



# Morton District 709, IL

## Enrollment Forecast Accuracy Review & Capacity Study

September 2014

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# *Who We Are*

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Who We Are

# Cropper GIS Consulting, LLC

K-12 school planning is our business and our passion. Our specialty is redistricting, demographics and boundary studies.



Cropper GIS works with K-12 school districts to:

- develop redistricting plans,
- develop demographic studies,
- facilitate community engagement,
- prepare long-range facility master plans,
- author site feasibility studies,
- conduct & publish housing impact and yield factor studies, and
- provide GIS implementation & training.

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Cropper GIS is an ESRI Authorized Business Partner





# Principal & Project Manager

*Who We Are*

## Matthew Cropper, GISP, Cropper GIS

- 13+ years experience providing GIS mapping and analysis services to school districts and other clients.
- Manages and Facilitates rezoning/planning projects across the U.S.
- One of the only certified GIS Professionals (GISP) in the educational planning industry.
- Trained school district personnel across the U.S. how to use & apply GIS.
- Published numerous papers about using GIS for boundary planning and master planning.

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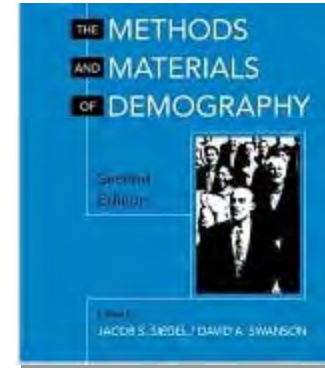




# Jerome McKibben, PhD

## Experience

- PhD in Demography, Bowling Green University
- Taught demography, statistics, sociology within US & Europe
- Served as a State Demographer of Indiana for 6 years
- Fulbright Scholar Award Recipient, Germany 2002
- Testified before state legislatures, courts, and the US Congress regarding census and population issues



## Notable Publications

- “School District Planning Needs and the 2010 Census”. *In Journal of Economic and Social Measurement*, Vol. 33, No. 2, May 2007
- “The Impact of Policy Changes on Forecasting for School Districts”. *Population Research and Policy Review*. Vol. 15, No.5, December 1996, P. 527-536
- “Race and Ethnicity.” *In Methods and Materials of Demography, Second Edition*. Edited by Jacob Siegel and David Swanson. Academic Press, Boston, March 2004
- “Population Distribution - Classification of Residence.” *In Methods and Materials of Demography, Second Edition*. Edited Jacob Siegel and David Swanson. Co-authored with Kimberly Faust. Academic Press, Boston, March 2004



## Who We Are

### Recent Planning Projects:

- McLean County Unit 5 Schools, IL
- CCSD 59, IL
- DeKalb District 428, IL
- Champaign Unit 4 School District, IL
- Urbana School District 116, IL
- Baltimore County Public Schools, MD
- Frederick County Public Schools, MD
- U.S. Department of Justice, Civil Rights Div.
- Akron Public Schools, OH
- Henrico County Public Schools, VA
- Charleston County Schools, SC





# *Why We're Here*

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# Project Objectives

**Why We're Here**

Cropper GIS Consulting was hired by Morton District 709 to calculate school capacities and to assess building utilization for current and forecasted enrollment. Our firm is tasked to:

1. Evaluate enrollment forecast accuracy in relation to actual 2014-15 enrollment.
2. Meet with school principals and walk through each school to understand classrooms and usage.
3. Calculate school capacity using Morton 709 class size goals along with best practices.
4. Analyze school utilization for current and forecasted enrollment.
5. Develop a written report that summarizes forecast accuracy findings, school capacity calculations, and building utilization forecast.

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# Enrollment Forecast Evaluation

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# Enrollment Forecast Evaluation

- Enrollment forecasts used 2013-14 data as last year.
- Evaluation compares 2014-15 actual enrollment to the forecast for 2014-15
- District level by grade along with school level forecasts were reviewed to determine accuracy



# What does it mean if they are off?

- Remember that the enrollment forecasts are driven by demographic population forecasts.
- The forecasted enrollment reflects what enrollment will be given the demographic trends, along with non-demographic assumptions.
- If enrollment does deviate from forecasted, it is because one of the assumptions have been violated.
- Examples could be changes in public/private participation, drop-out rate, Pre-K enrollment, etc.



# Enrollment Forecast Evaluation

**6-day enrollment is tracking within 12 students of what was forecasted for 2014-15.**

**Morton District 709 - Comparison of 2014 6-Day Enrollment With 2013 forecasts**

Grade Level	2014 6-day enrollment	2013 forecast of 2014 enrollment	Difference	Percent difference
K	196	193	-3	-1.5%
1	232	228	-4	-1.7%
2	252	260	8	3.2%
3	221	221	0	0.0%
4	200	208	8	4.0%
5	224	232	8	3.6%
6	184	188	4	2.2%
7	222	206	-16	-7.2%
8	212	214	2	0.9%
9	234	239	5	2.1%
10	225	224	-1	-0.4%
11	225	228	3	1.3%
12	220	218	-2	-0.9%
<b>District Total</b>	<b>2,847</b>	<b>2859</b>	<b>12</b>	<b>0.4%</b>



# Enrollment Forecast Evaluation

6-day enrollment was 21 elementary students fewer than the forecast, and most of the error was in Brown Elementary.

Junior High enrollment came in 14 higher than forecasted, and High School was 5 below what was forecasted.

Morton District 709 - Comparison of 2014 6-Day Enrollment With 2013 forecasts				
School Name / Level	2014 6-day enrollment	2013 forecast of 2014 enrollment	Difference	Percent difference
Brown	321	346	25	7.8%
Grundy	375	383	8	2.1%
Jefferson	344	340	-4	-1.2%
Lincoln	469	461	-8	-1.7%
<b>Elementary Total</b>	<b>1509</b>	<b>1530</b>	<b>21</b>	<b>1.4%</b>
Morton Junior High School	434	420	-14	-3.2%
Morton High School	904	909	5	0.6%



# Enrollment Forecast Evaluation Conclusions

- Enrollment forecasts are tracking closely to actual enrollments
- District-level forecasts are within .4% of actual enrollment.
- If district-level forecasts begin to deviate beyond 2% of the actual enrollment, it is recommended to review the forecasts and revise assumptions being used.



# *Capacity Study*

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# Calculating Capacities

During the Summer 2014, Cropper visited Morton District 709 to tour school buildings and meet with administrators.

1. The district has specific class size goals they strive for. These were used in the formula to calculate school capacity.
2. Cropper met with each building principal to better understand building/room uses and limitations, and to also take a tour of the facility.
  - This part is very important, because there could be rooms that could be used as standard classrooms but is being used in an alternative way because there is available space.
3. For elementary schools, certain spaces are not counted in the capacity. These include:
  - Special Education pull-out/resource rooms, music, art, library, and computer labs

Optimal Class Sizes	
KG	20
1-3	23
4-6	26
7-12	26
Pre-K / Sp. Ed	10





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3. For elementary schools, certain spaces are not counted in the capacity. These include:

- Special Education pull-out/resource rooms, music, art, library, and computer labs
- If a school has Pre-K or self-contained special education classrooms, they were counted as 10 available seats in the capacity calculations.

Optimal Class Sizes	
KG	20
1-3	23
4-6	26
7-12	26
Pre-K / Sp. Ed	10



# Calculating Capacities

- Computer labs, music, and art were calculated in the Junior High and High School capacity because of the nature of how education is delivered at the upper grades.
- Once meetings with principals occurred, rooms were itemized, counted, and special use rooms set aside to not be included in counts.
- Some schools had rooms being used as resource/pull-out because the space is available.
  - In some cases, rooms that were not being used as standard classrooms were counted in the capacity if there was already an adequate number of spaces to provide pull-out/resource instruction.

Optimal Class Sizes	
KG	20
1-3	23
4-6	26
7-12	26
Pre-K / Sp. Ed	10



# Calculating Capacities

- The table below reflects the classroom counts, rooms set aside not counted in capacity (shown under the yellow header), and the total classroom capacity.

Optimal Class Sizes	
KG	20
1-3	23
4-6	26
7-12	26
Pre-K / Sp. Ed	10

## Morton School District 709, Illinois : Optimal Capacity Calculations

School	Type	Classrooms					Total Classrooms	Total Classroom Capacity	Pull-Out / Music / Art / Labs
		Grade KG Classrooms	Grade 1-3 Classrooms	Grade 4-6 Classrooms	Grade 7-12 Classrooms	Pre-K / Special Education			
Grundy ES	ES	2	8	7			17	406	10
Jefferson ES	ES	3	6	6			15	354	7
Lettie Brown ES	ES	2	6	6		1	15	344	4
Lincoln ES	ES	2	9	7		3	21	459	8
Morton JHS	JHS				23	2	25	618	9
Morton HS	HS				42	4	46	1132	N/A
<b>Total</b>		<b>9</b>	<b>29</b>	<b>26</b>	<b>65</b>	<b>10</b>	<b>139</b>	<b>3,313</b>	<b>38</b>



# Calculating Capacities

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# *Analyzing Building Utilization*

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# Building Utilization

- Once forecasts were determined to still be reliable and capacities calculated, the utilization of buildings was analyzed.
- Capacity is compared to enrollment (current and forecasted) to understand how buildings are currently being utilized along with how they will change through the life of the forecasts.

**Morton District 709: Total District Forecasted Enrollment**

	Capacity	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
<b>Total: K-6</b>	<b>1563</b>	1308	1342	1380	1445	1498	1530	1577	1593	1624	1633	1597	1603	1617	1612	1606
<b>Total: 7-8</b>	<b>618</b>	420	422	406	415	425	420	404	446	476	477	545	564	522	524	542
<b>Total: 9-12</b>	<b>1132</b>	1003	1008	989	949	923	909	918	905	894	926	932	970	1071	1086	1110
<b>Total: K-12</b>	<b>3313</b>	2731	2772	2775	2809	2846	2859	2899	2944	2994	3036	3074	3137	3210	3222	3258

- Cells were color-coded to visualize how utilization changes over time:
  - Green: < 70%
  - Yellow: 70%-89%
  - Orange: 90%-99%
  - Red: 100% or higher

**Morton District 709: Forecasted Utilization**

Config	Capacity	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
<b>Total: K-6</b>	<b>1563</b>	84%	86%	88%	92%	96%	98%	101%	102%	104%	104%	102%	103%	103%	103%	103%
<b>Total: 7-8</b>	<b>618</b>	68%	68%	66%	67%	69%	68%	65%	72%	77%	77%	88%	91%	84%	85%	88%
<b>Total: 9-12</b>	<b>1132</b>	89%	89%	87%	84%	82%	80%	81%	80%	79%	82%	82%	86%	95%	96%	98%
<b>Total: K-12</b>	<b>3313</b>	82%	84%	84%	85%	86%	86%	88%	89%	90%	92%	93%	95%	97%	97%	98%



# Building Utilization

- Individual elementary utilization forecast shown below
- Cells were color-coded to visualize how utilization changes over time:
  - Green: < 70%
  - Yellow: 70%-89%
  - Orange: 90%-99%
  - Red: 100% or higher

Elementary School Utilization Forecast by School (K-6 Grade Cohort)																		
Name	Capacity	Config		2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Brown	344	K-6	Enrollment	299	316	323	330	333	346	357	367	371	369	361	357	350	341	334
			Utilization	87%	92%	94%	96%	97%	101%	104%	107%	108%	107%	105%	104%	102%	99%	97%
Grundy	406	K-6	Enrollment	319	331	335	361	376	383	388	394	405	411	383	391	399	401	400
			Utilization	79%	82%	83%	89%	93%	94%	96%	97%	100%	101%	94%	96%	98%	99%	99%
Jefferson	354	K-6	Enrollment	307	307	311	319	337	340	362	381	399	413	420	423	429	422	415
			Utilization	87%	87%	88%	90%	95%	96%	102%	108%	113%	117%	119%	119%	121%	119%	117%
Lincoln	459	K-6	Enrollment	383	388	411	435	452	461	470	451	449	440	433	432	439	448	457
			Utilization	83%	85%	90%	95%	98%	100%	102%	98%	98%	96%	94%	94%	96%	98%	100%



*Questions?*

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