To: Joint Committee on School Site Selection
From: John Doggett, AC AD Hoc Subcommittee Member
Subject: <u>Estimating Future Student Enrollment</u>

I agree with Co-Chair Pollak that there can be multiple tools for estimating future student capacities, but frankly I don't know which is "superior" for our current purpose: the enrollment model published in the annual Enrollment Predication report; the current Projection by Residency Handout (both attached); or Dave Gacioch's Residency model (in this email thread), all of which produce different results. Projecting student assignments as accurately as we can, is I believe, an essential component of decision-making for where to increase capacity in our school system.

Before getting into any detail, I would like to suggest that the goal of our predictive modeling should be to enable the optimization of the distribution of students to schools using the shortest distance and/or shortest travel time to assess needed classroom capacity.

I would like to briefly examine the results generated by each of the three models. First the two Residency models, one on the recent Handout and the one described by Dave G. in this email thread.

There seems to be one key difference between these two models, i.e. the way we think about "Residency". The Handout residency model ("Residency by District") appears to use *existing school district boundaries* to guide the allocation to a given school rather than actual geographic proximity, whereas the Dave G's residency model ("Residency by Closeness") utilizes the *shortest distance and/or travel time* criterion as the guiding principle for student allocation. So, it is not surprising that, as we have two different guiding principles, we get two different results.

The third model is the Enrollment Model ("Enrollment") which has been in use for a number of years and is the product contained in an extensive report and is found on P13 of the "2017-2018 Enrollment Projection Report – April 2018", published by PSB. This model, using different guiding principles, predicts classroom need required by continuing year over year enrollment projections by existing school.

To make for simplicity, I have only considered South Brookline (Heath + Baker) data. Here is a summary of the three model results. Note the differences in the last column:

		Exisiting		Projected		Net Student Inc/Dec	Net Classroom Inc/Dec
		FY19 Students	FY19 Classrooms	FY22 Students	FY22 Classrooms		
Residency by District	Baker	763	39	1007	51	+244	+12
	Heath	534	27	459	24	-75	-3
Residency by Closeness	Baker	763	39	850	42	+87	+3
	Heath	534	27	550	27	+16	0
Enrollment Model	Baker	763	39	899	45	+136	+6
	Heath	534	27	524	27	-10	0

The comparison shows that the Residency by Closeness and the Enrollment models, show a classroom capacity need of 3-6 classroom or about 2/3 of a section, whereas the Residency by District model predicts under utilization of Heath for 3 classrooms and a need for 12 extra classrooms for Baker, a 1 1/3 section need.

These predictions of capacity need are significantly different from each other, which is worrisome.

The definitions and assumptions on which each model is based are not currently available. I suggest that the Joint Committee ask Joe Connelly to set up an ad hoc working group, comprising appropriate parties, with the goal of reaching an agreement as to which definitions, assumptions and models are to be used to guide the capacity selection process of the Joint Committee. A document laying out the agreed definitions, assumptions and model should then be made available to all, to increase selection transparency.