of a school is determined by adjusting the nominal capacity to reflect grade structure and mandated classroom student capacity. Currently, operating capacity is based on:

- ▶ 25 per classroom for Grades 4-12.
- ▶ 21 per classroom for Grades 1-3.
- ▶ 38 per kindergarten room.

Capacity for an elementary school is always specified with the kindergarten noted separately because kindergarten rooms are for the exclusive use of kindergarten students. For example, the nominal capacity of an elementary school would be noted as 40K/300.

The operating capacity of an elementary school will change if the grade span changes. For example, if an elementary school with a nominal capacity of 400 serving Grade 1-7 is converted to serve Grade 1-5, the operating capacity of the school will change from 373 to 362, because a greater portion of the capacity will be dedicated to Grades 1-3.

Figure 5: Existing Capacity Utilization based on 2006 Enrolment

School	Grade Span	District Programs	Capacity (Grades 1-12)		Enrolment (Grades 1-12)	Surplus or Shortage	Capacity Utilization
			Nominal	Operational			
NWSS	8-12	FI, Sigma	2,025	2,025	2,133	-108	105%
Queensborough	5-8	LFI	375	375	265	110	71%
Queen Elizabeth	K-4		250	220	225	-5	102%
Connaught Heights	K-7		100	93	130	-37	140%
Lord Tweedsmuir	K-7	EFI, MP	325	303	492	-189	162%
Lord Kelvin	K-7		400	373	394	-21	106%
John Robson	K-7		300	279	318	-39	114%
Glenbrook	6-8	EFI/LFI	625	625	630	-5	101%
Herbert Spencer	K-5	EFI	350	316	425	-109	134%
Howay	K-5		125	113	110	3	97%
Richard McBride	K-5	MP	300	271	281	-10	104%
Hume Park	K-5		50	45	55	-10	122%
<b>School District Total</b>			<b>5,225</b>	<b>5,038</b>	<b>5,458</b>	<b>-420</b>	<b>108%</b>
Secondary School			2,025	2,025	2,133	-108	105%
Middle Schools			1,000	1,000	895	105	90%
Elementary Schools			2,200	2,013	2,430	-417	121%
Queensborough Middle/Elementary			625	595	490	105	82%
Westside Middle/Elementary			1,125	1,048	1,334	-286	127%
Eastside Middle/Elementary			1,450	1,370	1,501	-131	110%

Figure 5 shows the September 2006 headcount enrolment excluding kindergarten as well as adults and fee payers. We have excluded



kindergarten enrolment from most of our enrolment forecasts in anticipation of using the enrolment data to estimate future capacity utilization of school facilities. The capacity utilization of a school is the percentage of funded headcount enrolment (excluding kindergarten) to the total operating capacity of the school (excluding kindergarten).

The second last column in Figure 5 calculates the surplus (positive number) or shortage (negative number) in space at each school. The number shown in blue if the surplus is greater than 25 (one class) and red if the shortage is greater than 25.

The final column in Figure 5 calculates the capacity utilization by dividing the enrolment by the operating capacity. If the capacity utilization is 110% or greater, the percentage is shown in blue. If the capacity utilization is 90% or less, the percentage is shown in red.

Figure 6 is an excerpt from the MoE capital budget instructions that specifies the minimum capacity utilization thresholds to be achieved before the school district is eligible for new space. NWSD is an urban district. Capacity utilization is calculated using operational capacities.

**Figure 6: Minimum Capacity Utilization Thresholds**

FTE Enrolment	Elementary (Grades 1-7)	Secondary (Grades 8-12)	District Average
> 7,500 (and all urban districts)	100%	110%	95%
5,000 to 7,499	95%	105%	90%
1,500 to 4,999	90%	100%	85%
< 1,500	80%	90%	75%

Achieving the MoE capacity utilization thresholds outlined in Figure 6 is not an issue for NWSD (as it is for many school districts with declining enrolments). In fact, as outlined in Section 1.2, NWSD must increase the capacity of its schools — this is supported in Figure 5 where the existing capacity utilization for the school district as a whole is well over 100%. Other observations from Figure 5 include:

- ▶ All schools except Queensborough Middle are fully utilized or overutilized.
- ▶ More than 400 new spaces are required — this could be met with the construction of the new Westside middle school.
- ▶ The elementary schools in the Westside are particularly overutilized — this situation will be alleviated when a new Westside middle school is implemented.



### 3. NEEDS ANALYSIS

#### 3.1 POPULATION FORECAST

Figure 7 presents the latest (PEOPLE 31) population forecast for NWSD from BC Statistics. The vertical axis on the left is the scale for total population and the axis on the right indicates the scale for the school-aged population (5-17 years)

Figure 7: NWSD Total Population Forecast

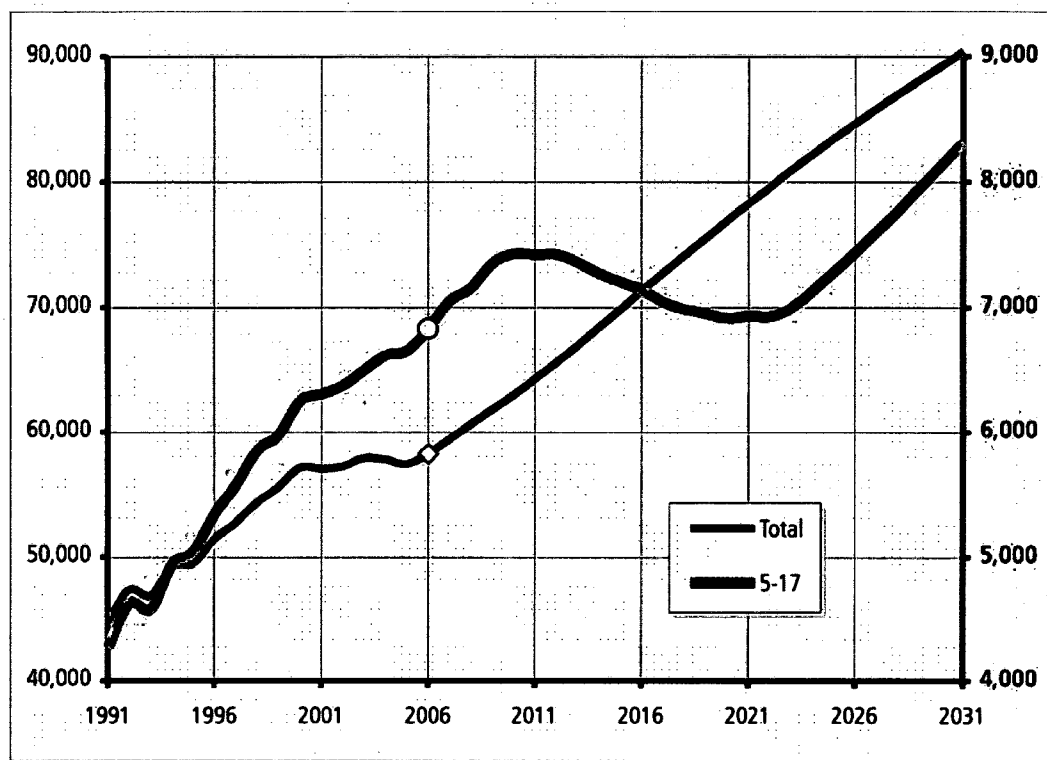


Figure 7 shows that New Westminster grew in the 1990's, leveled off in the past few years and is expected to continue to grow again over the next 25 years. BC Statistics estimates that New Westminster's population will increase by 55% from 2006 to 2031.

Figure 7 indicates that, according to BC Statistics, the school age population will continue to increase for the next few years, then decline for a decade before rebounding in about fifteen years. BC Statistics estimates that the school age population in New Westminster will grow by 22% from 2006 to 2031.

While the population forecasts generated by BC Statistics provide a useful context for considering the future, we believe that a more specific analysis of anticipated future residential development is a better way of estimating



future enrolment in the dynamic context of New Westminster's residential development.

The key message we take from BC Statistics' population forecast is that NWSD enrolments are likely to grow significantly in the long-term.

The picture the 25-year population forecast provides of the period from 2022 to 2031 is especially useful since our enrolment forecasts only extend 15 years to 2021.

### 3.2 APPROACH TO ENROLMENT FORECASTS

Our approach to enrolment forecasts for NWSD schools began with the excellent base provided by Baragar Demographics. Baragar uses a program called Demographic Dynamics to generate a 15-year enrolment forecast for each NWSD school. The underlying population data for the Demographic Dynamics forecasts come from a combination of birth registry and Family Allowance and Child Tax Benefit files. Net migration and birth rates are incorporated using historical averages. We developed our enrolment forecasts for each school using the Baragar projection that was based on actual enrolments from September 2006.

Baragar refers to their estimate as being 'without local knowledge' since it does not incorporate specific input (including nearby housing developments) related to individual schools. We supplied the 'local knowledge' by learning about plans for future residential development in discussions with planners from the City of New Westminster as well as review of relevant documents. We identified where children from each housing development would attend school and adjusted the enrolment forecast for the affected schools.

We also modified the yield rates (number of students per new housing unit) based on information specific to NWSD as well as other British Columbia school districts. Where information was available, we adjusted the yield rate to reflect the target market for specific housing developments.

### 3.3 FUTURE RESIDENTIAL DEVELOPMENT

Figure 8 summarizes our estimate of the number of future housing units based on information from City of New Westminster planners and other documented sources.

Figure 8: Summary of Estimated Future Housing Units

Period	SF/TH	Lowrise	Highrise	Total	Annual
2007-11	585	907	1,719	3,211	642
2012-16	404	931	1,396	2,731	546
2017-21	350	750	1,400	2,500	500
Total	1,339	2,588	4,515	8,442	563



We characterized the housing types in Figure 8 as follows:

- ▶ SF/TH — single family houses or townhouse units.
- ▶ Lowrise — units in lowrise apartments.
- ▶ Highrise — units in highrise apartments.

We grouped single family houses and townhouses together mostly because these two housing types were not differentiated in some of the source housing estimates. Except for Port Royal, there are very few single family houses planned for New Westminster.

Our estimate of housing starts for 2007-2011 was based entirely on lists of specific housing developments registered with the City. Our forecast for the 2012-2016 period was a combination of specific housing developments augmented with estimates of future developments. Our forecast of housing units for the 2017-2021 period was based entirely on estimates.

We acknowledge that estimating the number of housing units to be built over a fifteen-year period is a very difficult task. We tried to be realistic about the numbers bearing in mind two key considerations:

- ▶ A concern about how much the market can absorb over a planning horizon of fifteen years — in our view, the current very accelerated real estate market is unlikely to remain so active for the full period.
- ▶ The trend for many of the developments to be relatively expensive will reduce the numbers sold, especially to families with school aged children where affordability is the chief criterion in the selection of a house.

### 3.4 DISTRIBUTION OF RESIDENTIAL DEVELOPMENT

Figure 9 illustrates the distribution of schools in New Westminster. It also identifies the two main locations of major ground-oriented developments in the city — Port Royal and Victoria Hill. Much of the development outside of these two areas is in-fill or highrise apartments. There may be more development in the longer-term near the Skytrain stations close to Hume Park and Connaught Heights.

Students associated with in-fill type developments would be reflected in Baragar's migration rates. These are situations where the future is similar to the recent past with respect to the level of new housing units being built each year in each school catchment area.



New Westminster  
Schools and  
Development Areas

Project 0667  
2007 08 331  
Figure 9

**MATRIX**  
PLANNING  
ASSOCIATES

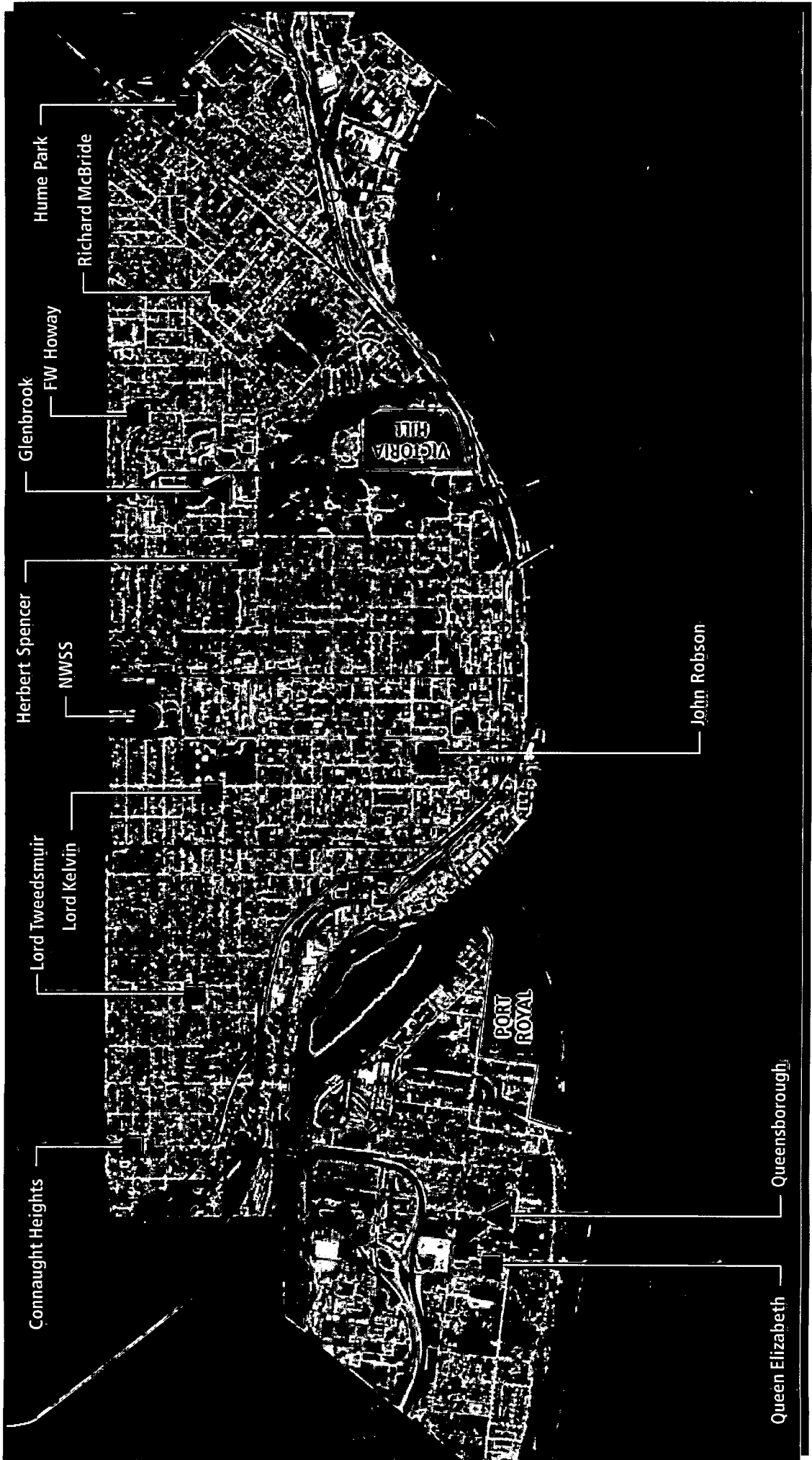






Figure 10 presents our detailed estimates of the future housing units organized into catchment areas.

Note that the housing units for the four elementary schools are not equal to the total number of housing units for NWSD. This is because we did not complete housing based enrolment forecasts for a few elementary schools where the estimates of future housing units were very small.

**Figure 10: Future Housing Units by School Catchment Area**

Level	Catchment	Period	SF/TH	Lowrise	Highrise	Total
Elementary	Queen Elizabeth	2007-11	409	90	0	499
		2012-16	300	159	164	623
		2017-21	300	200	100	600
		Total	1,009	449	264	1,722
	John Robson	2007-11	39	250	1,433	1,722
		2012-16	54	200	1,037	1,291
		2017-21	50	200	1,000	1,250
		Total	143	650	3,470	4,263
	Hume Park	2007-11	0	231	101	332
		2012-16	0	0	0	0
		2017-21	0	0	0	0
		Total	0	231	101	332
	Richard McBride	2007-11	137	336	185	658
		2012-16	50	72	195	317
		2017-21	50	100	100	250
		Total	237	508	480	1,225
Middle	Glenbrook	2007-11	137	567	286	990
		2012-16	50	72	195	317
		2017-21	50	100	100	250
		Total	237	739	581	1,557
	Queensborough	2007-11	409	90	0	499
		2012-16	300	159	164	623
		2017-21	300	200	100	600
		Total	1,009	449	264	1,722
Secondary	NWSS	2007-11	585	907	1,719	3,211
		2012-16	404	931	1,396	2,731
		2017-21	350	750	1,400	2,500
		Total	1,339	2,588	4,515	8,442

The number of housing units for NWSS is the same as for the whole district since it is the only secondary school. The total housing units for the two middle schools do not equal the total for NWSD since the Westside is not served by a middle school.



### 3.5 YIELD FACTORS

Yield factors are the number of NWSD students (K-12) that come from specific housing types. These yield factors do not include students at private schools. The following is the range of yield factors that we applied to the anticipated new housing to estimate the number of NWSD students that will be generated from the planned new developments:

- ▶ Highrise apartments, 0.07 students per unit.
- ▶ Lowrise apartments, 0.10 students per unit.
- ▶ Single detached houses and townhouses, 0.30 students per unit.
- ▶ Single detached houses and townhouses in Queensborough, 0.40 students per unit.
- ▶ Single detached houses and townhouses in the John Robson catchment area, 0.25 students per unit.

These rates have been derived from several sources, including the study of several specific existing housing areas in New Westminster using a Baragar tool called GeoSchool.

In addition to these NWSD tests, the yield rates we adopted were influenced by:

- ▶ Statistics Canada data on average current overall yield rates in NWSD and other school districts in the province.
- ▶ Specific tests of recent housing developments in several BC school districts.
- ▶ An acknowledgement of a general downward trend in yield rates, especially for new housing where the relatively high prices may be a factor in that many young families cannot afford much of the new housing on the market.
- ▶ Discussions with school district planners in Burnaby and Vancouver regarding their experience with students living in highrise apartments — that being very few students live in market highrises, but that the numbers of students rise significantly for social housing projects.

### 3.6 RESULTS OF ENROLMENT FORECASTS

Appendix C presents charts of the adjusted enrolment forecasts for each of the existing NWSD schools. We refer to these forecasts as 'adjusted' because they take into account the impact of housing developments. For the schools that currently conform to the junior middle grade configuration, we present forecasts where the junior middle model is continued as well as forecasts showing the implications of moving to a senior middle grade configuration. For the schools that do not conform to the junior middle model, the charts in Appendix C present a third forecast showing the implications of continuing the status quo grade configuration.



Figure 11 illustrates our adjusted enrolment for all NWSS schools. It also shows Baragar's equivalent enrolment base forecast effectively demonstrating the relative increase as a result of more explicitly accounting for the impact of students living in future residential developments planned for New Westminster. Note that the enrolment forecasts presented in Figure 11 do not include fee-paying students (mostly international students), kindergarten pupils or students in alternate programs.

All enrolment data includes students from other school districts. In general, there are more students attending NWSD schools from Burnaby and other schools districts than there are NWSD residents attending schools outside New Westminster. The primary 'net importers' of students is NWSS, the alternate programs and Montessori. We have assumed that the 'trade balance' with adjacent school districts will remain similar to the current situation for the duration of our planning horizon. It is possible, however, that the flow of students to and from Burnaby and other adjacent school districts could change in either direction.

Figure 11: Enrolment Forecast for All Schools (Grades 1-12)

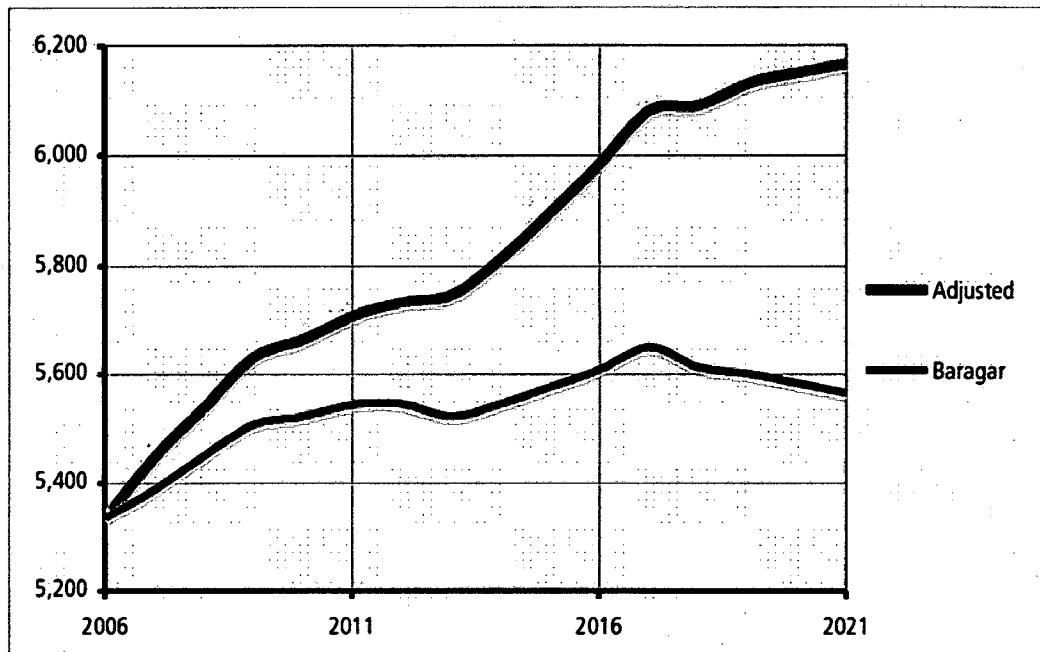


Figure 12 illustrates the alternate enrolment forecasts for NWSS. We present each of three forecasts (Status Quo, Junior Middle and Senior Middle) with and without the addition of enrolment for the Sigma alternate program. Figure 12 also shows the capacity of the existing school.

The implications of the forecasts shown in Figure 12 include:

- ▶ NWSS is currently operating slightly over its rated capacity, especially if the Sigma program is included (labeled 'SQ+Sigma').



- ▶ Secondary enrolment is expected to increase for the next few years before declining, rebounding and reaching a plateau — planning for the replacement school should look ahead to the plateau rather than focusing on the trough.
- ▶ A secondary school to serve Grades 10-12 (senior middle configuration) would require approximately 500 fewer spaces than with the Grade 9-12 grade span.

Figure 12: Enrolment Forecasts for NWSS

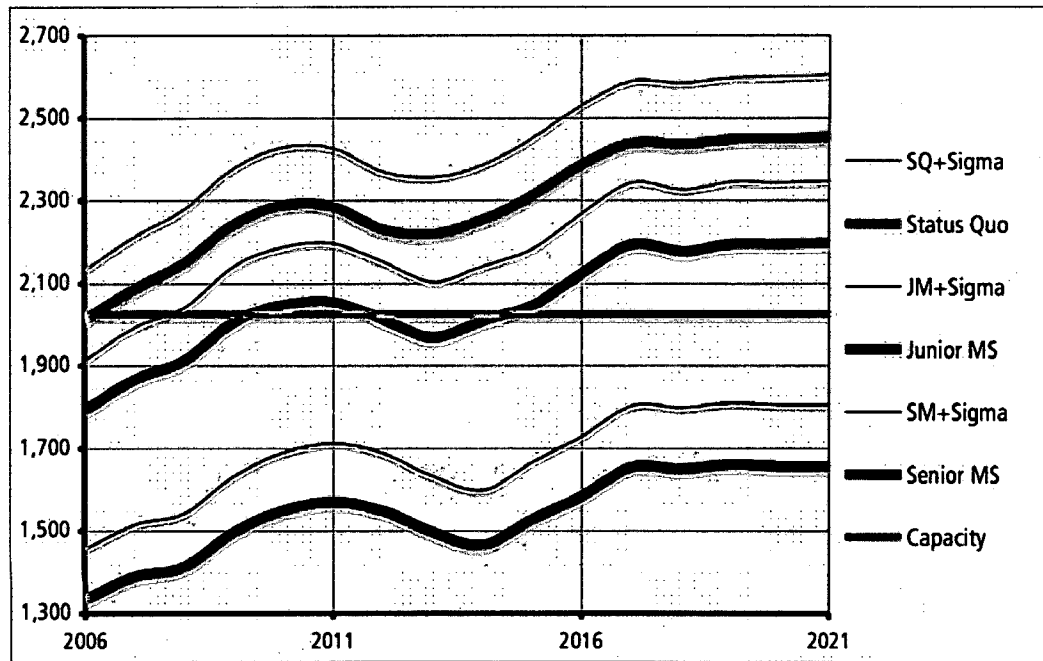


Figure 13 illustrates the enrolment forecasts for all middle schools. The difference between the Status Quo forecast and both the Junior and Senior Middle School forecasts is the proposed introduction of a Westside middle school. This lack of a third middle school also explains the large discrepancy between the capacity of the existing middle schools and the forecast enrolment. The enrolment forecasts for middle school students parallels the pattern for secondary students but with the anticipated trough occurring earlier.

The longer-term senior middle school enrolment estimates are greater than the junior middle school forecast in that the Grade 9 class is anticipated to be larger than the Grade 6 class. This is primarily due to the number of out-of-district students that are attracted to program options available at NWSS. This phenomenon may or may not persist with Grade 9 students attending a senior middle school instead of a large secondary school (NWSS).



Figure 13: Enrolment Forecasts for All Middle Schools

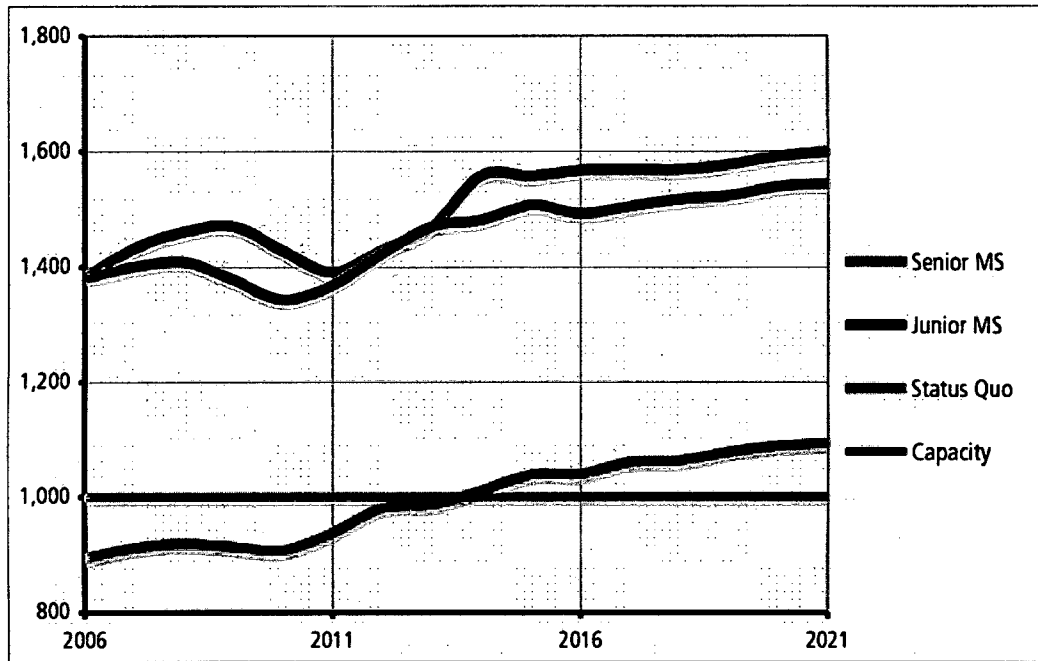
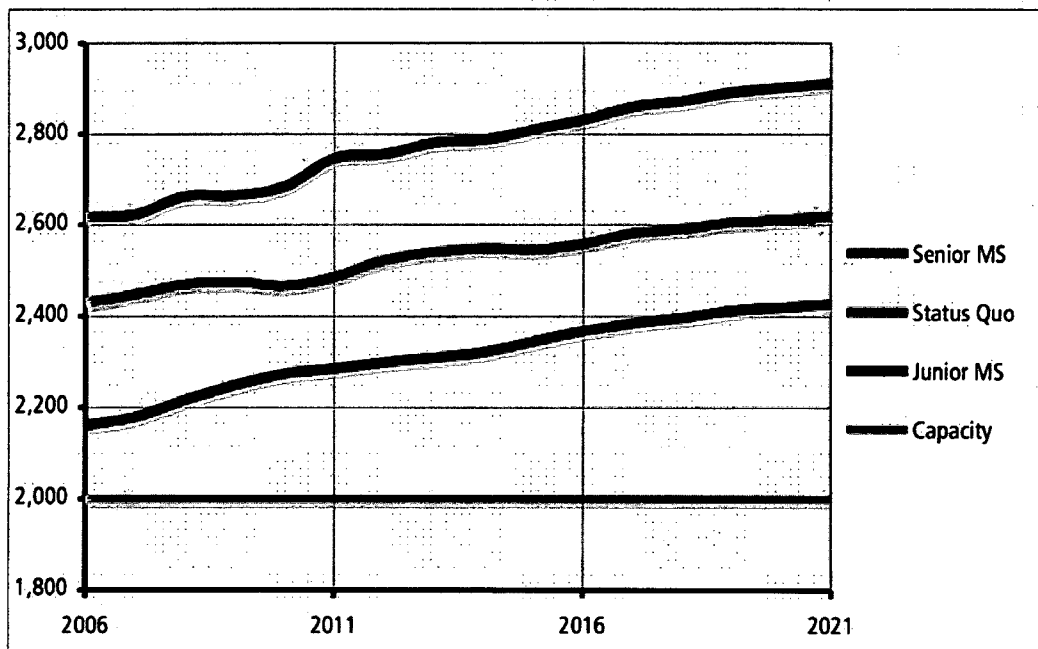


Figure 14 illustrates the enrolment forecasts for all elementary schools. Remember that kindergarten is not included in the enrolment or capacity data. Unlike secondary and middle school patterns, we expect the enrolment in elementary schools to grow steadily over the next 15 years.

Figure 14: Enrolment Forecasts for All Elementary Schools (Excluding Kindergarten)





The Status Quo forecast is greater than the Junior Middle forecast largely because the students now in Grades 6 and 7 in Westside elementary schools will be attending a new middle school. The Senior Middle forecast is greater than the Status Quo forecast largely because Eastside Grade 6 students now in Glenbrook Middle School will be attending elementary schools.

### **3.7 ALTERNATE PROGRAMS**

NWSD has three alternate programs:

- ▶ Sigma Learning Centre for students in Grades 10-12.
- ▶ Power Program for students in Grades 10-12.
- ▶ Royal City Alternate Program (RCAP) for students in Grades 8-10.

After a review of these programs, NWSD administrators decided to maintain all the programs and to assign them as follows:

- ▶ Sigma to be accommodated as part of the replacement NWSS facility.
- ▶ Power and RCAP to be housed in facilities away from regular schools.

For planning purposes, we have anticipated enrolment forecasts for these programs over the next 15 years:

- ▶ Sigma will have 121-150 students.
- ▶ Power will have 108-134 students.
- ▶ RCAP will have 47-56 students.

We have counted Sigma students the same as any other student when considering the enrolment forecasts for NWSS. In fact, due to the nature of the programs as well as the pattern of attendance, alternate students do not require as much space as regular secondary students.

Since we have focused on defining a long-range plan for school facilities only, the accommodation requirements for Power and RCAP have not been addressed.

### **3.8 BASELINE ANALYSIS OF CAPACITY UTILIZATION**

As outlined earlier, MoE requires that NWSD maintain the following minimum capacity utilization thresholds before being eligible for new space:

- ▶ District average of 95%.
- ▶ Elementary schools at 100% — usually applied to a group of adjacent schools when applying for new elementary space.
- ▶ Secondary schools at 110% — a reasonable expectation since most secondary schools can easily operate at well over 100% utilization.

Since most school districts in BC have declining enrolments, aiming to attain these utilization targets is a worthwhile but difficult goal. In addition to being a pre-requisite for obtaining new space, maintaining high utilization



levels is important to minimize the 'overhead' costs associated with facilities and to focus maximum resources on programs for student education.

For NWSD, the central capacity utilization challenge is insure that all school facilities are operating at the highest level of utilization. A related objective is to reduce the number of portable classrooms. According to the data presented in Appendix A, there are 21 portables deployed at NWSD schools. The large number of portables at Lord Tweedsmuir, John Robson and Queen Elizabeth Elementary Schools are particularly problematic since portables should be used to accommodate temporary small increases in demand rather than a long-term response to established and increasing enrolment.

Appendix B presents three views of future capacity utilization:

- ▶ Appendix B1 extends the analysis presented in Figure 5 to illustrate a Status Quo analysis of capacity utilization where nothing has been changed with respect to either facilities or grade configuration. The space shortage associated with this 'do nothing' analysis is illustrated in Figure 15.
- ▶ Appendix B2 shows the capacity utilization with minimal interventions and the grade configuration is transformed into a consistent junior middle model (in this case, the NWSS replacement and new middle school are assigned tentative capacities).
- ▶ Appendix B3 is the same as Appendix B2 except with a senior middle grade configuration.

In both Appendices B2 and B3, the enrolment forecasts and utilization calculations begin with 2009 — the earliest time for the new facilities to be in place. The notes are initial thoughts regarding the problems and possible solutions for individual schools.

Other interventions that were considered later as part of formulating a future plan included new facilities, expansions, school consolidations, program re-locations and catchment area adjustments.

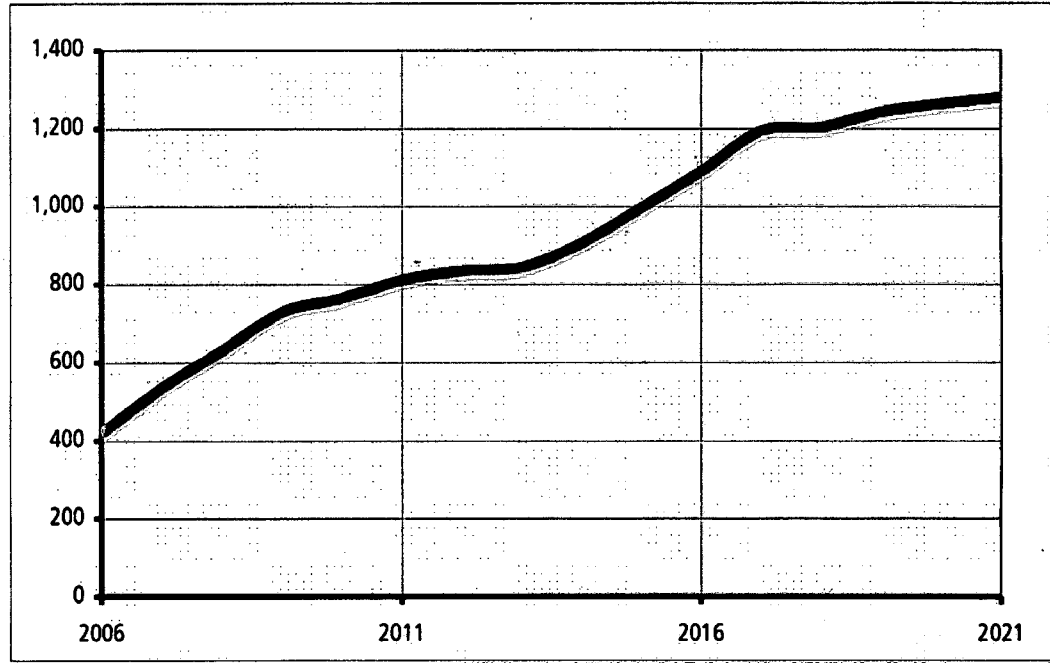
The space shortage shown in Figure 15 is based on the following:

- ▶ Overall enrolment forecasts as presented in Figure 11 plus enrolment in the Sigma alternate program since these students will be included as part of NWSS.
- ▶ Less the current operational capacity of all existing schools as indicated in Figure 5.

Figure 15 illustrates the scale of new spaces that need to be added to NWSD schools. Of course, the provision of a new Westside middle school with at least 600 spaces will reduce the overall need for additional space considerably. However, it is clear that a major challenge for the future will be to add space to the inventory of existing school facilities.



Figure 15: Status Quo Space Shortage with No Interventions



The baseline utilization analyses presented in Appendices B2 and B3 demonstrate that a central objective for a successful comprehensive long-range facilities plan for NWSD will be to accommodate the elementary enrolment within the considerable constraints of the existing school facilities and sites. This will be particularly challenging with the senior middle grade configuration where the capacity shortage in fifteen years is approaching 900 spaces.





## 4. TWO ALTERNATIVE SCENARIOS

### 4.1 GUIDING PRINCIPLES

Our goal from the outset was to compare the benefits and costs of a junior middle grade configuration with a senior middle model. To do this, we needed to formulate each scenario in response to a common set of guiding principles. We articulated nine such principles through discussion with NWSD administrators and the NWSD board. These principles were supplemented through consultation with teachers and the public.

#### **Elementary school must serve neighbourhood**

To the extent possible, elementary schools must be located close to the students they serve. Put another way, it should be possible for each student to attend a neighbourhood school. Ideally, all elementary students should be able to walk to school. As mentioned earlier, NWSD elementary schools are quite well located in the centre of catchment areas with 'natural' boundaries often in the form of major streets.

#### **Schools must be fully utilized**

It is important that all NWSD school facilities are fully utilized. Given the shortage of land and the practical inability to expand several NWSD schools, we will need to balance utilization by adjusting catchment boundaries and moving programs of choice. Having fully utilized schools will also benefit students in that it will reduce the proportion of annual budgets that need to be spent on facilities.

#### **Locate programs of choice to increase utilization**

Since programs of choice (French Immersion and Montessori) are intended to serve whole zones, they should be located in schools where there is excess capacity. In the context of NWSD where there is an overall shortage of space, this could mean that programs of choice should be located in schools with the potential to be expanded. This is an especially important principle since it is very difficult to modify the catchment boundaries for the existing schools.

Other considerations in relation to the programs of choice include the following two principles:

- ▶ Programs of choice should be provided in each of NWSD's three zones, if demand in that zone indicates that the program will be viable. This will provide equitable opportunity for all NWSD students to enroll in these programs.



- ▶ NWSD administrators prefer dual track over single or triple track arrangements. This means that a single program of choice should be co-located with a regular community-based program instead of having a school dedicated to a program of choice (such as an all Montessori school) or a school with two programs of choice and a regular community program.

#### **Locate other functions in surplus space only**

District programs and support functions should only be considered for location in school facilities if there are no school programs that can productively use the space. Similarly, locating daycares and other relevant community services should only be considered for location in school facilities or on school property if there are no school programs that can productively use the space.

There is a shortage of space at NWSD schools. This shortage is likely to remain for many years to come even with the new space proposed as part of the plans outlined in this report. As a result, it is likely that all (or, at least, most) school space will be used for school programs. Consequently, using school facilities or properties for NWSD district programs, NWSD support space, daycare or other community functions unlikely to be viable for most, if not all, NWSD schools.

#### **Strive for a consistent middle school model**

The middle school grade configuration has been an established direction for NWSD for many years. Full implementation of the middle school model has been constrained by lack of a middle school to serve the Westside. NWSD is determined to complete the transition to a consistent middle school model for the entire district.

In considering the nature of the middle school model, our discussions with NWSD educators revealed that middle schools should serve three grades — this is an ideal span for including students at similar levels of development. When addressing the relative merits of the junior (Grades 6-8) and senior (Grades 7-9) models, NWSD educators found either appropriate as long as the program embodies appropriate educational principles. The junior middle model is the more 'classic' model and the direction NWSD has been moving. Further, although there are several BC school districts with the senior middle grade configurations, many of these districts are operating with this model more for practical considerations (it fits the available facilities, often in transition from an older junior high school model) than for pedagogical reasons.

#### **Strive for optimal school sizes**

Most educators in BC quote 900 to 1,200 as the ideal size for a secondary school. The thinking is that schools of this size provide a sufficient range of program options to meet the needs of most students, but retain a



welcoming social environment. While this attitude about school size is probably at least partly due to the reality that most BC educators have limited experience with large secondary schools such as NWSS, there is considerable education literature that extols the virtues of small secondary schools. NWSS teachers and administrators are far more positive about the benefits of the greater range of program options provided in NWSS. Nevertheless, some educators and many parents have expressed concerns about the intimidating impact on students of large schools such as NWSS.

The conclusion is that, when considering size alone, a smaller secondary school is desirable. In practical terms, NWSD will have a large secondary school regardless of the scenario chosen. There is no possibility of having a second high school due to a lack of land.

Since there is limited opportunity to modify the size of the middle schools, we did not concentrate on the optimal size for middle schools.

Most educators state that middle schools of 450 to 600 are ideal.

At 625 spaces, Glenbrook Middle is at the upper end of the optimal range — a new Westside middle school is likely to be in the same range.

At 375 spaces, Queensborough Middle is under that optimal capacity, but is required given the relative physical isolation of the Queensborough zone.

A more significant consideration is the desire to have elementary schools of 300 to 400 students to provide an optimal balance of educational and operational effectiveness. To the degree possible, we have developed long-range plans that create schools in this size range.

#### **School districts encouraged to involve partners**

For several years, MoE has encouraged school districts to involve public and private partners in the development and operations of schools. Partners are able to increase the utilization of public assets such as school facilities and can make a financial contribution to the construction of new facilities or the ongoing operations of schools.

#### **Provide opportunities to accommodate future growth**

Our examination of enrolment indicates that there is likely to be growth over the next 15 years. It is likely, although not certain, that there will be growth in the years beyond 2021. NWSD must be in a position to respond to future growth. This is particularly important and difficult in the context of a community where it will continue to be difficult to find a new school site or expand existing sites.

#### **Reduce overall cost to implement NWSS replacement and new middle school**

This final guiding principle returns to one of the basic challenges of the project — to have the overall facilities plan support the most cost-effective plan for the development of the NWSS site. We must look for ways to reduce costs wherever possible while still meeting the needs identified.



As mentioned, the review of the previous plan to develop the NWSS site identified that the many constraints and demands on the design contributed to the project's cost overrun. One way to reduce costs or provide best facilities value will be to reduce the challenges associated with building on the NWSS site.

## 4.2 KEY FEATURES OF THE SCENARIOS

Figure 16 summarizes the key features of the facilities plan associated with Scenario A (the junior middle grade configuration) and Scenario B (the senior middle school configuration). All figures are nominal capacities.

Figure 16: Key Features of Scenarios A and B

	Scenario A: Junior Middle	Scenario B: Senior Middle
NWSS	2,000 spaces for Grades 9-12	1,500 spaces for Grades 10-12
New Middle School	500 spaces for Grades 6-8	575 spaces for Grades 7-9
John Robson Elementary	300 spaces for K-5	375 spaces for K-6
Howay Elementary	Add 100 spaces for K-5	Add 225 spaces for K-6
Richard McBride Elementary		Add 100 spaces for K-6
Glenbrook Middle		Expand for Grade 9 program
Queen Elizabeth Elementary	Add 125 spaces for K-4	Add 200 spaces for K-5
Total new spaces	3,025 spaces	2,975 spaces
Replacement spaces	2,300 spaces	1,875 spaces
New capacity spaces	725 spaces	1,100 spaces
NWSS/MS project spaces	2,500 spaces	2,400 spaces

The major construction project in Scenario A (a 2,000 space NWSS replacement and a new Westside middle school on the NWSS site) is matched in Scenario B with:

- ▶ The same two new facilities on the NWSS site, although with a smaller secondary school and larger middle school.
- ▶ Major additions to Howay and Richard McBride Elementary Schools to accommodate the extra students now staying a year longer at the Eastside elementary schools.
- ▶ Expansion of Glenbrook Middle School to accommodate the additional specialized instructional space required by the Grade 9 students (detailed exploration of the options may reveal that it is better to renovate and reduce the capacity, in which case the new Westside middle school will need to be expanded to accommodate the difference).

The total number of replacement spaces in both scenarios is the sum of the NWSS and Robson projects. The new capacity subtotal for Scenario A is the



sum of the new middle school and the two elementary additions at Howay and Queen Elizabeth. The new capacity subtotal for Scenario B is the sum of the new middle school and the three elementary additions at Howay, Queen Elizabeth and McBride.

As summarized in Figure 16, the total number of spaces associated with each scenario is very similar:

- ▶ Scenario A would provide 50 more spaces overall (using nominal capacity allocations).
- ▶ Scenario A would provide 425 more replacement spaces.
- ▶ Scenario B would add 375 more spaces to the overall capacity.
- ▶ Scenario B would require 100 fewer spaces directly or indirectly associated with the development of the NWSS site.

### 4.3 UTILIZATION ANALYSIS OF THE SCENARIOS

Appendices B4 and B5 presents comprehensive analyses of capacity utilization for all NWSD schools for Scenarios A and B. The utilization snapshots are shown for 2009, 2012, 2016 and 2021. In addition to showing capacity, enrolment and utilization for each school and group of schools, Appendices B4 and B5:

- ▶ Identify the nature of projects with the arrows in the left margin.
- ▶ Indicate where space has been added to schools.
- ▶ Identify the programs of choice ('POC') associated with each school.
- ▶ Provide notes that describe the interventions proposed to achieve full utilization and conform to the guiding principles.

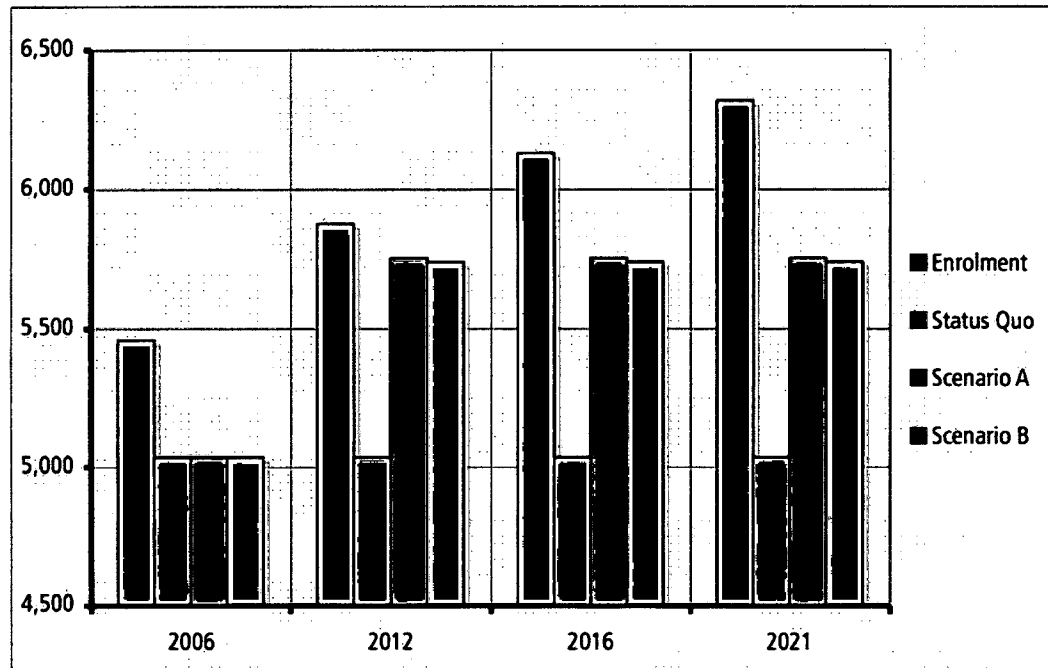
In developing Scenarios A and B, we focused on the ten-year planning horizon. We concentrated on 2016 for several reasons:

- ▶ It will require at least five years to implement all the capital projects identified.
- ▶ Enrolments, especially in the secondary and middle grades, are expected to decline in the medium term before increasing again — we do not want to plan in the context of an enrolment trough.
- ▶ The fifteen-year planning horizon is less certain than the ten-year horizon.
- ▶ MoE officials tend to focus on short to medium term plans when reviewing plans from school districts.
- ▶ School Site Acquisition Charges are based on ten-year plans.

Figure 17 illustrates the results of the two scenarios in terms of meeting anticipated demand. It shows that Scenarios A and B go a considerable way to providing the additional spaces required, especially if we focus on the 2012 and 2016 planning horizons. The orange column in Figure 17 is our forecast of total enrolment. The blue 'Status Quo' column is the capacity of

existing schools. The two purple columns are the total capacities of schools in Scenarios A and B.

Figure 17: Enrolment and Capacities for Scenarios A and B



#### 4.4 OPTIONS FOR BALANCING UTILIZATION

Once we established sizes for the NWSS replacement and the new Westside middle school, our main pre-occupation with the optimization of Scenario A and especially Scenario B was on balancing enrolment and utilization among the nine elementary schools. Our objectives in achieving this balance were:

- ▶ To have all schools with 2016 utilization levels of 100% or slightly greater.
- ▶ To increase school size where expansion is possible, and not increase school size where expansion is difficult (notably, Spencer).
- ▶ To increase capacity of smaller schools to bring them into the optimal range of 300-400 spaces, and not increase the capacity of schools to greater than 400 spaces.
- ▶ To minimize the adjustments to current catchment boundaries.

We have used portables to provide a little more capacity in situations where permanent expansions would be premature (Connaught Heights, Herbert Spencer and Hume Park) as well as interim accommodation until all the projects specified can be implemented.

We considered closing one or both of the smallest schools (Hume Park and Connaught Heights) since these schools are much smaller than the optimum capacity range and neither school is likely to have significant enrolment



increases over the next 15 years. In the final analysis, we chose to retain both these schools primarily because it is difficult to justify closing any school in the context of a school district with a significant and growing shortage of space.

Nevertheless, NWSD should consider the possibility of closing one or both of these very small schools at some point in the longer-term. As noted in Appendices B4 and B5, these closures should be re-examined as follows:

- ▶ Consider consolidating Connaught Heights with Lord Tweedsmuir when the Lord Tweedsmuir facility is being replaced.
- ▶ Consider consolidating Hume Park with Richard McBride when the Richard McBride facility is being replaced.

In the Queensborough zone, we chose to respond to the overutilization of Queen Elizabeth Elementary and the underutilization of Queensborough with variations of the existing adaptation. In Scenario A, this involved limiting Queen Elizabeth to K-4 and expanding the middle school to serve Grades 5-8. In Scenario B, we had K-5 in the elementary and Grades 6-9 in Queensborough Middle School. We modified our approach in Scenario B to limit the grade span in the middle school to four grades in recognition of one of our guiding principles.

For both scenarios, we call for Queen Elizabeth Elementary to be expanded soon after 2016. Once it is expanded, a grade (Grade 5 for Scenario A and Grade 6 for Scenario B) can be moved from Queensborough Middle to the elementary school. At this point, the two schools in the Queensborough zone will have the same grade configuration as the rest of the school district.

In the remainder of NWSD, we examined the potential of moving programs of choice to accomplish most of the demands to re-distribute enrolment. Since the result for the two scenarios was largely parallel, it is most instructive to consider the proposed changes by zone.

After considering several other alternatives, our suggestions for changes in the Westside are as follows:

- ▶ We moved the Early French Immersion program at Lord Tweedsmuir to a new or renovated facility at John Robson. This results in Lord Tweedsmuir becoming a more desirable dual track school where the students can be accommodated without the use of portables. It also allows the renewed John Robson to be a larger, more viable size.
- ▶ In Scenario A, we shifted 14% of the John Robson students to Lord Kelvin to keep both schools at full utilization. To accomplish this may require adjustments to the catchment boundary between the two adjacent schools.
- ▶ We moved the Home Learners program into shared space in Connaught Heights.



Again, after considering several other alternatives, our suggestions for changes in the Eastside are as follows:

- ▶ We moved the Early French Immersion program at Herbert Spencer to Richard McBride. This avoided having to expand Spencer.
- ▶ We moved the Montessori program at McBride to an expanded facility at Howay. This move allowed Howay to become a larger, more viable size.
- ▶ In Scenario B, we shifted 15% of the Herbert Spencer students to Howay. This is approximately the number of students in the area bounded by Tenth Avenue, McBride, Eighth Avenue and Sixth Street.
- ▶ In Scenario B, we shifted 15% of the Hume Park students to Richard McBride to avoid having to expand Hume Park.

An alternative to moving both programs of choice in the Eastside would be to move the Early French Immersion program at Herbert Spencer to an expanded Howay. This would avoid the necessity of moving the Montessori program. The option for a two-part move was retained since we were told that parents of the students in the Early French Immersion program at Spencer had selected McBride as their second choice for a location for the program. NWSD should consider the relative merits of moving one versus two programs of choice.

Note that we have shown Early French Immersion in the new Westside middle school. This would accommodate EFI students in Grades 6-8, a program not currently offered in NWSD. We have also indicated that there may need to be a shift of some students from the new Westside middle school to Glenbrook. This could be accomplished with program offerings without any need to adjust catchment boundaries.





## 4.5 CONSTRUCTION PROJECTS FOR EACH SCENARIO

Figure 18 summarizes the building projects required to implement the plans outlined in Scenarios A and B.

**Figure 18: Construction Projects for Scenarios A and B**

School	Scenario A: Junior Middle	Scenario B: Senior Middle
1 NWSS	Replace with new 2000 space facility to serve Grades 9-12	Replace with new 1500 space facility to serve Grades 10-12
2 New Middle School	Build new 500 space facility to serve Grades 6-8	Build new 575 space facility to serve Grades 7-9
3 John Robson Elementary (see Note 1)	Replace with new 300 space facility to serve K-5	Replace with new 375 space facility to serve K-6
4 Howay Elementary	Expand by 4 classrooms and other required changes to serve K-5	Expand by 9 classrooms and other required changes to serve K-6
5 Richard McBride Elementary	Install 1 portable	Expand by 4 classrooms and other required changes to serve K-6
6 Glenbrook Middle		Expand to accommodate program for Grade 9
7 Queen Elizabeth Elementary	Expand by 5 classrooms and other required changes to serve K-4	Expand by 8 classrooms and other required changes to serve K-5
8 Herbert Spencer Elementary	Install 1 portable	Install 2 portables
9 Connaught Heights Elementary	Install 1 portable	Install 1 portable

Note 1:

We have shown John Robson as a replacement for costing purposes, but it could be a renovation depending on the outcome of the feasibility study.

## 4.6 PRELIMINARY COST ESTIMATES FOR SCENARIOS

Figure 19 summarizes our preliminary cost estimates for the building projects associated with Scenarios A and B. Details of these initial cost estimates are presented in Appendix D.

Some of the notes and underlying assumptions associated with the cost estimates include:

- ▶ The building area for each school is based on MoE maximum allowable areas.
- ▶ The unit rates, size factors, location factors, equipment allowances, design fees and contingency factors are as outlined in MoE's budget instructions for 2007/2008.



- ▶ All of the estimates exclude land costs. This is a reasonably 'safe' assumption since none of the plans require the purchase of land. However, it is possible as the projects are developed further some land cost information may be necessary.
- ▶ None of the costs include escalation to date of implementation. In today's environment of increasing construction costs, escalation could result in greater monetary demands.
- ▶ Renovations to the Massey Theatre block are excluded from the cost estimate for replacing NWSS.
- ▶ The cost estimate for the larger secondary school associated with Scenario A includes more gymnasium space than stipulated in MoE area allocation guidelines. This allocation was allowed in the earlier plan but has yet to be approved for this project.
- ▶ Costs for any required temporary accommodation is not included. This is based on an assumption that all schools, including NWSS, will be able to continue operating while construction is completed. As project planning becomes more specific, it is possible that there will be some costs associated with temporary accommodation during construction.
- ▶ Allowances for supplementary site costs, offsite costs, demolition, and development cost charges are very preliminary. These costs will almost certainly vary (either up or down) as the planning becomes more specific.
- ▶ The cost estimates for the portables are for installation only, since NWSD owns a significant inventory of portable classrooms in good condition.
- ▶ We have assumed Robson Elementary as a replacement project, although the study to determine whether replacement is more cost effective than renovation has yet to be completed.



**Figure 19: Summary of Project Costs for Scenarios A and B**

School	A Scenario A: Junior Middle Configuration		B Scenario B: Senior Middle Configuration	
1 NWSS	1a	Replace with 2000 space facility for Grades 9-12 \$54,371,000	1b	Replace with 1500 space facility for Grades 10-12 \$44,773,000
2 New Middle School	2a	Build 500 space facility for Grades 6-8 \$16,397,000	2b	Build 575 space facility for Grades 7-9 \$18,184,000
3 John Robson Elementary	3a	Replace with new 300 space facility for K-5 (see Note 1) \$7,953,000	3b	Replace with new 375 space facility for K-6 (see Note 1) \$9,647,000
4 Howay Elementary	4a	Expand by 100 spaces for K-5 \$2,814,000	4b	Expand by 225 spaces for K-6 \$4,849,000
5 Richard McBride Elementary	5a	Install 1 portable \$20,000	5b	Expand by 100 spaces for K-6 \$1,642,000
6 Glenbrook Middle	6a		6b	Expand for senior middle \$909,000
7 Queen Elizabeth Elementary	7a	Expand by 125 spaces for K-4 \$2,719,000	7b	Expand by 200 spaces for K-5 \$3,809,000
8 Herbert Spencer Elementary	8a	Install 1 portable \$20,000	8b	Install 2 portables \$40,000
9 Connaught Heights Elementary	9a	Install 1 portable \$20,000	9b	Install 1 portable \$20,000
Total project costs		<b>\$84,314,000</b>		<b>\$83,873,000</b>

Figure 20 compares the cost to implement the two scenarios. It demonstrates that the costs to implement the two scenarios are very close — Scenario B is only 0.5% less than Scenario A. In fact, given the preliminary nature of the cost estimates, we concluded that cost does not differentiate the two scenarios.

**Figure 20: Cost Comparison of Scenarios A and B**

Cost component	Scenario A	Scenario B	A-B
NWSS replacement	\$54,371,000	\$44,773,000	\$9,598,000
Projects associated with NWSS	\$0	\$7,400,000	-\$7,400,000
New middle school	\$16,397,000	\$18,184,000	-\$1,787,000
Total for NWSS and new MS	\$70,768,000	\$70,357,000	\$411,000
Robson Elementary replacement	\$7,953,000	\$9,647,000	-\$1,694,000
Remaining elementary expansions	\$5,533,000	\$3,809,000	\$1,724,000
Total of major capital expenditures	\$84,254,000	\$83,813,000	\$441,000
Temporary expansions	\$60,000	\$60,000	\$0
Total of all capital costs	\$84,314,000	\$83,873,000	\$441,000



## 4.7 PRELIMINARY IMPLEMENTATION TIMEFRAME

Figures 21 and 22 present preliminary sequencing diagrams for the projects associated with Scenarios A and B. The pink bars correspond roughly to the planning phase and the purple bars correspond to the construction phase of each project.

Figure 21: Preliminary Sequencing of Projects for Scenario A

Project	2007/08	2008/09	2009/10	2010/11	2011/12
1 NWSS replacement	██████████	██████████	██████████		
2 New Middle School		██████████	██████████	██████████	
3 John Robson replacement		██████████	██████████		
4 Howay expansion				██████████	██████████
7 Queen Elizabeth expansion				██████████	██████████

Figure 22: Preliminary Sequencing of Projects for Scenario B

Project	2007/08	2008/09	2009/10	2010/11	2011/12
1 NWSS replacement	██████████	██████████	██████████		
2 New Middle School		██████████	██████████	██████████	
3 John Robson replacement		██████████	██████████		
4 Howay expansion		██████████	██████████		
5 Richard McBride expansion		██████████	██████████		
6 Glenbrook expansion		██████████	██████████		
7 Queen Elizabeth expansion				██████████	██████████

These very schematic schedules are presented to provide a sense of the most optimistic timeframes for implementation of the projects identified for each scenario. In particular, the schedules assume prompt and positive MoE approval for each project. The following comments qualify and further explain some of the reasoning behind Figures 21 and 22:

- ▶ Fiscal years for NWSD are from July to June.
- ▶ We have shown the NWSS replacement and the new middle school being implemented sequentially with NWSS first. It is possible that the two projects could be implemented together or that the middle school is implemented first.



- ▶ We have shown the Queen Elizabeth expansion and the Howay expansion in Scenario A as beginning in three years. This is the earliest these projects could begin within MoE guidelines for inclusion in the capital budget.
- ▶ We have shown the projects to expand Howay and McBride as well as adjustments to Glenbrook occurring within the next three years, since these projects are a part of the NWSS replacement building program.
- ▶ If John Robson is replaced (especially, if it is implemented well before construction on some of the other projects commences), the existing school facility could be used as temporary space for some of the other construction projects.

Given that it will take a few years to implement either scenario, NWSD will need to develop interim strategies with respect to meeting space demand, moving programs of choice and adjusting catchment boundaries.

Until permanent facilities are available, space requirements will be met using portable classrooms.



## 5. EVALUATING THE SCENARIOS

### 5.1 APPROACH TO EVALUATING THE SCENARIOS

As outlined in Figure 23, we organized the evaluation criteria into three broad groups — economic, educational/operational and strategic. The economic criteria are the external, objective measures of the resources required to implement and maintain each scenario. The educational and operational criteria could be considered the ‘benefit’ side of a cost/benefit analysis. These criteria ask ‘what do you get for your money?’ The strategic criteria partly focus on the relative ease of implementation for each scenario. The strategic criteria also include consideration of opportunities and constraints that each scenario will embody.

As indicated, most of the 17 evaluation criteria we identified are re-statements of the guiding principles we used to formulate the two scenarios. The criteria labeled ‘mission’ are integral to the basic objectives of a facilities plan. Similarly, the criteria identified as ‘basic’ are considerations common to the comparison of all facilities planning options. Finally, the criteria noted as ‘new’ are considerations that were identified during the public consultation process.

Figure 23: Evaluation Criteria

Group	Criteria	Principle
Economic criteria	1 Minimize capital costs associated with NWSS and new middle school	9
	2 Minimize total capital costs for entire program	mission
	3 Minimize operational costs	2
	4 Minimize negative environmental impacts	new
Educational and Operational criteria	5 Provide the required capacity	mission
	6 Maximize the benefits of a middle school configuration	5
	7 Maximize program opportunities	new
	8 Improve the safety and quality of educational facilities	mission
	9 Minimize the distance to school for students, especially elementary	1
	10 Provide schools within preferred capacity ranges	6
	11 Balance district programs in three zones	3
Strategic criteria	12 Maximize potential to accommodate future growth	8
	13 Minimize challenges with developing the NWSS site	9
	14 Maximize potential partnership opportunities	7
	15 Maximize opportunities for accommodating support functions	4
	16 Minimize construction projects disruption for students and staff	basic
	17 Minimize changes to the current situation	basic



Appendix E presents our attempt to quantitatively compare the two scenarios by applying weights to the criteria listed in Figure 23 and rating each of the scenarios along each of the criteria. As indicated in Appendix E, this comparison resulted in equal scores for the two scenarios. Previous iterations of this analysis resulted in a slight advantage for Scenario B, but the more we considered the two alternatives, the more the advantages of one was offset by advantages of the other.

While attempting to quantify the differences between alternatives is a useful exercise, in this case it served to reinforce the conclusion that the two scenarios both have merit and that choosing between the two is difficult. In the remainder of this section, we summarize the relative merits of each scenario in relation to each criterion. Our goal is to be as thorough and comprehensive as possible in our summary of the considerations related to each scenario.

## 5.2 ECONOMIC CRITERIA

### Minimize costs for NWSS and new middle school

We separated the cost to implement the NWSS replacement and the new middle school from the total capital costs for the whole program since the re-development of NWSS site was the primary impetus for the development of a district-wide facilities plan. Of course, a key reason for considering Scenario B was the promise that the need to expand some elementary schools resulting from retaining Grade 6 students in elementary school would be less expensive than the funds saved by building a much smaller secondary school.

However, after taking into account all of the projects, we found that the costs of the two building programs were within less than 1% of each other. It is possible that Scenario B may result in better value in that the development of the NWSS site with the smaller building program associated with Scenario B allows for less constrained design and construction. (The total building area for NWSS with Scenario A is about 22 590 m<sup>2</sup>, while the total area for Scenario B is about 19 305 m<sup>2</sup>.) However, without more detailed study of the site development, this line of analysis is highly speculative.

### Minimize total capital costs

This criterion compares the two scenarios on our estimate of total cost for all the building projects required to meet the needs until about 2016. Again, the estimates for both scenarios are less than 1% apart.

### Minimize operational costs

Operating budgets for school districts are based primarily on the number of students enrolled in district schools. We have based our analysis on the



assumption that the two scenarios would have the same number of students so the total operational budget would be the same for both scenarios.

However, our meaning with this criterion was the amount of funds spent on providing the basic services. Although we did not explicitly examine operational costs with the two scenarios, we could anticipate that Scenario B would be somewhat more efficient for the following reasons:

- ▶ The secondary schools associated with both scenarios are sufficiently large to have the benefits associated with economies of scale.
- ▶ The middle schools in both scenarios are essentially identical.
- ▶ Scenario B has four larger and potentially more efficient elementary schools than Scenario A — Queen Elizabeth, John Robson, Howay and McBride.

#### **Minimize negative environmental impacts**

There is potential to reduce the environmental impact of the building program by adopting a green building policy. Both scenarios have equal potential in this regard.

In terms of the ongoing operations, Scenario B has the potential to use less energy related to the fuel used to transport students to school. In Scenario B, Grade 6 students will stay in a school closer to home rather than going to a middle school that is generally further away. Similarly, Grade 9 students in Scenario B will remain in their middle school rather than move to NWSS.

### **5.3 EDUCATIONAL AND OPERATIONAL CRITERIA**

#### **Provide the required capacity**

Both scenarios have been planned to provide just enough capacity to meet anticipated enrolment demand to 2016.

#### **Maximize the benefits of a middle school**

As mentioned earlier, both scenarios provide middle school grade spans that match the adolescent age group that benefits most from the middle school educational philosophy. The junior middle school (Grades 6-8) is the most common choice among jurisdictions with a middle school configuration. It is also the traditional choice for middle schools and it is the route chosen by NWSD when it adopted the middle school model several years ago. While both scenarios are satisfactory in terms of the middle schools created, the junior middle school of Scenario A is superior.

When considering the implications of the two grade configurations for the elementary schools, many parents expressed the preference for the K-6 elementary school associated with Scenario B. Parents in the Westside most often expressed this preference because they did not like the prospect of Grade 6 students from the Westside having to travel to the edge of the zone





and attend a middle school on the same campus as a very large secondary school.

NWSS teachers were the most persistent in their concerns that the senior middle model would make the transition from middle school to secondary more difficult. They thought having the transition year of Grade 9 at the secondary school would allow the students to become adjusted to the secondary environment before having to face the serious challenges of the graduate program beginning in Grade 10.

In balance, while both configurations have their benefits and supporters, we concluded that Scenario A was superior in terms of the educational and developmental considerations.

#### **Maximize program opportunities**

Many parents and most teachers preferred Scenario A since it provided a broader range of program options to students earlier in their school careers. In Scenario A, Grade 6 students are exposed to the broader offerings available in middle school. More significantly, Grade 9 students in Scenario A can take advantage of the very wide range of program options available in a 2,000-space secondary school.

NWSS teachers also extolled the virtues of the wider range of program options that would be available in the 2,000-student school serving Grade 9-12 compared with a 1,500-student school serving Grades 10-12.

On this criterion, Scenario A is superior to Scenario B.

#### **Improve the safety and quality of facilities**

The full implementation of either scenario will significantly improve the overall safety and quality of NWSD school facilities. Scenario A provides marginally more new space than Scenario B, but Scenario B renovates more schools than Scenario A. The two scenarios are indistinguishable with respect to this criterion.

#### **Minimize the distance to school**

Scenario B is superior to Scenario A in this regard since most Grade 6 and 9 students will have less distance to travel to elementary and middle school. In this sense, Scenario B is more 'community based'.

#### **Provide schools within preferred capacity ranges**

As discussed earlier, the smaller secondary school and larger elementary schools associated with Scenario B make it superior to Scenario A in terms of creating schools within (or, at least, closer to) the preferred capacity ranges for schools.



#### **Balance district programs in three zones**

Both scenarios continue to provide French Immersion and Montessori programs in the Westside and Eastside. By retaining Grade 9 in Queensborough Middle School, Scenario B may provide more 'critical mass' in the Queensborough zone to make one of the programs of choice viable in the zone — thus resulting in a slight advantage to Scenario B.

### **5.4 STRATEGIC CRITERIA**

#### **Maximize potential for future growth**

NWSD will always have just one secondary school. It is important that it have the capacity to expand. Because Scenario B builds less space on the NWSS site, it leaves more potential for the building to be expanded in the future. This is the reason we rated Scenario B slightly higher than Scenario A on this criterion.

The following are some additional considerations regarding how the two scenarios are positioned to accommodate future growth:

- ▶ We have weighted this criterion relatively low for NWSD since the potential for growth beyond the 2021 timeframe is uncertain. Due to the lack of land in New Westminster, most growth will be due to 'densification' and this usually means fewer children.
- ▶ Much of the growth is likely to be in Queensborough where property for a second elementary school may be required and may be available (in fact, NWSD owns a small property in Queensborough that could be sold or used to trade for a more suitable school site in the future).
- ▶ Scenario A has more potential for growth in the elementary schools than Scenario B. In fact, the plans outlined in Scenario B provide a good template for the scale of expansion possible.
- ▶ In Scenario A, the secondary/middle complex that is being planned for the NWSS site should still have some capacity for expansion — perhaps vertical expansion of part of the structure could be explored. Furthermore, other options could be considered such as moving the Sigma alternate students or other definable programs to space off campus.

#### **Minimize challenges with the NWSS site**

The design challenges for the development of the NWSS site are considerable in both scenarios. However, since the building program for Scenario B is about 15% smaller than the amount of space required for Scenario A, Scenario B is superior along this criterion.

#### **Maximize potential partnership opportunities**

Given the overall shortage of space in NWSD, there is little opportunity (or need) to involve partners to increase the daytime utilization of school



facilities. In both scenarios, NWSD is encouraged to expand the current practice of working with the City of New Westminster to maximize the use of school facilities and playing fields as well as using City parks for school use.

Each of the construction projects provides opportunities for encouraging partners to enhance or augment the development of new or expanded schools. In this respect, Scenario A is superior to Scenario B in that Scenario B has more projects and the relatively smaller scale of development on the NWSS site in Scenario B may allow room for partners to add facilities.

#### **Maximize opportunities for support functions**

As mentioned earlier, we have focused on optimizing the utilization and functionality of NWSD schools. However, NWSD has facilities needs beyond the schools. These needs include accommodation for alternate programs, adult education, educational support functions, maintenance operations and administration.

Due to the overall shortage of space in school facilities, neither scenario provides very many opportunities to locate NWSD support functions in school facilities. Both scenarios include the Sigma alternate program as part of NWSS and both scenarios show the Home Learners program located in shared space at Connaught Heights Elementary School.

#### **Minimize construction projects disruption**

As outlined in Figure 18, Scenario A has five construction projects and Scenario B has seven construction projects. Furthermore, the scale of the projects in Scenario B is larger than in Scenario A, with the exception of the major project at NWSS.

All of the projects are on existing sites and will involve maintaining existing operations during the construction period. Mitigating the disruption from these constructions projects will be a major challenge to NWSD, but it would be a bigger challenge with Scenario B than with Scenario A.

#### **Minimize changes to the current situation**

Change always comes with challenges and both scenarios will involve changes to the current situation. However, Scenario A involves fewer changes and even where there will be the most significant changes on the Westside, it is following a previously established direction for NWSD to move toward full implementation of a junior middle grade configuration. In terms of minimizing the scope of changes, Scenario A is clearly superior to Scenario B.

In terms of our quantified evaluation presented in Appendix E, the task of setting the weight for this criterion was much more difficult than rating the scenarios. When we have conducted this type of quantified analysis of options in previous projects, we have tended to minimize the weight placed



on this criterion with the logic that the issues are essentially transitory and that we should focus on the long-term lasting factors. However, in this case we increased the weight more than usual in response to the many concerns expressed about all future plans, especially with respect to Scenario B. From these perspectives, the weight we established for this criterion should be much higher.

## 5.5 SUMMARY COMPARISON OF SCENARIOS

Scenarios A and B both meet most of the objectives and follow the guiding principles:

- ▶ Both replace NWSS and provide a new middle school.
- ▶ Both create the necessary elementary space.
- ▶ Both make good use of the existing sites and facilities.

Considering the economic criteria, Scenarios A and B are close with Scenario B rated slightly higher:

- ▶ The capital costs for Scenarios A and B are essentially equivalent.
- ▶ Scenario B is likely to cost less to operate and will have slightly less environmental impact.

Considering educational and operational criteria, Scenarios A and B are very close with each having strengths:

- ▶ Scenario A provides more program options for students in Grades 6 and 9.
- ▶ Scenario A embodies the slightly preferred grade configuration (Grades 6-8) for middle school.
- ▶ Scenario B keeps Grade 6 and 9 students in schools closer to home.
- ▶ Scenario B creates a preferred smaller size for the secondary school and preferred larger sizes for three elementary schools.

Considering the strategic criteria, Scenarios A and B are very close with each having strengths:

- ▶ A major strategic advantage of Scenario A is that it involves fewer changes to the existing situation.
- ▶ Scenario B diminishes the challenges associated with building on the NWSS site that, in turn, allows more expansion potential. The scale of this advantage could be determined with a technical analysis of the NWSS site.

The choice between these two scenarios is very close. Since the cost of the two scenarios is essentially the same, the Board's decision should be guided by educational, operational and strategic considerations.



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# **APPENDIX A**

## **NWSD SCHOOL FACILITIES**

Summary Information about NWS School Facilities

Appendix A

	PROPERTY				FACILITY											Notes		
	Site Area (ha)	Allowable Area (ha)	Actual/Allowable	Expandability on Site	Daycare on site	Capacity (1-12)	Allowable Area (m <sup>2</sup> )	Actual/Allowable	Gross Floor Area (m <sup>2</sup> )	Portables	Year Built	Seismic Risk	Seismic Priority	Seismic Upgrade Cost Estimate	Renovations in Capital Plan		Overall Facility Audit Score	Overall Condition
Glenbrook Middle	2.5	3.4	-26%	Poor	MP	625	5,638	-5%	5,354	0	2000					95%	Best	
Queensborough Middle	1.4	2.0	-30%	Adequate		375	3,980	-2%	3,900	0	2003					95%	Best	
Herbert Spencer Elementary	1.2	1.9	-37%	Poor		350	3,000	-2%	2,926	0	1993					90%	Best	
Queen Elizabeth Elementary	1.6	1.6	0%	Adequate		250	2,440	11%	2,697	3	1987	L				79%	Good	Note 3
Howay Elementary	1.7	1.3	31%	Adequate	MP	125	1,500	17%	1,751	0	1973	M	6	\$720,840	\$1,968,740	81%	Good	
Connaught Heights Elementary	0.9	1.3	-31%	Adequate		100	1,050	36%	1,428	2	1963	M/H	5	\$542,930	\$2,816,966	79%	Good	Part constructed in 1976
Hume Park Elementary	0.2	1.2	-83%	Poor	P	50	525	-4%	503	1	1962	H	3	\$222,190		71%	Good	Part constructed in 1965
Lord Tweedsmuir Elementary	2.2	1.8	22%	Adequate	SA	325	2,875	46%	4,186	9	1928	L				67%	Marginal	Note 5
Lord Kelvin Elementary	1.3	2.3	-43%	Adequate	MR	400	3,225	4%	3,347	1	1963	L/M/H	4	\$1,239,450	\$2,556,830	66%	Marginal	Part constructed in 2000
Richard McBride Elementary	1.9	1.8	6%	Adequate	P	300	2,760	41%	3,903	0	1929	M/H	2	\$1,521,360	\$4,348,258	63%	Marginal	
John Robson Elementary	1.2	1.8	-33%	Adequate	MP	300	2,760	32%	3,635	5	1928	M/H	1	\$1,384,740	\$3,250,000	35%	Poor	Part constructed in 1971
NWSS	8.6	7.7	12%	Poor		2,025	17,055	78%	30,394	0	1952	M/H		\$10,012,320		31%	Poor	In phases to 1972
Totals and Averages	24.7	28.1	-12%		7	5,225	46,808	37%	64,024	21	1965			\$15,643,830	\$14,940,794	71%		

Notes

- NWSS is an approved replacement project. Massey Theatre is a separate consideration with seismic upgrading required (budget of \$5 million based on a 2004 estimate).
- John Robson is an acknowledged project and may become a replacement after the feasibility study.
- Capital Plan listed 175 space increase to the capacity of Queen Elizabeth as Priority 13.
- Capital Plan calls for additional site area for John Robson, Lord Tweedsmuir, Queen Elizabeth, Lord Kelvin, Herbert Spencer, Connaught Heights and Queensborough.
- A thorough study of Tweedsmuir may reveal that it would be more cost effective to replace. If nearby properties were purchased, Tweedsmuir site could support two schools.
- Kelvin's pod design could be expanded through 'in-fill'. Alternately, the site could be expanded if the City would agree to give up the road bordering Moody Park.
- Spencer could be expanded but it likely would be disruptive and costly as it would involve underground parking and disturbing the playing fields.
- Land value of Hume Park may increase in future depending on the nature of development intended for the area (see OCP).
- Daycare is before and after school care. MP is multipurpose room, MR is music room, P is portable, SA is storage area.
- Audit scores for Glenbrook and Queensborough are guesses by Matrix. These are essentially new schools.
- Site area for Glenbrook and building area for Queensborough are guesses by Matrix.



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# **APPENDIX B**

## **CAPACITY UTILIZATION ANALYSES**

Status Quo Utilization Analysis with No Interventions

Appendix B-1

School	Grade Span	1-12 Op Capacity				Enrolment (1-12)				Surplus or Shortage				Capacity Utilization				Notes
		2006	2012	2016	2021	2006	2012	2016	2021	2006	2012	2016	2021	2006	2012	2016	2021	
NWSS	8-12	2,025	2,133	2,370	2,531	2,605	-108	-345	-506	-580	105%	117%	125%	129%	FI, Sigma			
Queensborough	5-8	375	265	308	360	408	110	67	15	-33	71%	82%	96%	109%	LFI			
Queen Elizabeth	1-4	220	225	313	358	390	-5	-93	-138	-170	102%	142%	163%	177%				
<b>New Middle School</b>																		
Connaught Heights	1-7	93	130	76	67	70	-37	17	26	23	140%	82%	72%	75%				
Lord Tweedsmuir	1-7	303	492	449	429	427	-189	-146	-126	-124	162%	148%	142%	141%	EFI, MP			
Lord Kelvin	1-7	373	394	457	446	451	-21	-84	-73	-78	106%	123%	120%	121%				
John Robson	1-7	279	318	322	322	338	-39	-43	-43	-59	114%	115%	115%	121%	EFI to start 2007/08			
Glenbrook	6-8	625	630	674	680	686	-5	-49	-55	-61	101%	108%	109%	110%	LFI			
Herbert Spencer	1-5	316	425	444	455	457	-109	-128	-139	-141	134%	141%	144%	145%	EFI			
Howay	1-5	113	110	118	120	120	3	-5	-7	-7	97%	104%	106%	106%				
Richard McBride	1-5	271	281	278	292	297	-10	-7	-21	-26	104%	103%	108%	110%	MP to expand 2007/08			
Hume Park	1-5	45	55	65	69	69	-10	-20	-24	-24	122%	144%	153%	153%				
School District Total		5,038	5,458	5,874	6,129	6,318	-420	-836	-1,091	-1,280	108%	117%	122%	125%				
Secondary School		2,025	2,133	2,370	2,531	2,605	-108	-345	-506	-580	105%	117%	125%	129%				
Middle Schools		1,000	895	982	1,040	1,094	105	18	-40	-94	90%	98%	104%	109%				
Elementary Schools		2,013	2,430	2,522	2,558	2,619	-417	-509	-545	-606	121%	125%	127%	130%				
Queensborough		595	490	621	718	798	105	-26	-123	-203	82%	104%	121%	134%				
Westside		1,048	1,334	1,304	1,264	1,286	-286	-256	-216	-238	127%	124%	121%	123%				
Eastside		1,370	1,501	1,579	1,616	1,629	-131	-209	-246	-259	110%	115%	118%	119%				



Capacity Utilization Baseline Analysis: Junior Middle with NWSS Replacement and New Middle School

Appendix B-2

School	Grade Span	1-12 Op Capacity	Enrollment (1-12)			Surplus or Shortage			Capacity Utilization			Notes			
			2009	2012	2016	2021	2009	2012	2016	2021	2009		2012	2016	2021
<b>NWSS</b>	9-12	2,000	2,006	2,012	2,125	2,197	-6	-12	-125	-197	100%	101%	106%	110%	
<b>Queensborough</b>	6-8	375	211	228	272	310	164	147	103	65	56%	61%	73%	83%	balance with QE?
Queen Elizabeth	1-5	226	334	393	446	488	-108	-167	-220	-262	148%	174%	197%	216%	balance with Queensborough?
<b>New Middle School</b>	6-8	600	607	622	641	648	-7	-22	-41	-48	101%	104%	107%	108%	EFI, balance with Glenbrook?
Connaught Heights	1-5	90	60	50	49	51	30	40	41	39	67%	56%	54%	57%	close? balance with LT?
Lord Tweedsmuir	1-5	294	390	384	370	368	-96	-90	-76	-74	133%	131%	126%	125%	expand? balance with CH?
Lord Kelvin	1-5	362	322	334	331	330	40	28	31	32	89%	92%	91%	91%	
John Robson	1-5	271	224	232	235	247	47	39	36	24	83%	86%	87%	91%	
<b>Glenbrook</b>	6-8	625	560	574	580	586	65	51	45	39	90%	92%	93%	94%	LFI
Herbert Spencer	1-5	316	441	444	455	457	-125	-128	-139	-141	140%	141%	144%	145%	expansion?
Howay	1-5	113	123	118	120	120	-10	-5	-7	-7	109%	104%	106%	106%	
Richard McBride	1-5	271	288	278	292	297	-17	-7	-21	-26	106%	103%	108%	110%	
Hume Park	1-5	45	66	65	69	69	-21	-20	-24	-24	147%	144%	153%	153%	expand? close?
<b>School District Total</b>		5,588	5,632	5,734	5,985	6,168	-44	-146	-397	-580	101%	103%	107%	110%	
<b>Secondary School</b>		2,000	2,006	2,012	2,125	2,197	-6	-12	-125	-197	100%	101%	106%	110%	
Middle Schools		1,600	1,378	1,424	1,493	1,544	222	176	107	56	86%	89%	93%	97%	
Elementary Schools		1,988	2,248	2,298	2,367	2,427	-260	-310	-379	-439	113%	116%	119%	122%	
Queensborough		601	545	621	718	798	56	-20	-117	-197	91%	103%	119%	133%	
Westside		1,617	1,603	1,622	1,626	1,644	14	-5	-9	-27	99%	100%	101%	102%	
Eastside		1,370	1,478	1,479	1,516	1,529	-108	-109	-146	-159	108%	108%	111%	112%	

Capacity Utilization Baseline Analysis: Senior Middle with NWSS Replacement and New Middle School

Appendix B-3

School	Grade Span	1-12 Op Capacity				Enrollment (1-12)				Surplus or Shortage				Capacity Utilization				Notes
		2009	2012	2016	2021	2009	2012	2016	2021	2009	2012	2016	2021	2009	2012	2016	2021	
<b>NWSS</b>	10-12	1,500	1,497	1,549	1,585	1,656	3	-49	-85	-156	100%	103%	106%	110%				
Queensborough	7-9	375	223	230	257	303	152	145	118	72	59%	61%	69%	81%	balance with QE?			
Queen Elizabeth	1-6	230	396	462	534	586	-166	-232	-304	-356	172%	201%	232%	255%	expansion?			
<b>New Middle School</b>	7-9	600	717	695	772	767	-117	-95	-172	-167	120%	116%	129%	128%	EI, shift some to Glenbrook?			
Connaught Heights	1-6	92	78	62	58	61	14	30	34	31	85%	67%	63%	66%	balance with LT?			
Lord Tweedsmuir	1-6	299	425	418	400	398	-126	-119	-101	-99	142%	140%	134%	133%	balance with CH?			
Lord Kelvin	1-6	368	369	390	390	388	-1	-22	-22	-20	100%	106%	106%	105%				
John Robson	1-6	276	266	276	280	292	10	0	-4	-16	96%	100%	101%	106%				
<b>Glenbrook</b>	7-9	625	530	504	538	529	95	121	87	96	85%	81%	86%	85%	LFI			
Herbert Spencer	1-6	322	544	563	569	576	-222	-241	-247	-254	169%	175%	177%	179%				
Howay	1-6	115	152	150	150	151	-37	-35	-35	-36	132%	130%	130%	131%				
Richard McBride	1-6	276	355	353	366	374	-79	-77	-90	-98	129%	128%	133%	136%				
Hume Park	1-6	46	81	82	86	87	-35	-36	-40	-41	176%	178%	187%	189%	expansion? close?			
<b>School District Total</b>		5,124	5,633	5,734	5,985	6,168	-509	-610	-861	-1,044	110%	112%	117%	120%				
Secondary School		1,500	1,497	1,549	1,585	1,656	3	-49	-85	-156	100%	103%	106%	110%				
Middle Schools		1,600	1,470	1,429	1,567	1,599	130	171	33	1	92%	89%	98%	100%				
Elementary Schools		2,024	2,666	2,756	2,833	2,913	-642	-732	-809	-889	132%	136%	140%	144%	need more capacity			
Queensborough		605	619	692	791	889	-14	-87	-186	-284	102%	114%	131%	147%				
Westside		1,635	1,855	1,841	1,900	1,906	-220	-206	-265	-271	113%	113%	116%	117%				
Eastside		1,384	1,662	1,652	1,709	1,717	-278	-268	-325	-333	120%	119%	123%	124%				

Capacity Utilization Analysis: Scenario A — Junior Middle Configuration

Appendix B-4

School	Grade Span	1-12 Op Capacity			Enrollment (1-12)			Surplus or Shortage			Capacity Utilization			Add Space	POC	Notes	
		2009	2012	2016	2021	2009	2012	2016	2021	2009	2012	2016	2021				
→ NWSS	9-12	2,000	2,142	2,269	2,347	-142	-152	-269	-347	107%	108%	113%	117%	2,000	EFI/LFI	Sigma added	
→ Queensborough	5-8	375	282	308	360	408	93	67	15	-33	75%	82%	96%	109%	LFI	add Grade 5, Note 1	
→ Queen Elizabeth	1-4	330	263	313	358	390	67	17	-28	-60	80%	95%	108%	118%	125		expand, Note 1
→ New Middle School	6-8	500	516	529	545	551	-16	-29	-45	-51	103%	106%	109%	110%	500	EFI	shift to Glenbrook
→ Connaught Heights	1-5	113	146	113	108	110	-33	0	5	3	129%	100%	96%	97%	25	HLP	Home Learners, Notes 2 + 3
→ Lord Tweedsmuir	1-5	294	308	303	289	287	-14	-9	5	7	105%	103%	98%	98%		MP	EFI to Robson
→ Lord Kelvin	1-5	362	353	366	364	365	9	-4	-2	-3	98%	101%	101%	101%			
→ John Robson	1-5	271	275	281	283	293	-4	-10	-12	-22	101%	104%	104%	108%	300	EFI	replace/reno, shift to LK
→ Glenbrook	6-8	625	651	667	676	683	-26	-42	-51	-58	104%	107%	108%	109%		LFI	
→ Herbert Spencer	1-5	339	343	346	357	359	-4	-7	-18	-20	101%	102%	105%	106%	25		EFI to McBride
→ Howay	1-5	203	222	217	219	219	-19	-14	-16	-16	109%	107%	108%	108%	100	MP	expand, add MP
→ Richard McBride	1-5	271	287	277	291	296	-16	-6	-20	-25	106%	102%	107%	109%		EFI	Note 4
→ Hume Park	1-5	68	66	65	69	69	2	3	-1	-1	97%	96%	101%	101%	25		existing portable, Note 4
School District Total		5,751	5,854	5,937	6,188	6,377	-103	-186	-437	-626	102%	103%	108%	111%	3,025		new permanent spaces
Secondary school		2,000	2,142	2,269	2,347		-142	-152	-269	-347	107%	108%	113%	117%	2,000		NWSS replacement
Middle schools		1,500	1,540	1,597	1,677	1,739	-40	-97	-177	-239	103%	106%	112%	116%	500		new middle school
Elementary schools		2,251	2,172	2,188	2,242	2,291	79	63	9	-40	96%	97%	100%	102%	525		including Robson
Elementary expansions		804	772	807	868	905	32	-3	-64	-101	96%	100%	108%	113%	225		permanent expansions
Queensborough		705	545	621	718	798	160	84	-13	-93	77%	88%	102%	113%	125		expand QE
Westside		1,540	1,598	1,592	1,589	1,606	-58	-52	-49	-66	104%	103%	103%	104%	800		new MS, Robson, excluding NWSS
Eastside		1,506	1,569	1,572	1,612	1,626	-63	-66	-106	-120	104%	104%	107%	108%	100		expand Howay

Notes

- New building
- Permanent addition
- Temporary addition
- 1 Shift Grade 5 and further expand QE after 2016
- 2 Expand HS, CH and RM using portable
- 3 Consider closing CH and consolidating with LT when replacing LT
- 4 Consider closing HP and consolidating with RM when replacing RM
- 5 Assumed attrition of 15% when POC moved

Capacity Utilization Analysis: Scenario B — Senior Middle Configuration

Appendix B-5

School	Grade Span	11-12 Op Capacity		Enrollment (1-12)			Surplus or Shortage			Capacity Utilization			Add POC Space	Notes		
		2009	2012	2016	2021	2009	2012	2016	2021	2009	2012	2016			2021	
→ NWSS	10-12	1,500	1,633	1,689	1,729	1,806	-133	-189	-229	-306	109%	113%	115%	120%	1,500	EFI/LEI Sigma added
→ Queensborough	6-9	375	285	299	345	401	90	76	30	-26	76%	80%	92%	107%		LEI add Grade 6, Note 1
→ Queen Elizabeth	1-5	407	334	393	446	488	73	14	-39	-81	82%	97%	110%	120%	200	expand, Note 1
→ New Middle School	7-9	575	595	577	641	637	-20	-2	-66	-62	103%	100%	111%	111%	575	EFI shift to Glenbrook
→ Connaught Heights	1-6	115	164	125	117	120	-49	-10	-2	-5	143%	109%	102%	104%	25	HLP Home Learners, Note 3
→ Lord Tweedsmuir	1-6	299	343	337	319	317	-44	-38	-20	-18	115%	113%	107%	106%		MP EFI to Robson
→ Lord Kelvin	1-6	368	369	390	390	388	-1	-22	-22	-20	100%	106%	106%	105%		
→ John Robson	1-6	345	348	357	361	373	-3	-12	-16	-28	101%	103%	105%	108%	375	EFI replacement
→ Glenbrook	7-9	625	652	622	669	659	-27	3	-44	-34	104%	100%	107%	105%		LEI expand for Grade 9
→ Herbert Spencer	1-6	368	364	381	386	392	4	-13	-18	-24	99%	104%	105%	107%	50	EFI, shift to Howay, Note 2
→ Howay	1-6	322	333	333	334	336	-11	-11	-12	-14	103%	103%	104%	104%	225	MP expand
→ Richard McBride	1-6	368	366	364	378	386	2	4	-10	-18	99%	99%	103%	105%	100	EFI MP to HS, expand
→ Hume Park	1-6	69	69	70	73	74	0	-1	-4	-5	100%	101%	106%	107%	25	shift to McBride, Note 4
School District Total		5,736	5,855	5,937	6,188	6,377	-119	-201	-452	-641	102%	104%	108%	111%	2,975	
Secondary school		1,500	1,633	1,689	1,729	1,806	-133	-189	-229	-306	109%	113%	115%	120%	1,500	NWSS replacement
Middle schools		1,575	1,654	1,616	1,786	1,827	-79	-41	-211	-252	105%	103%	113%	116%	575	new middle school
Elementary schools		2,661	2,568	2,632	2,673	2,744	93	29	-12	-83	97%	99%	100%	103%	900	including Robson
Elementary expansions		1,097	1,033	1,090	1,158	1,210	64	7	-61	-113	94%	99%	106%	110%	525	permanent expansions
Queensborough		782	619	692	791	889	163	90	-9	-107	79%	88%	101%	114%	200	expand QE
Westside		1,702	1,819	1,786	1,828	1,835	-117	-84	-126	-133	107%	105%	107%	108%	950	excluding NWSS
Eastside		1,752	1,784	1,770	1,840	1,847	-32	-18	-88	-95	102%	101%	105%	105%	325	expansion of McBride+Howay

- New building  
 → Permanent addition  
 → Temporary addition
- Notes**
- 1 Shift Grade 6 and further expand QE after 2016
  - 2 Expand HS using portables, EFI to McBride
  - 3 Consider closing CH and consolidating with LT when replacing LT
  - 4 Consider closing HP and consolidating with RM when replacing RM
  - 5 Assumed attrition of 15% when POC moved



Strategic Facilities Plan for the  
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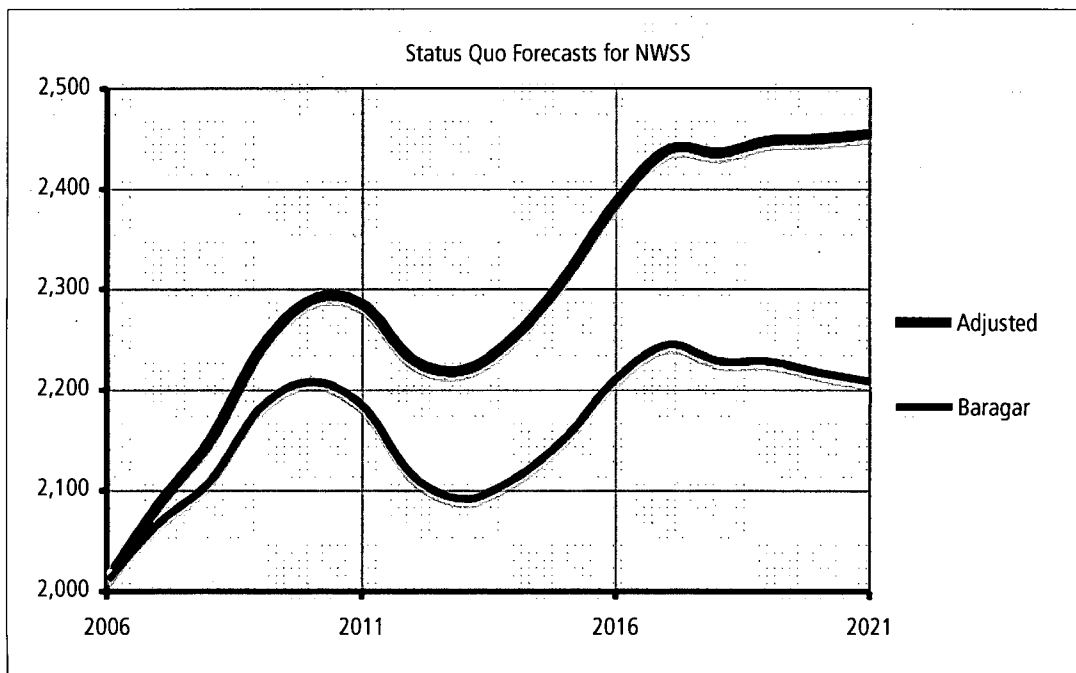
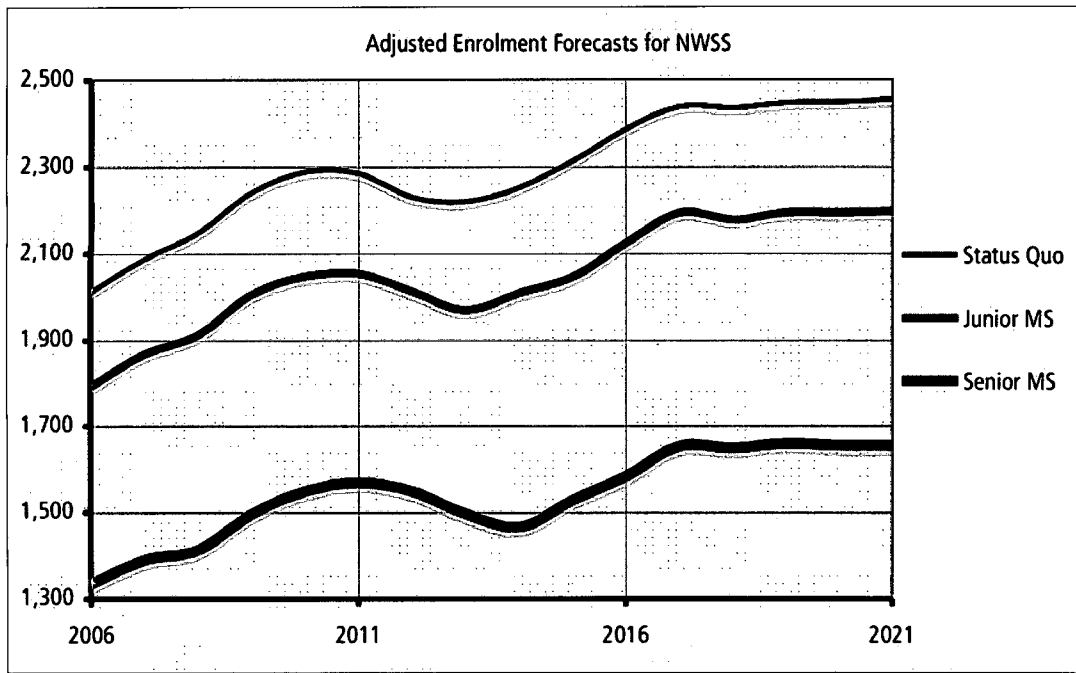
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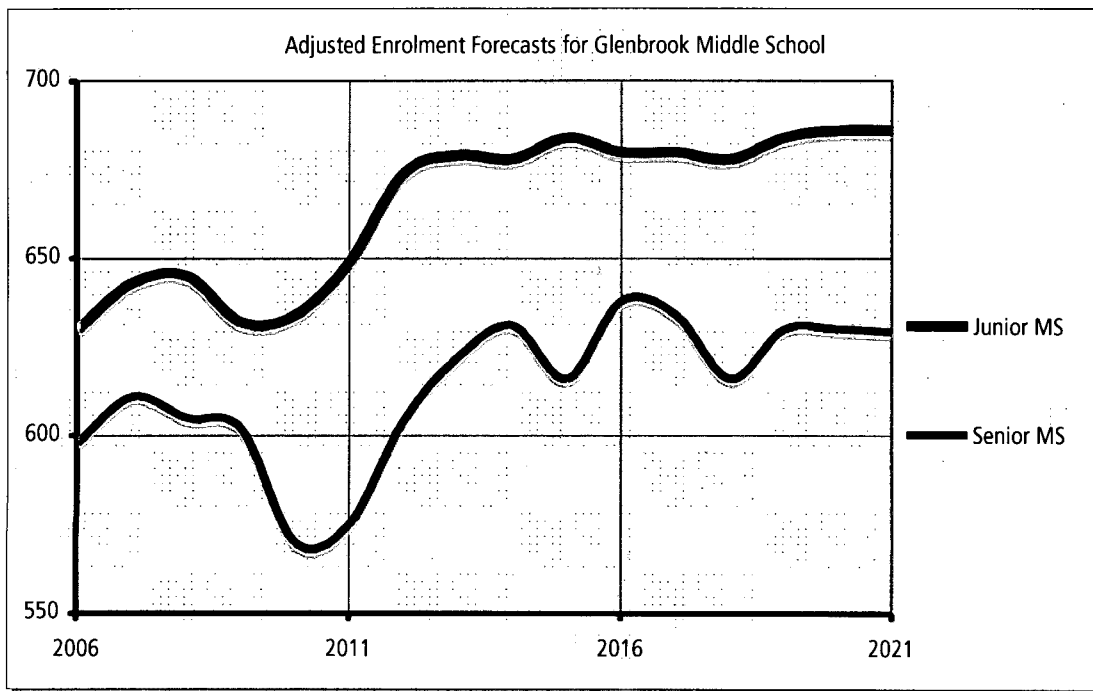
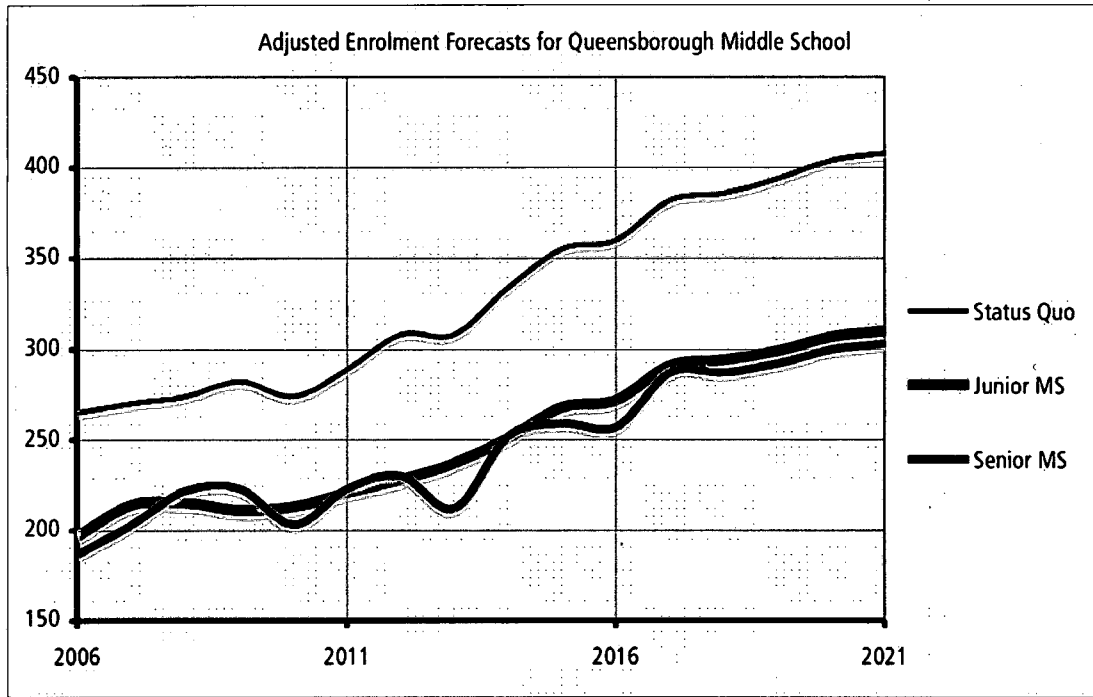
# APPENDIX C

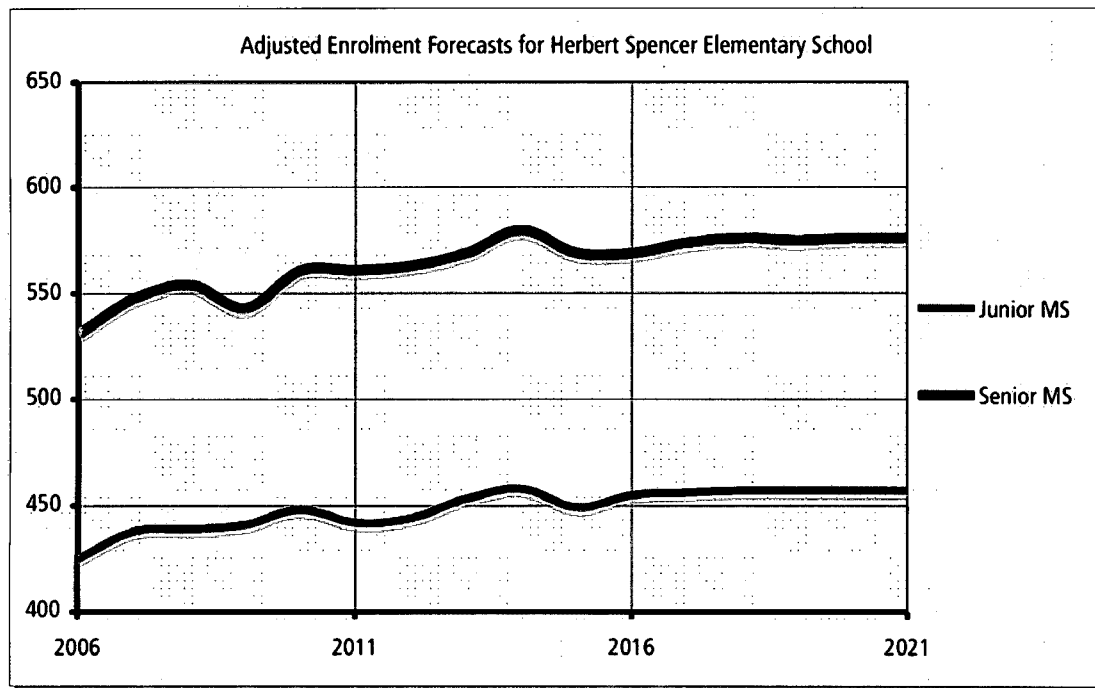
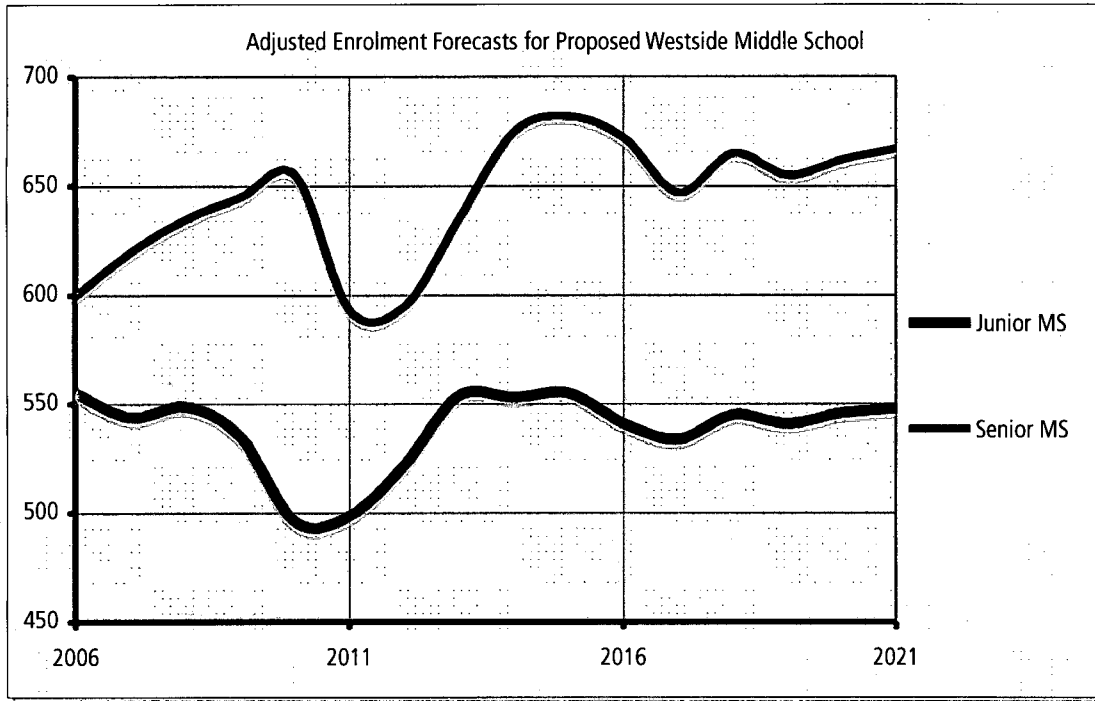
## ENROLMENT FORECASTS FOR EACH SCHOOL

We have not shown the capacities of schools in the following charts for two reasons: the operational capacities of the elementary schools change between the junior and senior middle scenarios and the vertical axis becomes too large to effectively illustrate the trends in some cases.

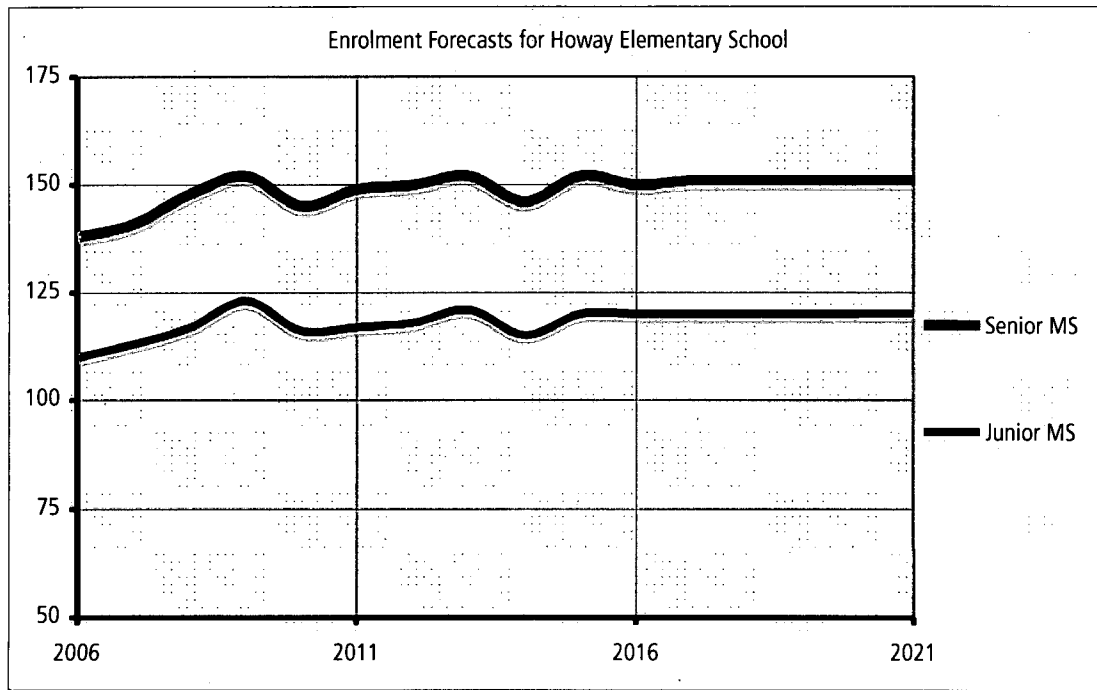
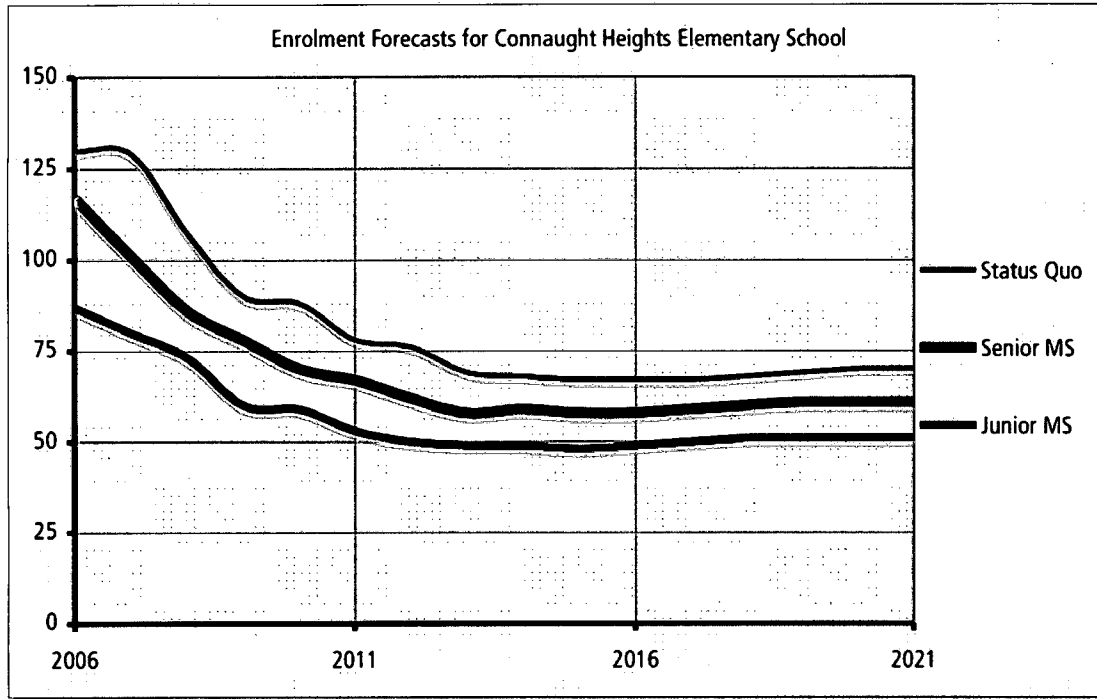
We have not shown a Status Quo forecast in the instances where the school currently has a junior middle grade configuration.

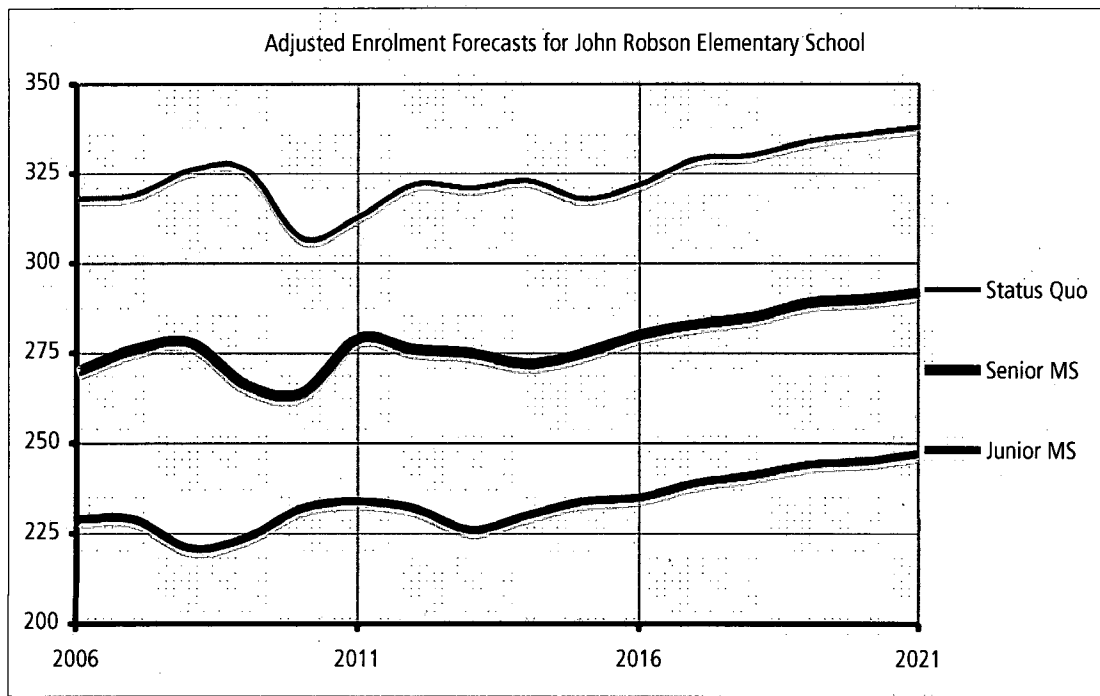
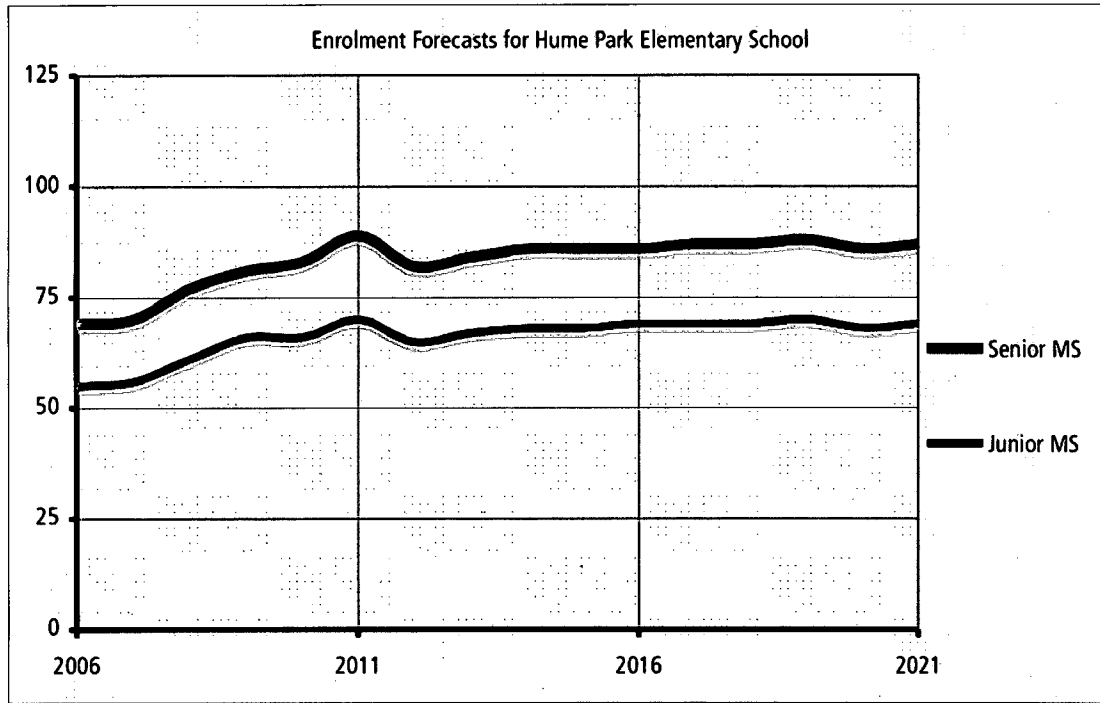


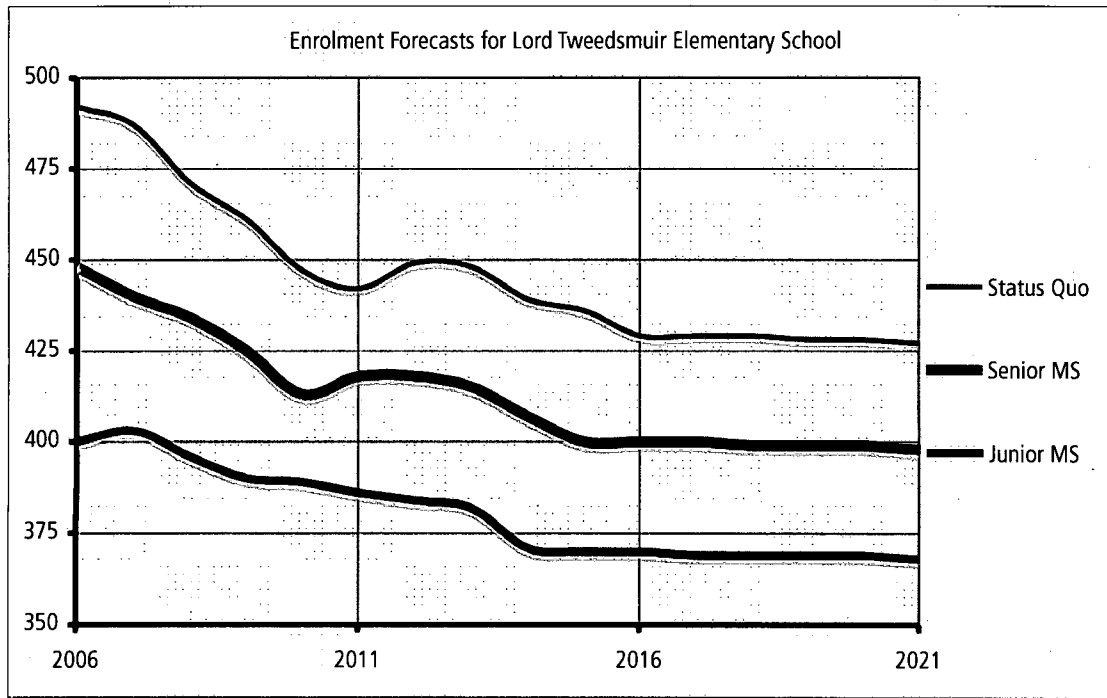
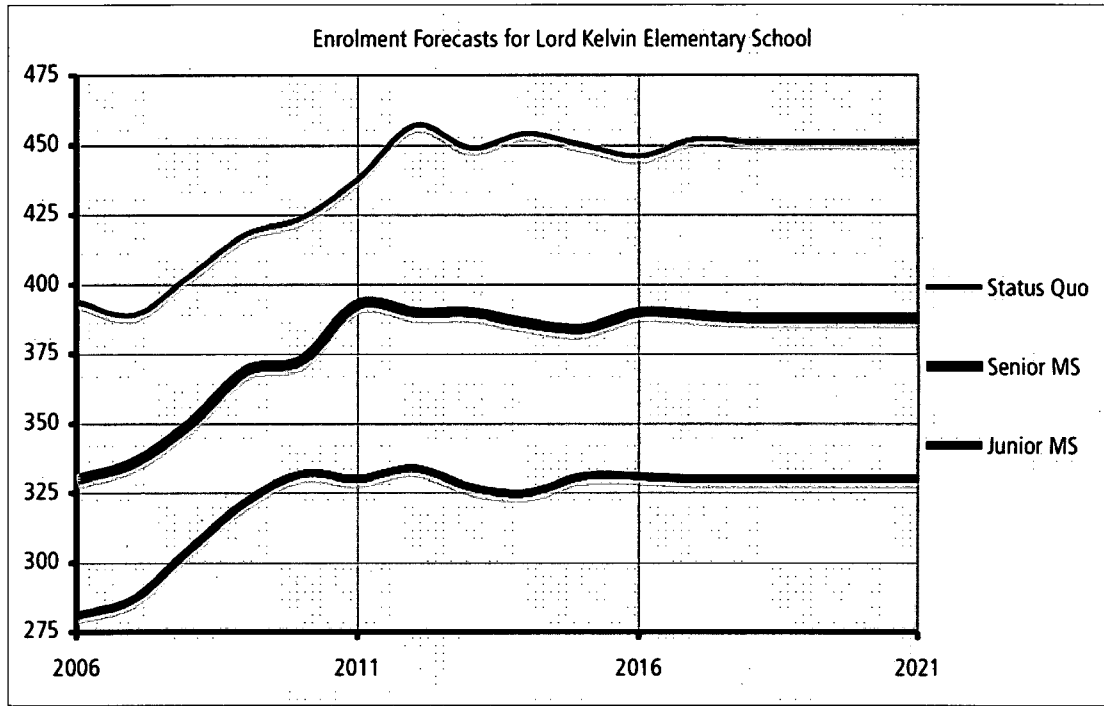


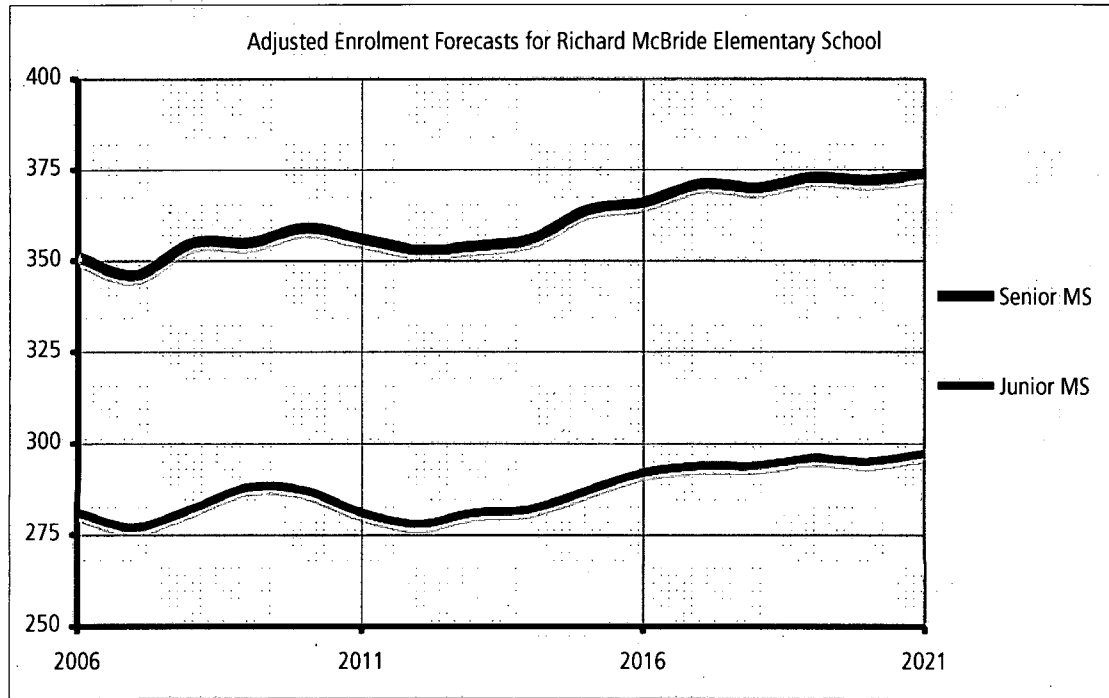
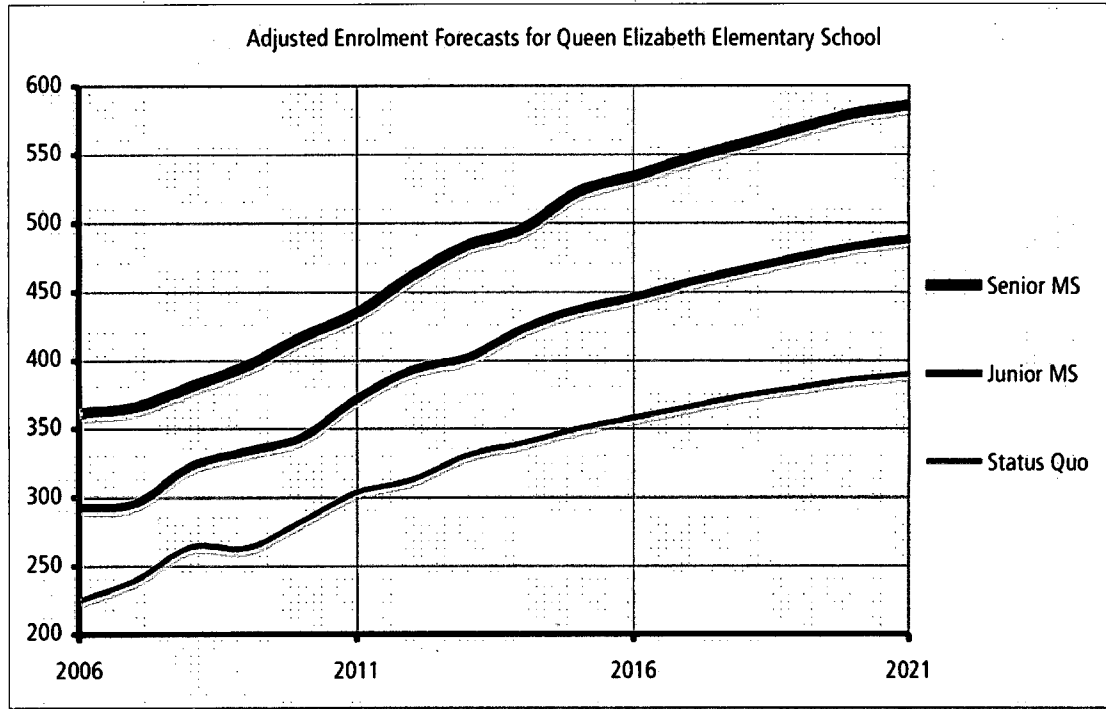














Strategic Facilities Plan for the  
New Westminster School District

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# **APPENDIX D**

## **PRELIMINARY PROJECT COST ESTIMATES**

## Preliminary Project Cost Estimates

## Appendix D

### Project 1a

#### NWSS replacement at 2000 spaces

Item	Capacity	Quantity	Rate	Amount
New construction	2,000	17,055	\$2,054	\$35,028,454
Extra gymnasium space		600	\$2,054	\$1,232,312
Demolition of existing		26,800	\$100	\$2,680,000
Site development			\$932,000	\$1,891,960
Supplementary site costs				\$2,000,000
Equipment			13.0%	\$4,713,900
Design fees for new construction			9.0%	\$4,279,196
Construction contingency for new construction			3.5%	\$1,664,132
Offsite costs				\$700,000
Development cost charges			0.5%	\$181,304
<b>Estimated total project cost (rounded)</b>				<b>\$54,371,000</b>

#### Notes

Land costs excluded	Base unit rate	\$1,065
Escalation excluded	Size factor	0.95
Massey Theatre block renovations excluded	Location factor	2.030
Temporary accommodation excluded	Unit rate	\$2,054

### Project 1b

#### NWSS replacement at 1500 spaces

Item	Capacity	Quantity	Rate	Amount
New construction	1,500	13,685	\$2,119	\$28,994,560
Demolition of existing		26,800	\$100	\$2,680,000
Site development			\$932,000	\$1,891,960
Supplementary site costs				\$1,800,000
Equipment			13.0%	\$3,769,293
Design fees for new construction			9.0%	\$3,522,223
Construction contingency for new construction			3.5%	\$1,369,753
Offsite costs				\$600,000
Development cost charges			0.5%	\$144,973
<b>Estimated total project cost (rounded)</b>				<b>\$44,773,000</b>

#### Notes

	Base unit rate	\$1,065
Land costs excluded	Size factor	0.98
Escalation excluded	Location factor	2.030
Massey Theatre block renovations excluded	Unit rate	\$2,119
Temporary accommodation excluded		
No additional gymnasium space		

# Preliminary Project Cost Estimates

# Appendix D

## Project 2a

### New Junior Middle School at 500 spaces

Item	Capacity	Quantity	Rate	Amount
New construction	500	4,935	\$2,132	\$10,518,953
Site development			\$699,000	\$1,418,970
Supplementary site costs				\$500,000
Equipment			17.28%	\$1,817,675
Design fees for new construction			9.8%	\$1,389,921
Construction contingency for new construction			3.5%	\$498,946
Offsite costs				\$200,000
Development cost charges			0.5%	\$52,595
<b>Estimated total project cost (rounded)</b>				<b>\$16,397,000</b>

#### Notes

	Base unit rate	\$1,050
Land costs excluded	Size factor	1.00
Escalation excluded	Location factor	2.030
	Unit rate	\$2,132

## Project 2b

### New Senior Middle School at 575 spaces

Item	Capacity	Quantity	Rate	Amount
New construction	575	5,620	\$2,110	\$11,859,240
Site development			\$699,000	\$1,418,970
Supplementary site costs				\$500,000
Equipment			17.28%	\$2,049,277
Design fees for new construction			9.8%	\$1,543,180
Construction contingency for new construction			3.5%	\$553,962
Offsite costs				\$200,000
Development cost charges			0.5%	\$59,296
<b>Estimated total project cost (rounded)</b>				<b>\$18,184,000</b>

#### Notes

	Base unit rate	\$1,050
Land costs excluded	Size factor	0.99
Escalation excluded	Location factor	2.030
	Unit rate	\$2,110

## Preliminary Project Cost Estimates

## Appendix D

### Project 3a

#### Replacement for John Robson Elementary at 250 spaces for K-5

Item	Capacity	Quantity	Rate	Amount
New construction	250	2,440	\$2,143	\$5,229,093
Demolition of existing		3,635	\$100	\$363,500
Site development			\$259,000	\$525,770
Supplementary site costs				\$100,000
Equipment			12.96%	\$677,690
Design fees for new construction			10.0%	\$689,605
Construction contingency for new construction			3.5%	\$241,362
Offsite costs				\$100,000
Development cost charges			0.5%	\$26,145
<b>Estimated total project cost (rounded)</b>				<b>\$7,953,000</b>

<b>Notes</b>	Base unit rate	\$1,035
Land costs excluded	Size factor	1.02
Escalation excluded	Location factor	2.030
Assuming simple replacement	Unit rate	\$2,143

### Project 3b

#### Replacement for John Robson Elementary at 375 spaces for K-6

Item	Capacity	Quantity	Rate	Amount
New construction	375	3,115	\$2,101	\$6,544,771
Demolition of existing		3,635	\$100	\$363,500
Site development			\$259,000	\$525,770
Supplementary site costs				\$100,000
Equipment			12.96%	\$848,202
Design fees for new construction			10.0%	\$838,224
Construction contingency for new construction			3.5%	\$293,379
Offsite costs				\$100,000
Development cost charges			0.5%	\$32,724
<b>Estimated total project cost (rounded)</b>				<b>\$9,647,000</b>

<b>Notes</b>	Base unit rate	\$1,035
Land costs excluded	Size factor	1.00
Escalation excluded	Location factor	2.030
Assuming simple replacement	Unit rate	\$2,101



Preliminary Project Cost Estimates

Appendix D

**Project 4a**

**Expand Howay Elementary by 100 spaces for K-5**

Item	Capacity	Quantity	Rate	Amount
New construction	225	815	\$2,206	\$1,797,974
Renovation associated with addition			11.2%	\$201,373
Site development			\$41,830	\$84,915
Equipment			12.96%	\$233,017
Design fees for renovation			16.0%	\$370,765
Construction contingency for renovation			5.0%	\$115,864
Development cost charges			0.5%	\$9,997
<b>Estimated total project cost (rounded)</b>				<b>\$2,814,000</b>

<b>Notes</b>	Base unit rate	\$1,035
Land costs excluded	Size factor	1.05
Escalation excluded	Location factor	2.030
Supplementary site costs excluded	Unit rate	\$2,206
Offsite costs excluded	Existing	125
		1,500

**Project 4b**

**Expand Howay Elementary by 225 spaces for K-6**

Item	Capacity	Quantity	Rate	Amount
New construction	350	1,500	\$2,164	\$3,246,122
Renovation associated with addition			6.5%	\$210,998
Site development			\$57,000	\$115,710
Equipment			12.96%	\$420,697
Design fees for renovation			16.0%	\$638,964
Construction contingency for renovation			5.0%	\$199,676
Development cost charges			0.5%	\$17,286
<b>Estimated total project cost (rounded)</b>				<b>\$4,849,000</b>

<b>Notes</b>	Base unit rate	\$1,035
Land costs excluded	Size factor	1.03
Escalation excluded	Location factor	2.030
Supplementary site costs excluded	Unit rate	\$2,164
Offsite costs excluded	Existing	125
		1,500

Preliminary Project Cost Estimates

Appendix D

**Project 5b**

**Expand Richard McBride Elementary by 100 spaces for K-6**

Item	Capacity	Quantity	Rate	Amount
New construction	400	465	\$2,206	\$1,025,838
Renovation associated with addition			15.7%	\$161,057
Site development			\$16,000	\$32,480
Equipment			12.96%	\$132,949
Design fees for renovation			16.0%	\$216,372
Construction contingency for renovation			5.0%	\$67,616
Development cost charges			0.5%	\$5,934
<b>Estimated total project cost (rounded)</b>				<b>\$1,642,000</b>

Notes	Base unit rate	Amount
Land costs excluded	Size factor	1.05
Escalation excluded	Location factor	2.030
Supplementary site costs excluded	Unit rate	\$2,206
Offsite costs excluded	Existing	300
		2,760

**Project 6b**

**Expand Glenbrook Middle to respond to needs of Grade 9 students**

Item	Capacity	Quantity	Rate	Amount
Senior middle school	625	242	\$2,238	\$541,614
Renovation associated with addition			21.0%	\$113,739
Site development			\$0	\$0
Equipment			17.28%	\$93,591
Design fees for renovation			16.0%	\$119,831
Construction contingency for renovation			5.0%	\$37,447
Development cost charges			0.5%	\$3,277
<b>Estimated total project cost (rounded)</b>				<b>\$909,000</b>

Notes	Base unit rate	Amount
Land costs excluded	Size factor	1.05
Escalation excluded	Location factor	2.030
Supplementary site costs excluded	Unit rate	\$2,238
Offsite costs excluded	JM school	625
		5,638
	Actual area of school	5,354

**Project 7a**

**Expand Queen Elizabeth Elementary by 125 spaces for K-4**

Item	Capacity	Quantity	Rate	Amount
New construction	375	785	\$2,206	\$1,731,790
Renovation associated with addition			11.7%	\$202,619
Site development			\$39,370	\$79,921
Equipment			12.96%	\$224,440
Design fees for renovation			16.0%	\$358,203
Construction contingency for renovation			5.0%	\$111,939
Development cost charges			0.5%	\$9,672
<b>Estimated total project cost (rounded)</b>				<b>\$2,719,000</b>

<b>Notes</b>	Base unit rate	\$1,035
Land costs excluded	Size factor	1.05
Escalation excluded	Location factor	2.030
Supplementary site costs excluded	Unit rate	\$2,206
Offsite costs excluded	Existing 250	2,440

**Project 7b**

**Expand Queen Elizabeth Elementary by 200 spaces for K-5**

Item	Capacity	Quantity	Rate	Amount
New construction	450	1,120	\$2,206	\$2,470,835
Renovation associated with addition			8.5%	\$210,021
Site development			\$66,840	\$135,685
Equipment			12.96%	\$320,220
Design fees for renovation			16.0%	\$501,882
Construction contingency for renovation			5.0%	\$156,838
Development cost charges			0.5%	\$13,404
<b>Estimated total project cost (rounded)</b>				<b>\$3,809,000</b>

<b>Notes</b>	Base unit rate	\$1,035
Land costs excluded	Size factor	1.05
Escalation excluded	Location factor	2.030
Supplementary site costs excluded	Unit rate	\$2,206
Offsite costs excluded	Existing 250	2,440



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# APPENDIX E

## EVALUATION MATRIX

Evaluation Matrix Comparing Scenarios

Appendix E

Group	Criteria	Weight	Scenario A: Junior/Middle Configuration	Scenario B: Senior/Middle Configuration	Reason for preference
Economic criteria	1 Minimize capital costs associated with NWSS and new middle school	25	8	8	B may be slightly less expensive, but costs are too preliminary to be sure
	2 Minimize total capital costs for entire program	20	8	8	B may be slightly less expensive, but costs are too preliminary to be sure
	3 Minimize operational costs	15	6	7	B likely less expensive due to larger elementary schools
	4 Minimize negative environmental impacts	9	6	7	B has less environmental impact due to the decreased distance to school
Educational and Operational criteria	5 Provide the required capacity	9	7	7	Scenarios provide essentially the same capacity
	6 Maximize the benefits of a middle school configuration	10	8	6	A has the slightly preferred 6-8 middle school
	7 Maximize program opportunities	10	8	6	A provides a broader range to Grades 6 and 9
	8 Improve the safety and quality of educational facilities	10	8	8	A provides more new space but B renovates more schools
Strategic criteria	9 Minimize the distance to school for students, especially elementary	7	6	8	In B Grade 6 students stay in elementary and Grade 9 stay in middle
	10 Provide schools within preferred capacity ranges	10	5	7	B creates larger elementaries and a smaller secondary
	11 Balance district programs in three zones	3	7	8	B provides Queensborough with more 'critical mass'
	12 Maximize potential to accommodate future growth	7	4	5	B leaves more available space on NWSS site
	13 Minimize challenges with developing the NWSS site	10	3	6	NWSS is smaller building with Scenario B
	14 Maximize potential partnership opportunities	3	4	5	In B the extra space on NWSS and expansions present more opportunities
	15 Maximize opportunities for accommodating support functions	3	4	4	Sigma and Home Learners for both
	16 Minimize construction projects disruption for students and staff	3	6	4	A has fewer and smaller expansion projects
	17 Minimize changes to the current situation	20	7	4	A has the junior middle direction as previously adopted
<b>Total weight and score</b>		<b>174</b>	<b>74%</b>	<b>74%</b>	Ratings are on a scale of 1-9 with 9 being better

Economic criteria	40%	81%	85%	105%
Educational and Operational criteria	34%	78%	78%	99%
Strategic criteria	26%	58%	52%	89%