

From: [Karen Matthews](#)
To: [Karen Matthews](#)
Subject: D&A Mahony Comment on facilities plan/budgeting process
Date: July 8, 2022 9:11:31 AM

From: Daniel & Amelia Mahony < >

Sent: June 24, 2022 8:47 AM

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Subject: Comment on facilities plan/budgeting process

CAUTION: External Message

Hello school district board,

I hope this letter finds you well and safe.

I am writing to comment on the decision making process for opening/closing of schools. My comments relate to the quality of the student enrollment data that leads to possible strategic decision-making outcomes for these decisions.

I realize school resource planning is complex, but I am finding it hard to figure out how strategic decisions can be made from the data presented.

I applaud the districts decisions to reopen schools.

However, I'd like to point out that you had this data years ago. But, it wasn't presented to you correctly.

I'd encourage the district to hire a data analyst. Given the quality of the graphs below and some of the projected enrollment data presented in the past, I am going to assume there isn't one on staff.

There are 3 points I'd like to make:

#1 Student enrollment data in 2015 actually showed elementary enrollment increasing to 2025. But, instead, decisions based on declining student enrollment were made:

I was in attendance at the 2015 meeting where school closures were tabled and discussed. I was struck by the graphs of current and future enrollment that were presented. I wrote a

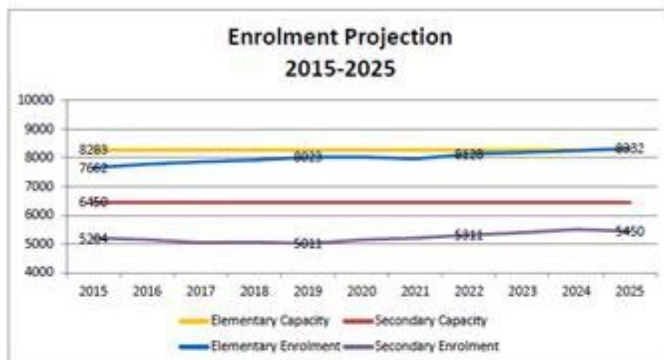
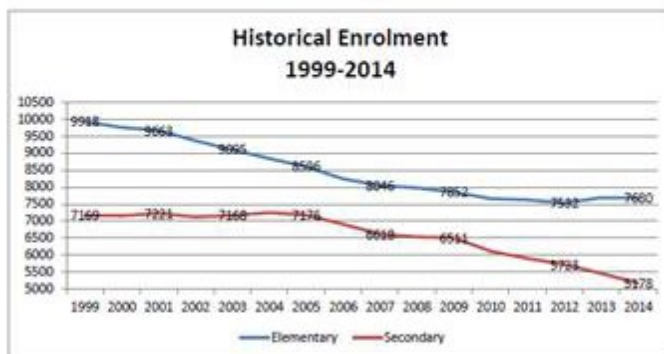
letter trying to describe why they were misleading (see attached). In fact, they were presented in a way that would go against any science/mathematical standard of practice for graphing.

For the 2015 presentation, my main point was that current and future student enrollment numbers were presented on **2 separate graphs and on 2 different scales at 2 different resolutions** to try and show that student numbers were going to decline in the future.

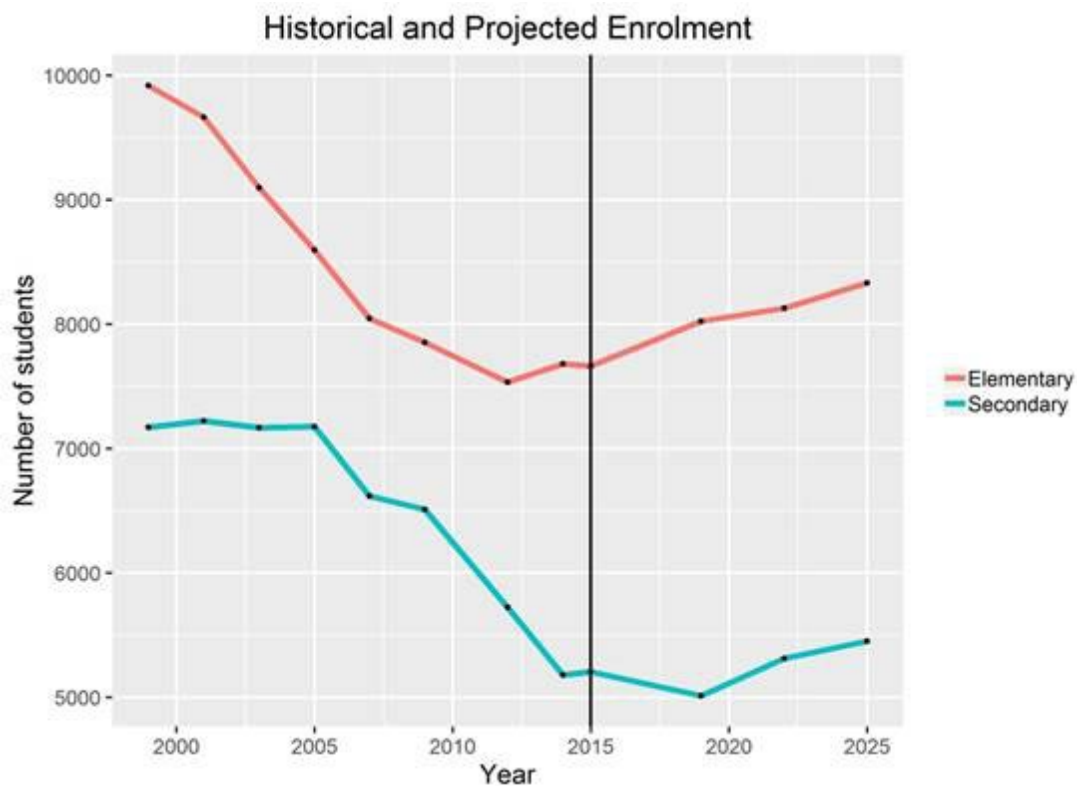
The y-axis scale on the historical enrolment graph is from 5000-10500.

The y-axis scale on the future enrolment graph is from 4000-10000.

Graphs from 2015 facilities plan:



When I used the **SAME** numbers on **ONE** graph:



This second graph shows in fact that numbers are due to increase, not decrease – especially for elementary schools.

I realize there are other factors that contribute to decision-making for school resources, but these graphs are just so glaringly wrong to be used in any meaningful way to make decisions.

#2 Scenario data on future predications would improve ability to make informed decisions.

In the 2015 data above and the new 2021 tables, all of the graphs are missing confidence intervals or something equivalent.

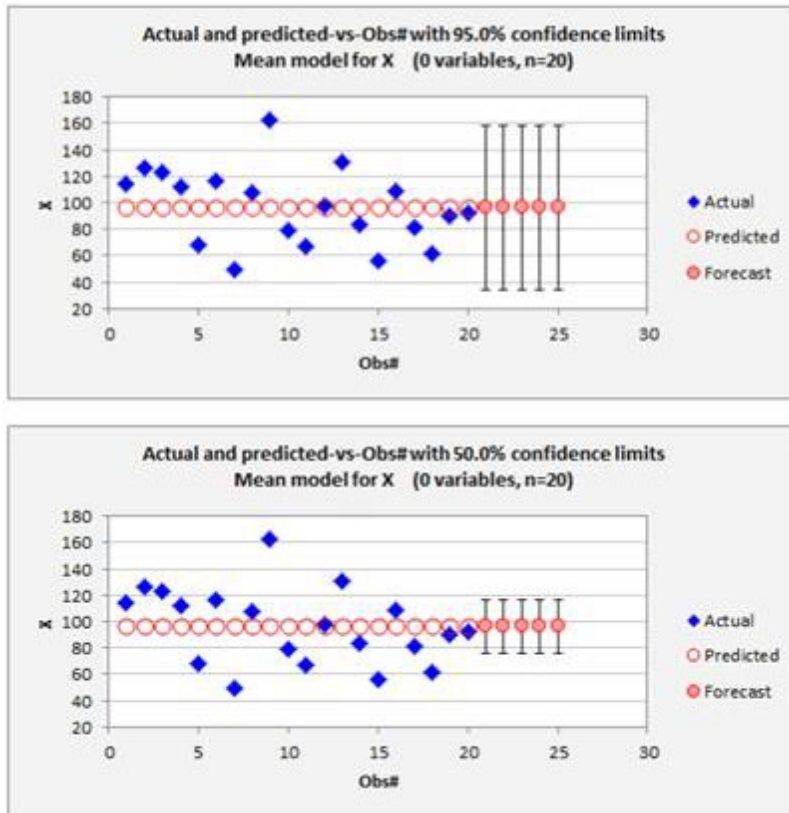
Confidence intervals are a measure of how confident you are in that prediction. Without confidence intervals, you are saying that there is only one possible outcome for future enrollment.

A data analysis would be able to add this information to your data.

In reality, there are many possible outcomes and good planning should encompass several of the more likely student enrollment outcomes.

These example graphs show confidence intervals in the form of vertical lines to say that the real future value could be anywhere between 40 and 160 (top graph) with high confidence or

with less confidence between 80-120 (lower graph):



In the 2021 plan, what is the likelihood that 457 students will be at McGirr school in 2030-31? How confident is that prediction?

Confidence intervals might tell you, for example, that between 430 to 470 students might be present at the school and you can plan for multiple possibilities and then could refine as the time drew nearer.

My suggestion would be to ask the data consultants to supply a range of possibilities for student enrollments and the probability of each one occurring over time. Or, for an in-house analyst to add these.

As a data analyst myself, it would be something I'd expect to be asked if supplying this type of information.

#3 – Has an analysis been done on 'predicted numbers' vs 'actual numbers' of students?

After an enrollment year, is there information that captures what the student enrollment was predicted to be vs. what it actually was? This would give you a good indication of whether or not your enrolment models are working.

Thank you for listening and hope these comments provide good food-for-thought.

Amelia

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