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EXPANSION FOR NWSS REPLACEMENT AND NEW WESTSIDE MIDDLE SCHOOL

INTRODUCTION

The New Westminster School District (NWSD) is planning to replace the New Westminster Secondary School (NWSS) with a new school on the same site as the existing school. In addition, NWSD is planning to construct a new Westside Middle School (WMS) on the same site. The Ministry of Education (MoE) has agreed to fund NWSS with a capacity of 1,800 spaces and the new WMS with a capacity of 500 spaces.

NWSD has decided to procure the construction of these two new schools through a design-build process. As part of the design-build Request for Proposal, NWSD wants to indicate the scale of future expansion that may be required for each of the new buildings.

Our assignment was to define the scale of future expansion for these two new buildings.

NWSS CONTEXT

NWSS is the only secondary school in New Westminster. It is very unlikely that there will be a second secondary school in New Westminster for the foreseeable future, if ever. Unless NWSS is physically expanded, there are very few options available to NWSD to accommodate increased enrolment:

- ▶ It is possible to re-locate the Sigma alternate program off-site. However, this move will serve to increase capacity by no more than 150 spaces.
- ▶ The school could move to an extended day schedule or year round schedule.
- ▶ Other specific programs could be moved to locations off-site.

None of the above options is desirable. A better alternative is to physically expand the school to accommodate increased enrolment.

We used the enrolment forecasts for NWSS presented in the Strategic Facilities Plan for the New Westminster School District as the starting point for our assessment of the very long-term growth possibilities for NWSS. The enrolment forecasts in the Strategic Facilities Plan extend to 2021.

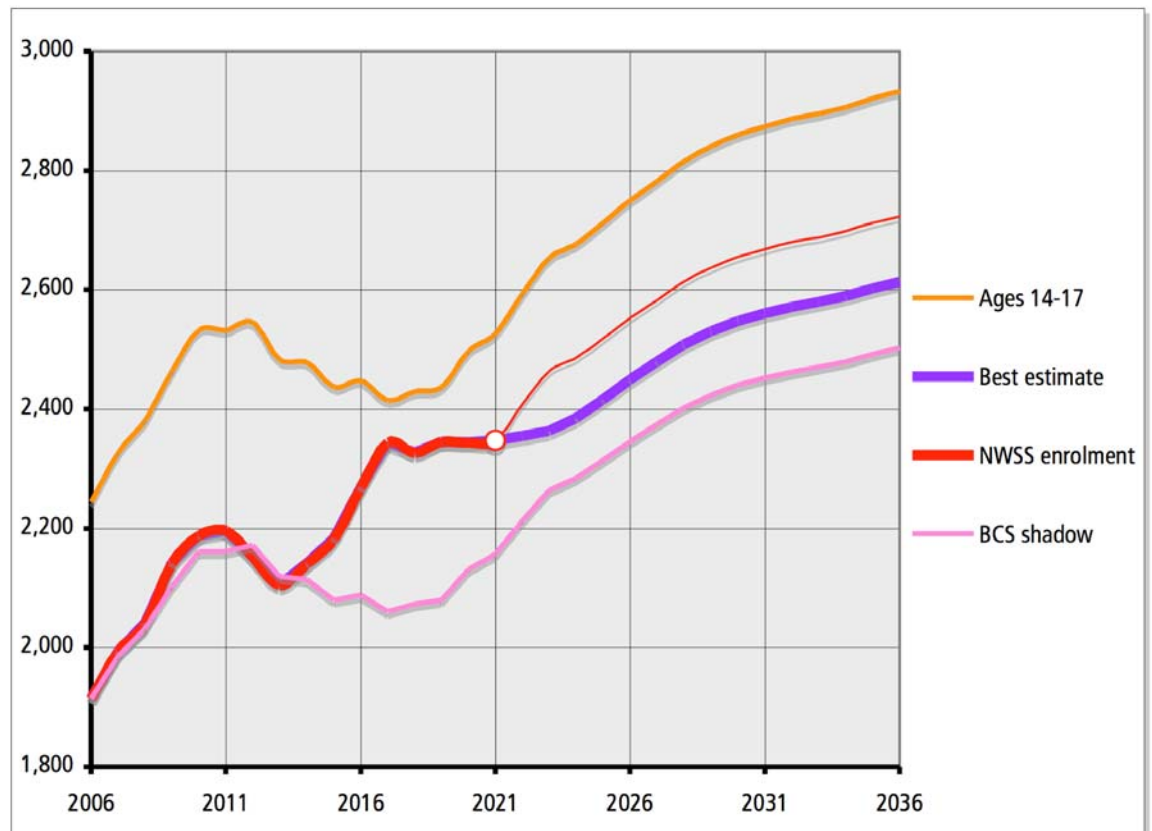
We used the latest population forecasts from BC Statistics (PEOPLE 32) to extend the enrolment forecasts to 2036. This is at least 25 years after the new NWSS is due to open. While we recognize that the new NWSS is likely to serve for longer

than 25 years (40 years is often quoted as the expected lifespan of new school), a 30-year population projection is already past the point of high confidence. We could speculate, for example, that the population of New Westminster is likely to become stabilized in the future given the limited availability of land.

NWSS ENROLMENT

Figure 1 presents our enrolment forecast for NWSS. Our best forecast follows the forecast from the Strategic Facilities Plan (shown in the heavy red line to 2021) and then the 'best estimate' in the heavy purple line from 2021 to 2036. In summary, our enrolment forecast for NWSS shows the number of students increasing about 2,600 in 2036.

Figure 1: Long-Term Enrolment Forecasts for NWSS



The four forecasts shown in Figure 1 are:

- ▶ 'Ages 14-17' is BC Statistics projection of the number of persons aged 14-17 years in NWSD.
- ▶ 'NWSS enrolment' to 2021 (the heavy red line) is from the Strategic Facilities Plan and is based on Baragar's forecasts augmented with housing data.
- ▶ 'NWSS enrolment' from 2022 to 2036 (the thin red line) is calculated as a constant proportion (93%) of the estimate population of persons aged 14-17 years.

- ▶ 'BCS shadow' is calculated as a proportion of the BC Statistics estimate population of persons aged 14-17 years — the years to 2021 vary from 81-92% and the years after 2021 are fixed at 85%.
- ▶ 'Best estimate' (the heavy purple line) from 2021 to 2036 is the average of the 'NWSS lower' and 'NWSS enrolment' forecasts — the best estimate to 2021 is the NWSS enrolment (the heavy red line).

NWSS EXPANSION

The best estimate enrolment forecast from Figure 1 becomes the red 'best estimate' line on Figure 2. The orange '115% utilization' line shows the enrolment forecast 'discounted' to allow for the potential of large secondary schools to accommodate up to about 15% more students than indicated by the design capacity.

Figure 2: Need for Expansion to NWSS

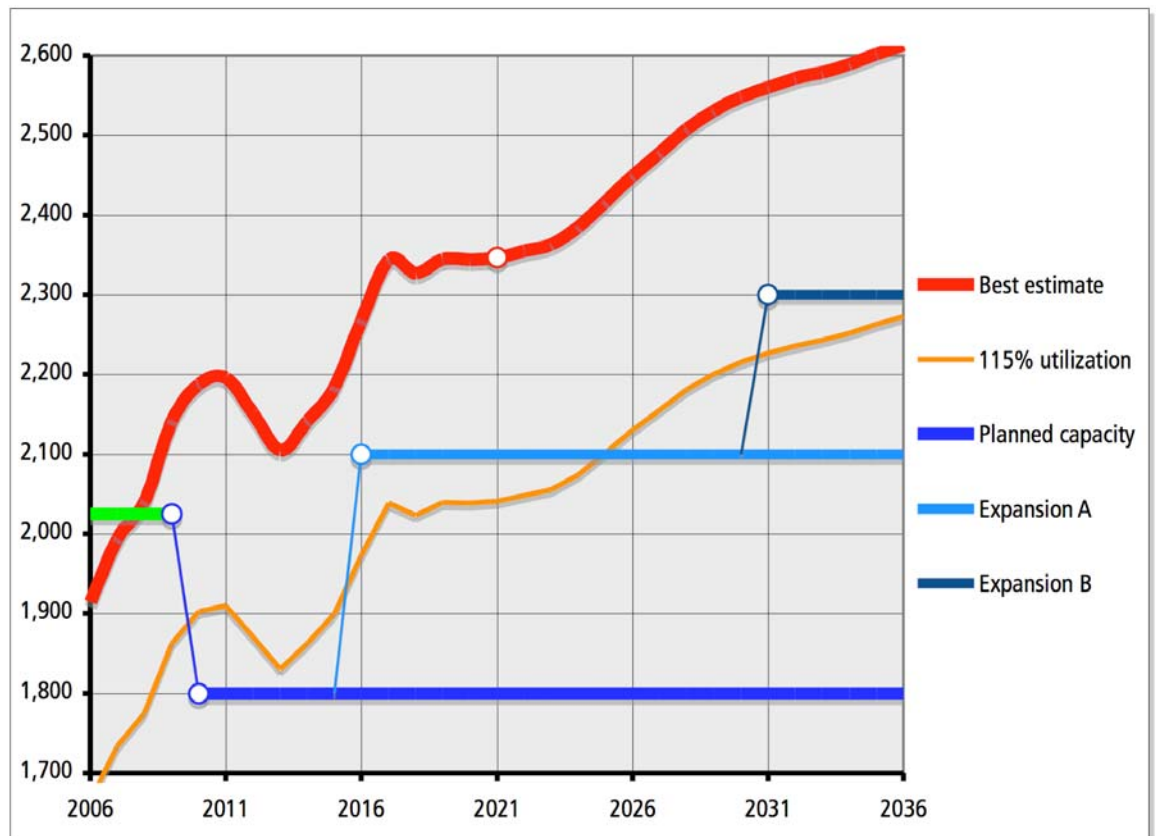


Figure 2 also illustrates the planned capacity of the NWSS replacement facility — the thick bright blue line labeled 'planned capacity'. It shows that the new school will have smaller capacity than the existing school (shown in bright green). It also indicates that, if the enrolment forecasts are accurate, the replacement NWSS will operate at above 115% from opening day.

In the long-term, our analysis shows that at least 500 spaces will need to be added to the school to meet demand, even assuming that it is acceptable to operate at utilization levels hovering around 115%.

We indicate in Figure 2 that the demand for new space could be provided in two phases:

- ▶ Phase One could be for about 300 spaces and should be available by around 2016 — only five or six years after the school is built.
- ▶ Phase Two could be for about 200 spaces and should be available by around 2031 — about 20 years after the school is opened.

It is likely that the 20-year expansion will also involve significant renovations to the original building. The first phase, however, will be a simple expansion. In fact, the design team planning for the replacement NWSS should consider how to plan for this expansion as an integral part of the initial design. This may include the development of core facilities that are sized to meet the needs of a larger school — of course, building this extra space would require MoE approval. Some of the core functions could be the size allowed for a school of 2,000-2,100 students.

Furthermore, planners should have a strategy for accommodating excess enrolment during the period between the opening of the new school and the completion of the permanent expansion. This could easily be much longer than the six years shown in Figure 2 given the need for MoE approvals. Interim accommodation strategies could include the installation of several portable classrooms on the site.

Of course, it is possible that our enrolment forecasts are optimistic scale and urgency of expansion does not materialize. However, even the lower BC Statistics-based enrolment forecast shown in Figure 1 indicates that there will be about 2,500 students attending NWSS in 2036. It is very likely that NWSS will need to be expanded by at least 250 spaces within 10 years of opening.

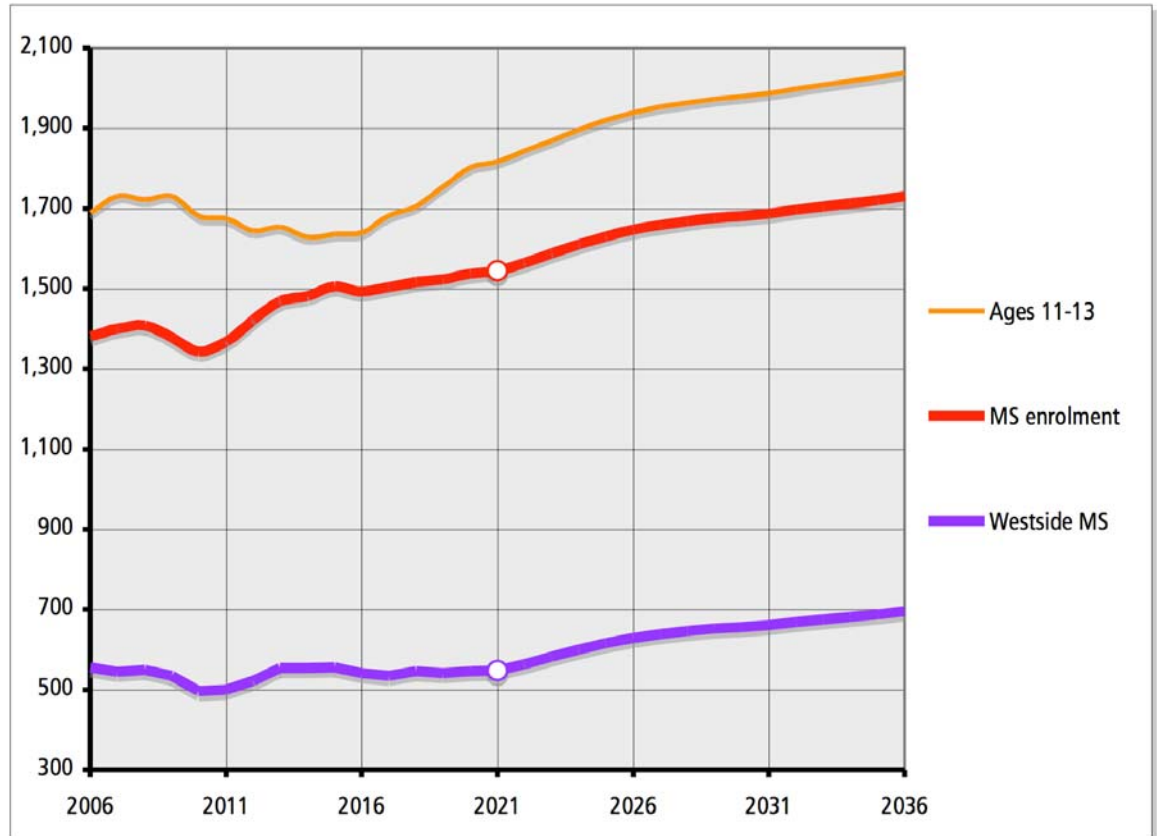
WMS ENROLMENT

Figure 3 presents our enrolment forecast for the proposed new Westside Middle School — shown in purple. Figure 3 also shows BC Statistics projection of the number of children aged 11-13 years in NWSD (shown in orange) and our estimate of the total number of middle school students from the Strategic Facilities Plan (shown in red). The forecasts to 2021 for total middle school enrolment and the estimated enrolment for the new WMS are drawn from the Strategic Facilities Plan. Estimates for 2022 to 2036 are calculated as a constant proportion of the estimate population of children aged 11-13 years.

In summary, our enrolment forecast for NWSS shows the estimated enrolment at WMS will increase to about 700 in 2036. Note that growth in middle school enrolment outside of Queensborough will be accommodated in the new WMS since there is essentially no expansion potential at the eastside middle school (Glenbrook). As outlined in the Strategic Facilities Plan, the Queensborough Middle School (QMS) will gradually become fully utilized by increasing numbers of middle school students living in Queensborough. The elementary students that are

accommodated in QMS will be moved expanded elementary facilities in Queensborough.

Figure 3: Long-Term Enrolment Forecast for WMS



WMS EXPANSION

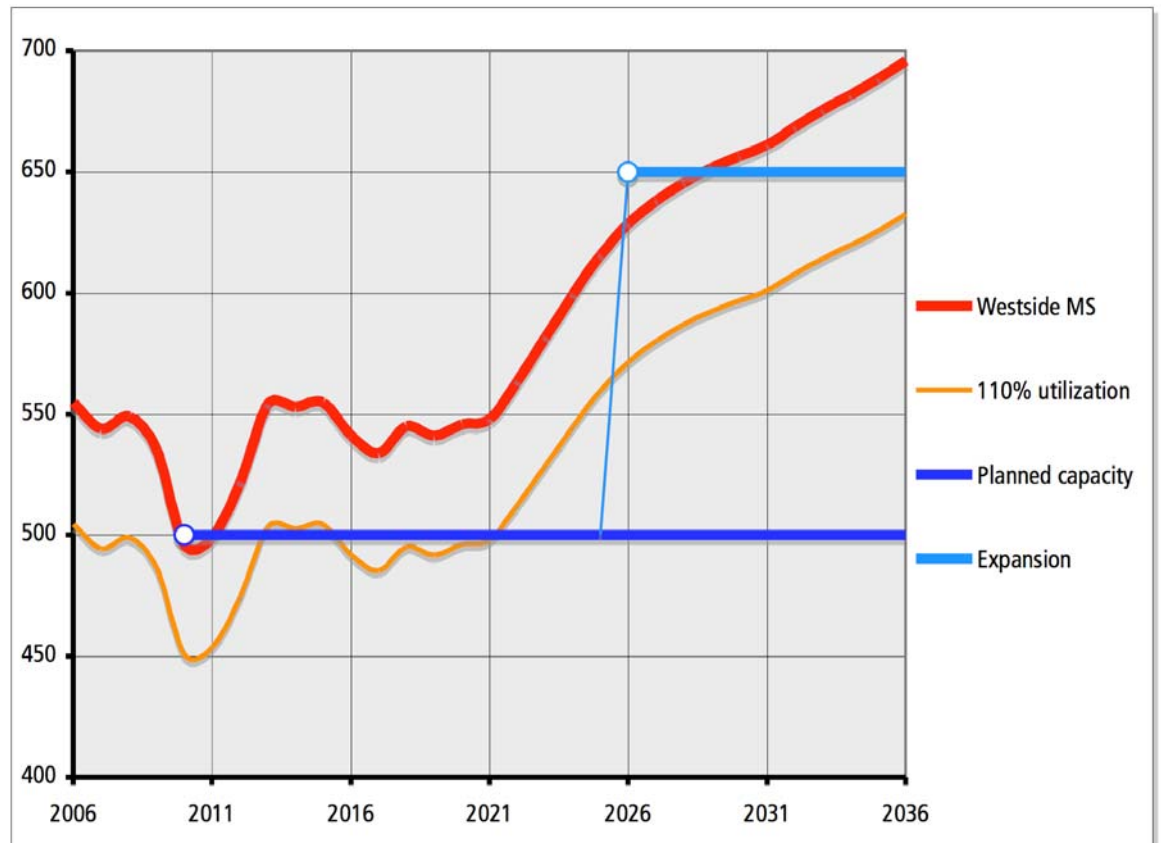
The best estimate enrolment forecast from Figure 3 becomes the red 'Westside MS' line on Figure 4. The orange '110% utilization' line shows the enrolment forecast 'discounted' to allow for the potential of the school to accommodate up to about 10% more students than indicated by the design capacity.

Figure 4 indicates that the planned capacity of 500 spaces for the new WMS will be sufficient for at least the first decade of the school's life. Our enrolment forecasts show that WMS will need to be expanded by about 150 spaces sometime between the tenth and fifteen year after the school opens. As illustrated in Figure 4, the expanded capacity of 650 spaces will be sufficient to 2036 and perhaps beyond.

Since the 500-space capacity will be sufficient for at least ten years, it is likely not justified to make the core functions larger as suggested for NWSS.

It is possible that the 150 spaces will be constructed in two phases, although if the pattern of enrolment increase occurs as illustrated in Figure 4, a single 150-space addition may be the most appropriate response.

Figure 4: Need for Expansion to WMS



Once WMS is built, there will be three middle schools in NWSD. However, this does not provide much flexibility for relieving anticipated future enrolment pressures at WMS. This is because there is no expansion capacity at Glenbrook Middle School and Queensborough Middle School is relatively inaccessible for students living in the Westside of New Westminster. Effectively, this will leave NWSD planners with very few options for accommodating excess enrolment except for implementing extended days, installing portable classrooms or physically expanding the building.

SUMMARY FOR THE SITE

As outlined in Figure 5, our best estimate is that the two schools on the existing NWSS site will likely need to be expanded by a total of 650 spaces. The first phase of this expansion will be required very soon after the new schools are opened. The second and third phases will be required in about 15 and 20 years after the schools are opened.

Figure 5: Allowable Building and Site Areas

School	Horizon	Capacity	Building (m ²)	Site (ha)
NWSS	2010	1,800	15670	7.1
NWSS	2036	2,300	19230	8.5
WMS	2010	500	4935	2.8
WMS	2036	650	5775	3.6
Combined	2010	2,300	20605	9.9
Combined	2036	2,950	25005	12.1
Expansion		650	4400	2.2
% Increase		28%	21%	22%

Using MoE allowable areas, this expansion would increase the floor area by more than one fifth of the area to be built initially. The estimated site area would also increase by a fifth.

The existing NWSS site is about 8.6 ha — almost 30% less than the recommended site area of 12.1 ha. However, note that many NWSD school sites are smaller than the MoE site areas.

For perspective on the building program, note that, at an estimated 30 394 square metres, the existing NWSS facility is larger than the long-term allowable floor area for the two new schools combined (25 005 square metres).