



Madison Public Schools (MPS)

10- Year Enrollment Projections (Update)

December 14, 2021



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This 10-year projection report is prepared in accordance with OSCG&R requirements and is an update to the March 2021 enrollment projection report.



Enrollment Projection Performance

	K	1	2	3	4	5	6	7	8	9	10	11	12	PK
Actual 2021-22	160	154	162	164	172	166	168	180	191	202	219	221	233	48
Projected 2021-22	163	154	165	154	170	164	168	176	191	192	225	221	239	45
Difference	-3	0	-3	10	2	2	0	4	0	10	-6	0	-6	3
% Difference	-1.8%	0.0%	-1.8%	6.5%	1.2%	1.2%	0.0%	2.3%	0.0%	5.2%	-2.7%	0.0%	-2.5%	6.7%

	K-3	4-5	6-8	9-12	K-12
Actual	476	502	539	875	2392
Projected	482	488	535	877	2382
Difference	-6	14	4	-2	10
% Difference	-1.2%	2.9%	0.7%	-0.2%	0.4%

- Districtwide K-12 projections within 10 students or 0.4%



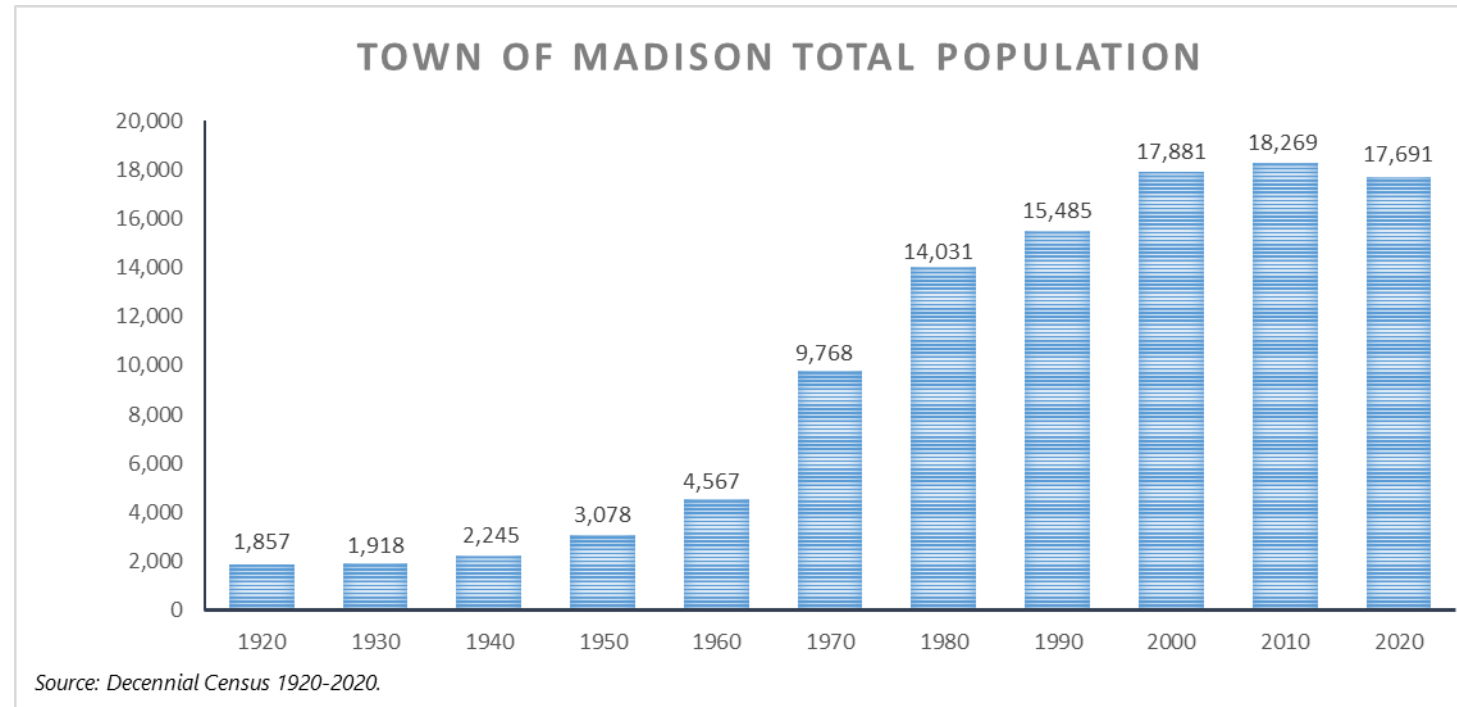
Enrollment Projection Update

Enrollment Drivers



Madison's Population

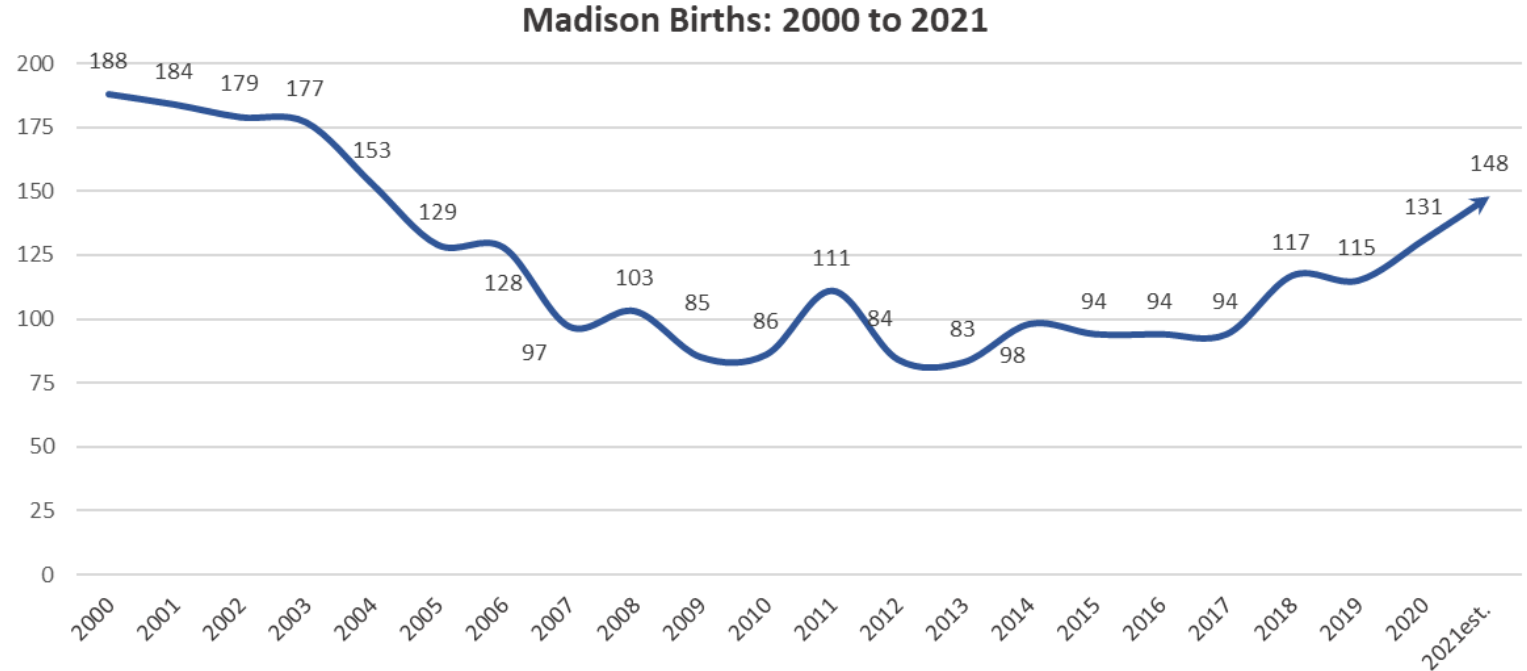
- According to 2020 Decennial Census, Madison's total population decreased by approximately 580 or 3.2% over the last decade. This is the first decline in decennial census reporting for the Town
- Impacts from the pandemic driven housing market boom over the last 18 months not captured in 2020 census counts





Madison's Births

- After a period of stability from 2015-2017 where births were remarkably stable at 94 per year, births have now increased over each of the last 4-years.
- CTDPH's reported 131 births for 2020.
- 2021 Births YTD for Jan-Sept (107 births), are yielding full year estimate of 148 births.
- These larger birth cohorts will begin entering kindergarten in 2023.

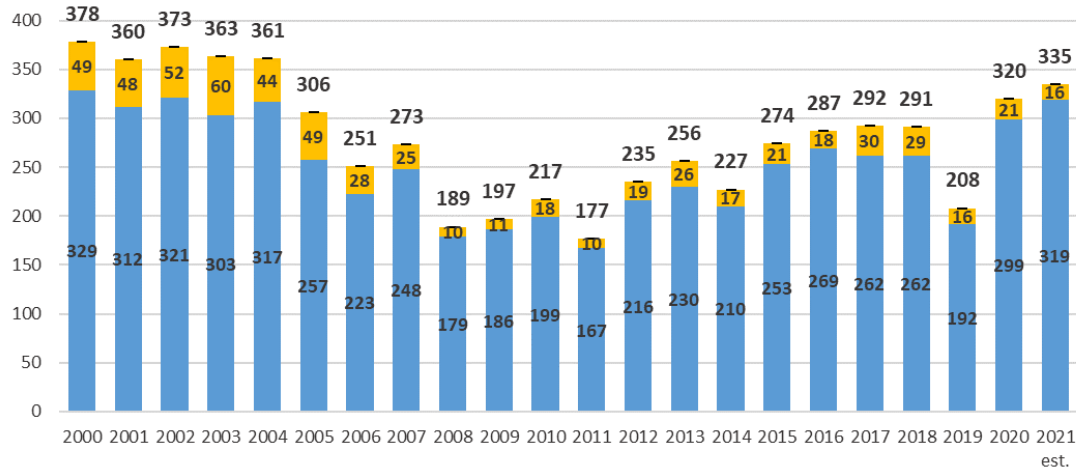


Source: Connecticut Department of Public Health. Data for 2000-2020.
2021 is based on Town Clerk Births from Jan- Sept (107 births) extrapolated for the full year 2021.



Housing Total Home Sales & Median Sale Price

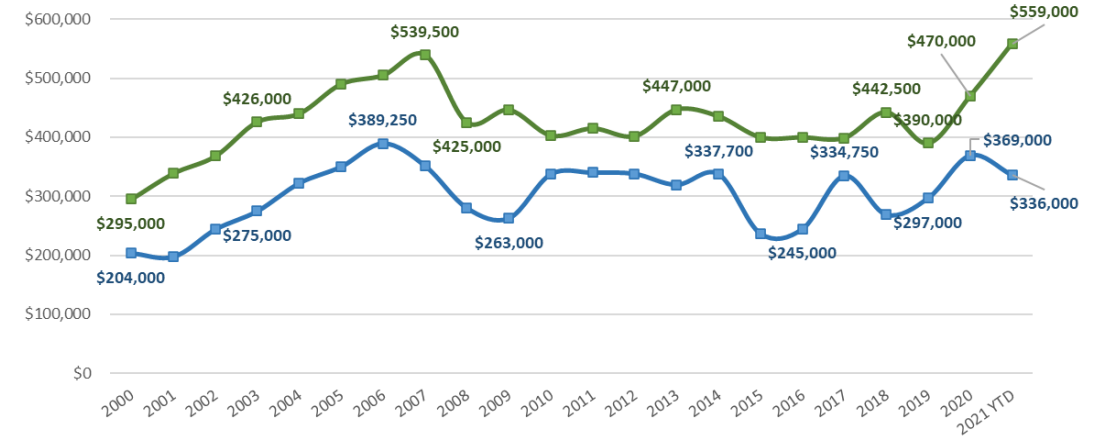
Madison Home Sales (2000-2021)



Source: Warren Group Town Stats, 2000-2021.
Jan.- Aug. YTD 2021 extrapolated for full year.

■ Single-Family ■ Condo - Total

Madison Median Home Sales Price (2000 - 2021 YTD)



Source: Warren Group Town Stats, 2000-2021
Jan.- Aug. 2021 YTD

— Single-Family — Condo

- 2020 marked a recent peak in total home sales with 320 overall; most since 2004.
- January-August data (250 total sales), 2021 is on pace to exceed recent levels with an estimated 335 total sales of which, 319 are single family (SF) home sales for the full year
- 2021 Median Sale Price is \$559,000 for SF homes and Madison has now finally fully recovered from the "great recession".
- Median sale price for condominiums averaged \$352,000 for 2020 and 2021.
- Inventory and competition a factor in driving total sales and price. Continued turnover of existing SF homes, very little SF new construction on the market.



Future Development

Recent and Approved Housing Developments

Name	Units	Type	Status	Address
Hammonasset Apartments	10	1-2 Bedroom Apartments	Recently Constructed	41 Cottage Road
East River Farms	7	Condominium Units	Under Construction	67 Boston Post Road
The General's Residence at Fence Creek	9	Single-Family	Under Construction	916 East Wharf Road
Markham Place Subdivision	16	Single-Family	Under Construction	Horsepond Road
Brookside Lane Apartments	9	2 Bedroom Apartments	Approved	Brookside Lane
Landing Marina	37	2 Bedroom Townhouses	Approved	168 & 178 Cottage Road
Wellington	27	1-2 Bedroom Apartments	Approved	131 Cottage Road
The Bradley Apartments	30	1-2 Bedroom Apartments	Approved	110 & 114 Bradley Road
The Ledges	7	Single-Family	Approved	856 Boston Post Road
Cottage & Mill Rd	18	1-Bedroom Apartments	Proposed	Cottage & Mill Rd
Scotland Ave	6	3-Bedroom Detached Units	Proposed	Scotland Ave
Total	176			

Source: Town of Madison Planning and Zoning Development - October 29th 2021 update

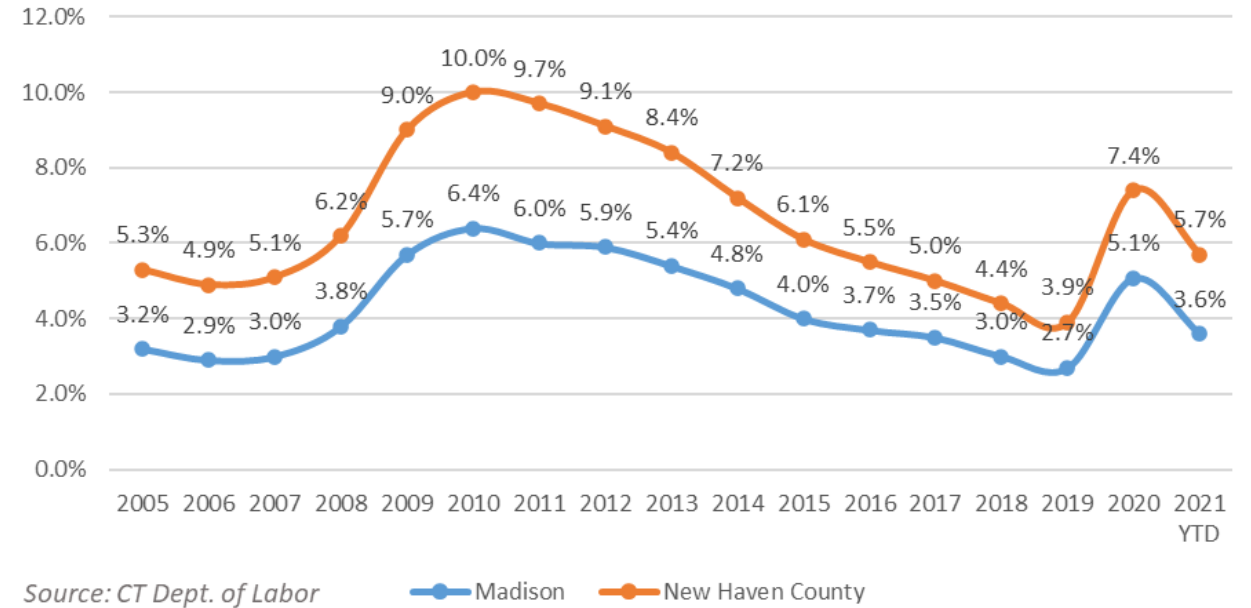
- Several housing developments currently under construction, approved or planned
- All future development located in existing Jeffery Elementary School District
- Markham Place Subdivision likely to attract families with students entering MPS due to size and nature of single-family development
- Many of these developments not anticipated to generate many students, if any at all



Local Unemployment Rate

- Significant increase in unemployment due to COVID-19 pandemic
- 2020 unemployment rate in Madison was 5.1%, and 7.4% in New Haven County
- 2021 YTD showing improvement locally (3.6%) and in New Haven County
- Rate of economic recovery will impact housing market and migration trends
- Housing and migration trends will be closely tied to economic conditions and trends in workplace and workforce

Annual Unemployment Rate (2005-2021)





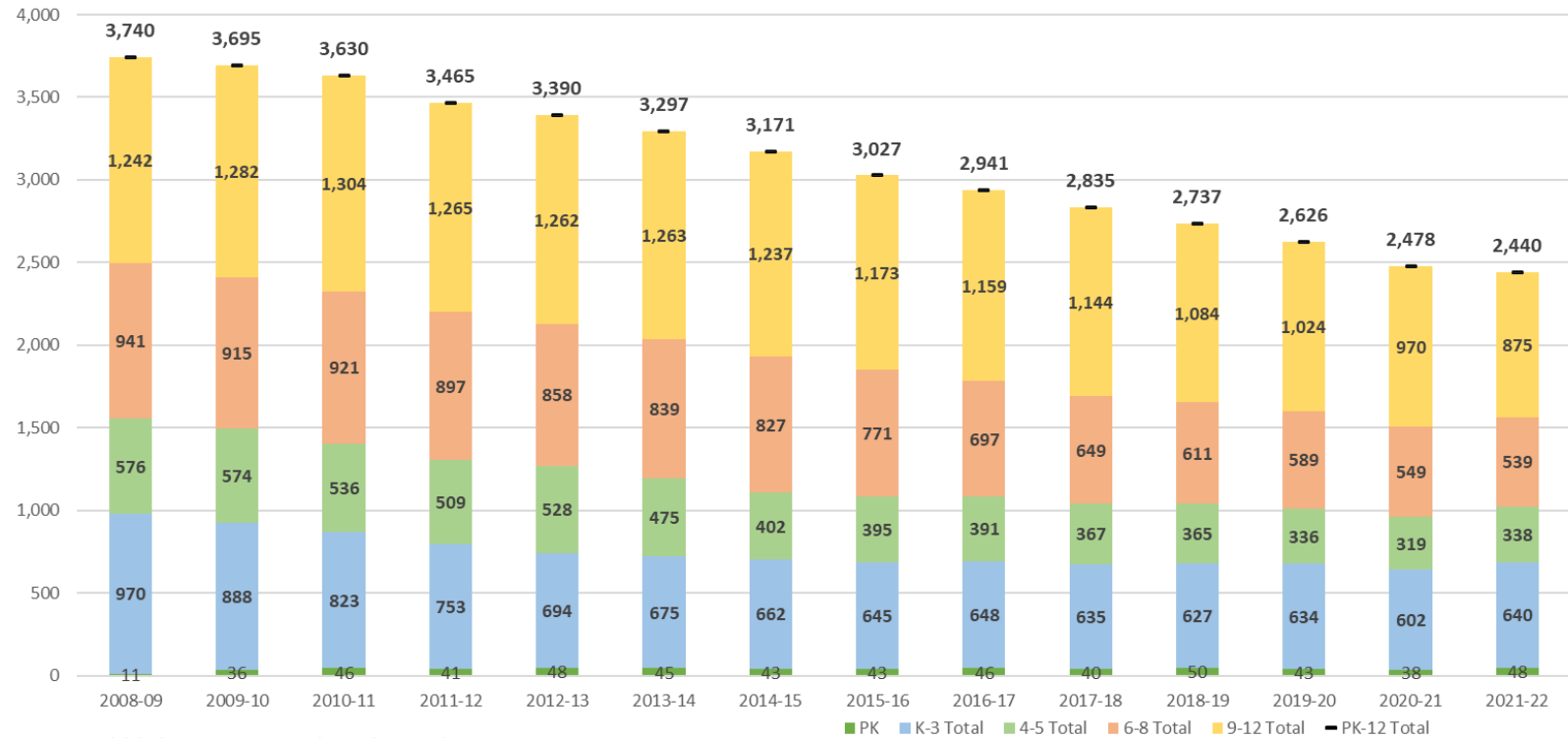
Enrollment Trends & Analysis



Districtwide Historic Enrollment Trends

- K-12 enrollment has declined 1.5% since last year, 30% over the past 10 years
- Elementary (K-3) grades have decreased by 15% over the past decade. However, enrollment stabilized and over the last year has increased by over 6%
- Intermediate (4-5) and Middle School (6-8) grades have experienced the greatest decrease over the last decade at 34% and 40% respectively
- Over the past year, Intermediate school enrollment has increased by 6%, whereas Middle school declined slightly at 2%
- High School (9-12) enrollment peaked in 2010-11 and has decreased each year since. Overall enrollment has decreased by 31% over the last decade

PK-12 District Enrollment Trends by Grade Level
2008-09 to 2021-22



Sources: EdSight (2008-09 to 2020-21), MPS (2021-22)

Enrollment Projections Building Blocks

Starting Data

Critical to the overall accuracy of the projections, as each year builds upon the last.
District Projections

Town of Madison Births

Obtained from CT DPH & Town Clerk

Historic Enrollment Trends

Obtained from MPS and EdSight

Demographic and Housing Data

Used to inform model selection

Unemployment (Town, Region)

Housing Permit Activity

Housing Developments – Approved & Under Construction

Home Sales (I-family, condos)

Projection Assumptions

Several projection models are developed by applying different persistency ratios to building blocks

5-Year Average

3-Year Average

3-Year Weighted

Blended



Projections Primer

- Based on Cohort Survival Methodology – Standard method accepted by the OSCG&R for school construction projects
- The cohort survival methodology **relies on observed data from the recent past in order to project the near future**
- Persistency Ratios calculated from historic enrollment data to determine growth or loss in a class as it progresses through the school system
- Persistency Ratio of 1.0 means cohort size remains the same; 1.05 means the cohort size increases by 5%, or a cohort of 100 grows to 105 the following year
- Persistency Ratios account for the various external factors affecting enrollments: housing characteristics, residential development, economic conditions, student transfers in and out of system, and student mobility
- Changes in population, housing stock and tenure, and economic conditions help explain persistency ratios
- Changes in programming affect persistency ratios of individual schools
- Recent impacts due to the pandemic adds variability to student migration, enrollment trends, housing market conditions, residential mobility and overall economic conditions and labor market.



Projections Assumptions

These projections are predicated on the following assumptions:

- Pre-K enrollment will average 45 students over the next decade
- Housing, student generation, and future birth assumptions at the districtwide level will prove accurate
- High projections: Assume high birth projections (average 149 annually) and housing sales will continue at elevated level for next 4-5 years. Student in-migration above historic average for first 5-years, and then returns to recent historic average of 2.5%
- Medium projections: Assume medium birth projections (average 141 annually) and current housing activity persists for next 3 years. Student in-migration above historic average for first 3-years, and then returns to historic average of 2.5%
- Low projections: Assume low birth projections (average 128 annually) and housing activity slows in the next 1-2 years to recent pre-pandemic historic levels and in-migration averages 1.8%, which is slightly below the recent historic levels
- The recent pace of new home construction will continue. Note that multipliers have not been added to the projections due to the nature and number of new units accounted for in the base persistency ratios
- Variable Birth-K (BK) assumptions used in each model due to fluctuating births in recent years leading into a projected increase in births for later years of projections

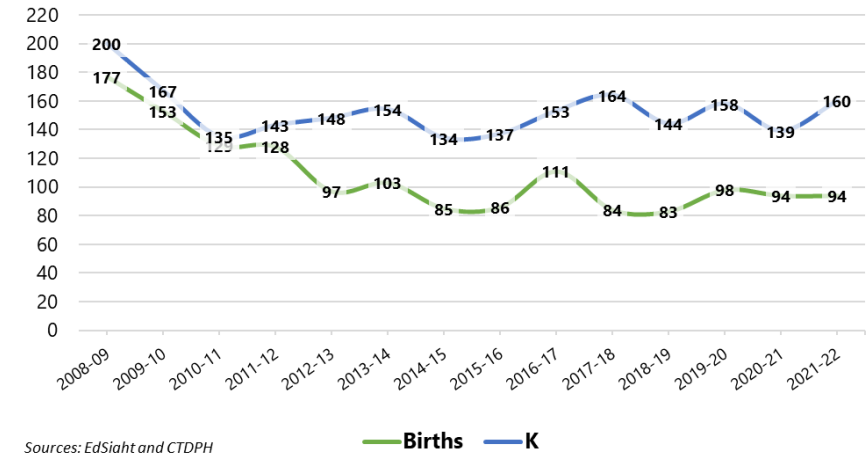


Persistency Ratios

Kindergarten through 12th Grade Persistency Ratios by School Year
2009-10 to 2021-22

Year	Birth-K	K-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	Est. of Elem Migrati
2009-10	1.0915	1.1500	1.0447	0.9791	1.0140	1.0252	1.0168	1.0000	0.9968	1.0122	0.9795	1.0224	1.0241	1.62%
2010-11	1.0465	1.1257	1.0652	0.9922	1.0556	1.0000	1.0561	1.0297	1.0301	1.0288	0.9880	1.0210	0.9812	2.57%
2011-12	1.1172	1.2074	1.0160	1.0449	1.0000	1.0283	0.9965	0.9767	1.0096	1.0097	0.9410	0.9726	0.9736	2.25%
2012-13	1.5258	1.2308	1.0245	1.0628	1.0117	1.0549	1.0394	1.0243	1.0170	1.0000	1.0064	1.0264	1.0125	3.82%
2013-14	1.4951	1.0946	1.0114	1.0838	1.0246	1.0309	1.0372	1.0152	0.9898	1.0401	1.0000	1.0224	1.0193	3.60%
2014-15	1.5765	1.1169	1.0370	1.0562	1.0387	1.0288	1.0300	1.0215	0.9963	1.0548	0.9678	0.9810	0.9969	3.98%
2015-16	1.5930	1.1194	1.0640	1.0417	1.0213	1.0798	1.0047	1.0036	0.9825	1.0150	0.9610	1.0066	0.9806	5.17%
2016-17	1.3784	1.0803	1.0667	1.0219	1.0514	1.0781	1.0246	1.0047	0.9891	1.0250	1.0074	1.0000	1.0000	5.43%
2017-18	1.9524	0.9935	1.0541	1.0188	0.9947	0.9837	1.0290	1.0433	1.0139	1.0220	1.0174	1.0147	1.0000	1.03%
2018-19	1.7349	1.0061	1.0329	1.0321	1.0491	1.0430	1.0331	0.9859	0.9862	1.0411	1.0394	0.9966	0.9928	3.96%
2019-20	1.6122	1.0139	1.0364	1.0127	1.0062	1.0175	0.9948	0.9733	1.0190	1.0000	1.0132	0.9966	0.9966	1.83%
2020-21	1.4787	0.9937	0.9863	0.9474	0.9874	1.0000	1.0000	0.9689	1.0330	1.0327	1.0187	1.0260	1.0173	-2.04%
2021-22	1.7021	1.1079	1.0318	1.1389	1.0617	1.0573	1.0370	1.0345	1.0214	1.0745	0.9910	1.0138	0.9831	7.10%

Kindergarten Classes and Births Five Years Previous



Sources: EdSight and CTDPH

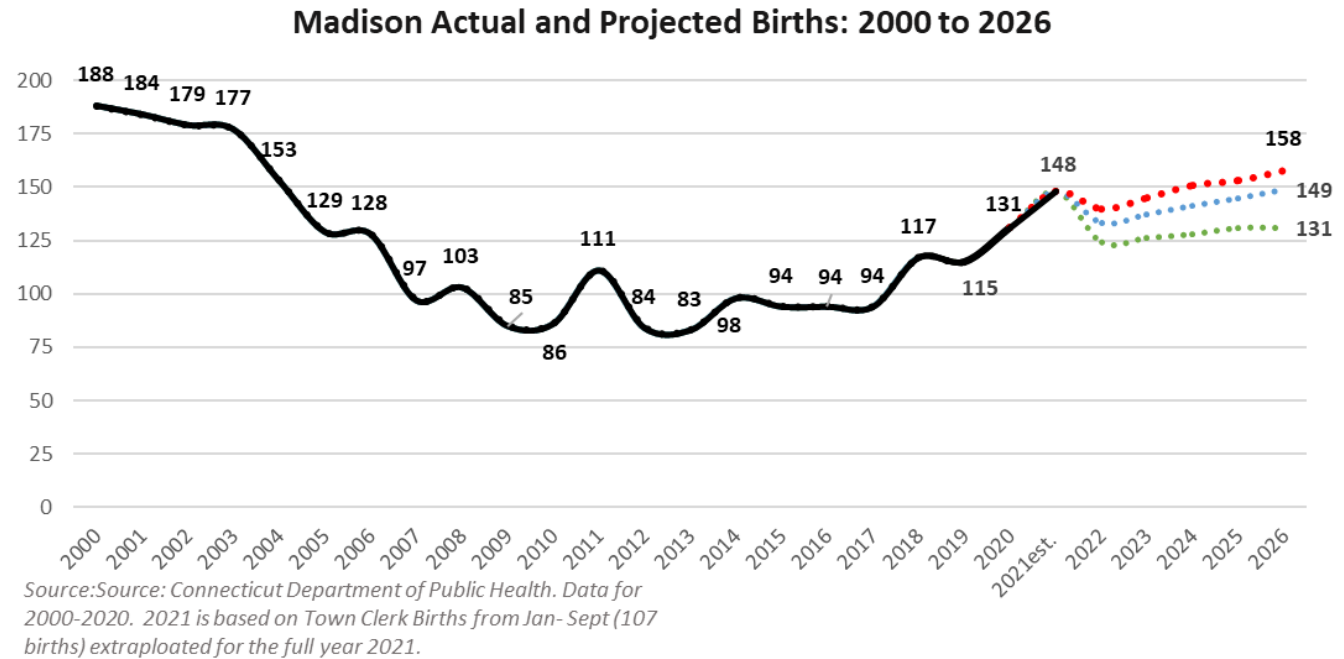
Births K

- Estimate of migration tracks changes in grades 1-4 one year compared to grades 2-5 the following year. 2021-22 had the greatest in-migration in recent record at 7.1%
- 2020-21 experienced a net out-migration at 2% for the first time in recent history
- Persistency Ratios rebounded; especially for the elementary grades.
- Birth-K rebounded in 2021-22 to 1.7



Madison Birth Projections

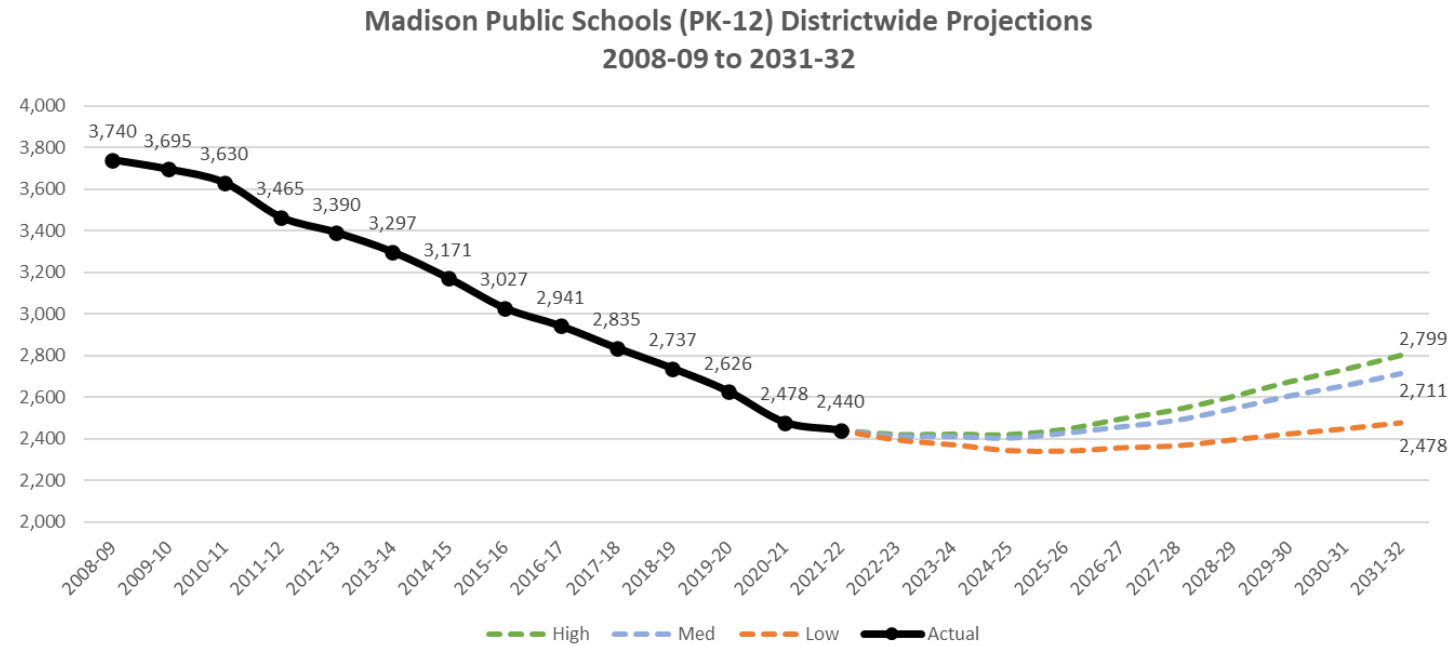
- Births projected from 2022 through 2026 corresponding with projected kindergarten classes for 2027-28 through 2031-32
- Absent of Cohort level 2020 Census information mathematical models were used to project births from 2022 through 2026
- All three models show a continuation of the elevated births for 2022-26
 - Low model: avg. 128 (124-131)
 - Medium model: avg. 141 (133-149)
 - High model: avg. 149 (140-158)





Districtwide Enrollment Projection Models

- With uncertainty surrounding the longer-term impacts of the pandemic, it is important to keep in mind the range of enrollment projections models
- **Recent housing conditions, demographics and enrollment in-migration align best with Medium Model and represents the most likely direction**
- Under the medium model, enrollment is projected to stabilize at approx. 2,400 students. Then increases to just over 2,700 students by 2031-32
- Recent changes to enrollment drivers from the pandemic bear watching. Should the current active housing market conditions continue, the High Projection Model may prove more accurate

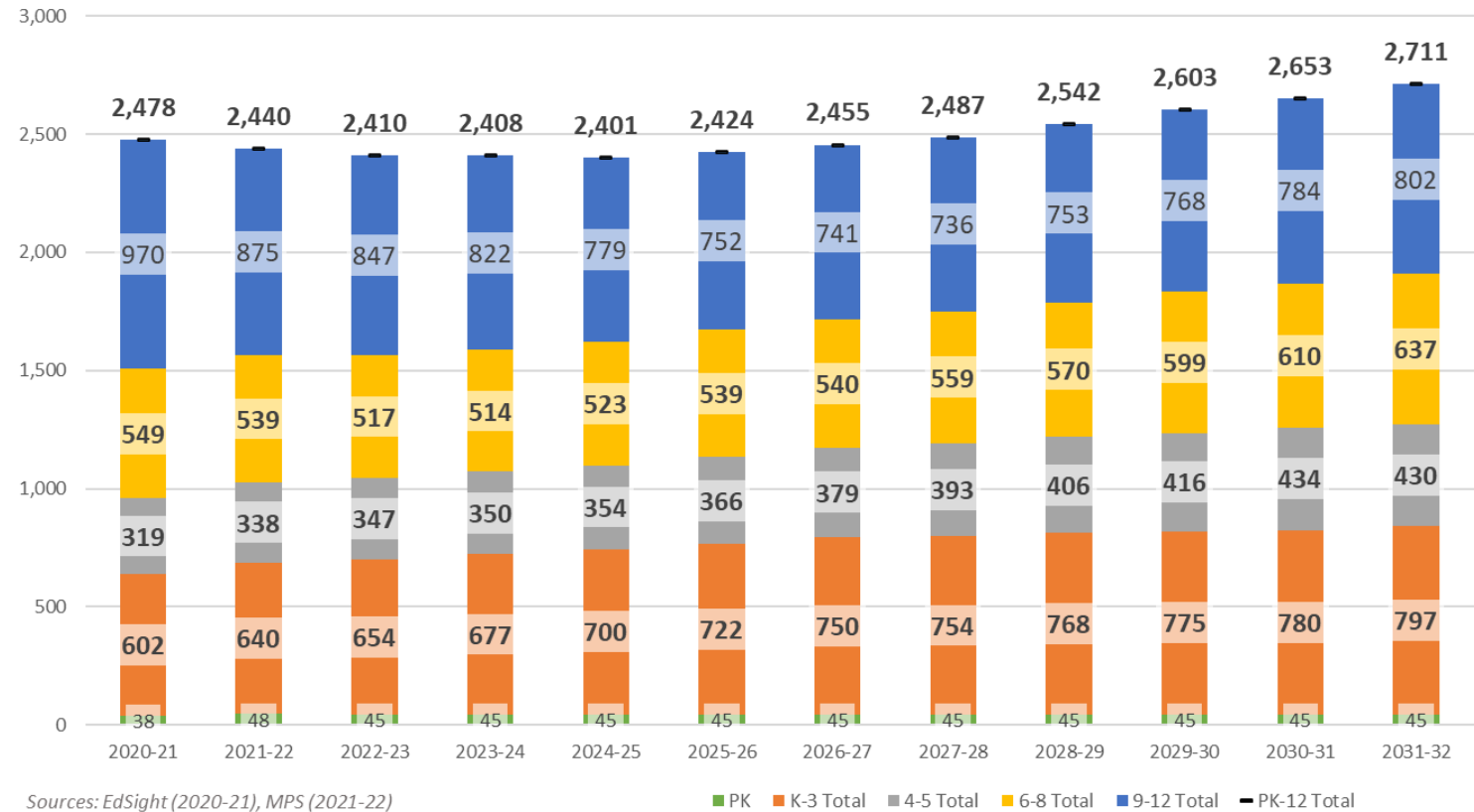




Enrollment Projections (Medium) Model

- Overall enrollment is projected to average 2,420 students first 5-years and 2,600 students for the last 5-years of the projection horizon

PK-12 Historic and Projected Enrollment by Grade Level (Medium Model)
2020-21 to 2031-22





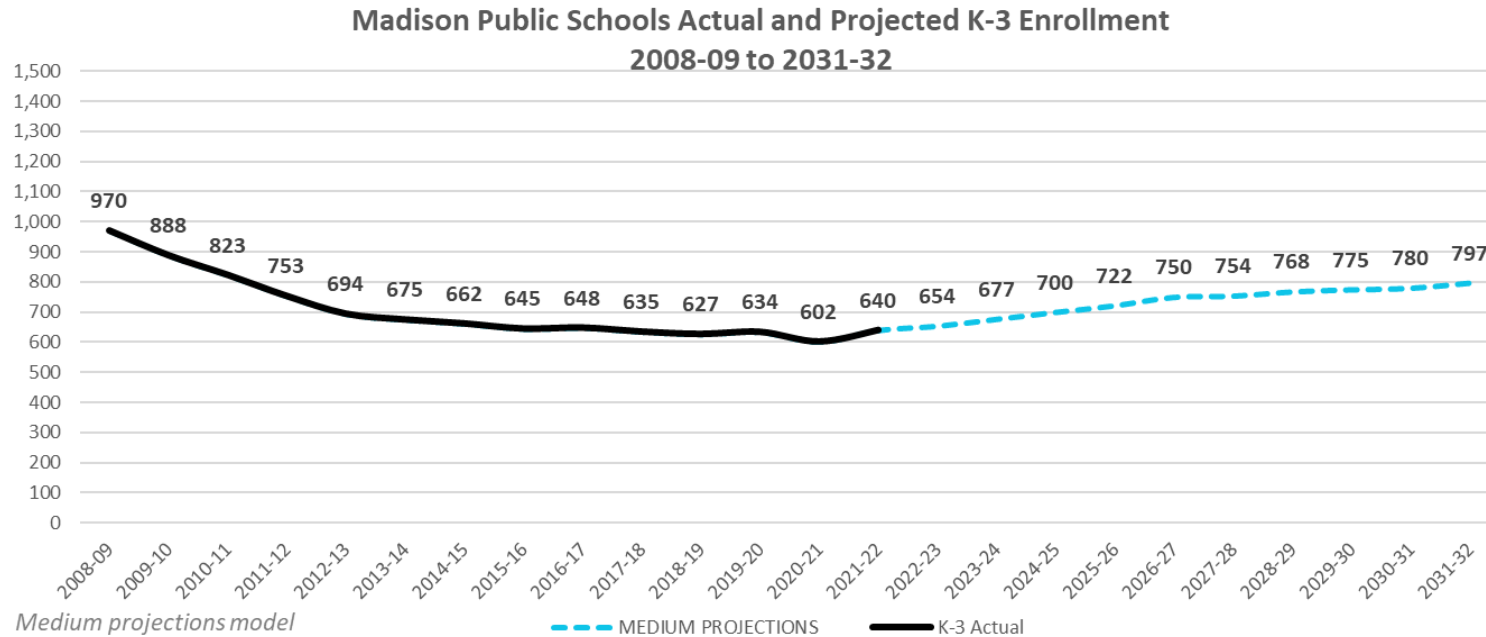
Enrollment Projections (Medium) Model

Year	Birth Year	Births	K	1	2	3	4	5	6	7	8	9	10	11	12	PK	PK-12 Total	K-12 Total	K-3 Total	4-5 Total	6-8 Total	9-12 Total	K-5 Total
2021-22	2016	94	160	154	162	164	172	166	168	180	191	202	219	221	233	48	2,440	2,392	640	338	539	875	978
2022-23	2017	94	158	166	161	169	169	178	168	166	183	200	204	222	221	45	2,410	2,365	654	347	517	847	1,001
2023-24	2018	117	172	164	173	168	175	175	180	166	168	192	202	206	222	45	2,408	2,363	677	350	514	822	1,027
2024-25	2019	115	169	179	171	181	173	181	177	178	168	176	193	204	206	45	2,401	2,356	700	354	523	779	1,054
2025-26	2020	131	180	176	187	179	187	179	183	175	181	176	177	195	204	45	2,424	2,379	722	366	539	752	1,088
2026-27	2021	148	184	187	184	195	185	194	181	181	178	190	177	179	195	45	2,455	2,410	750	379	540	741	1,129
2027-28	2022	133	176	191	195	192	201	192	196	179	184	187	191	179	179	45	2,487	2,442	754	393	559	736	1,147
2028-29	2023	137	182	183	199	204	198	208	194	194	182	193	188	193	179	45	2,542	2,497	768	406	570	753	1,174
2029-30	2024	141	187	189	191	208	211	205	210	192	197	191	194	190	193	45	2,603	2,558	775	416	599	768	1,191
2030-31	2025	145	188	195	197	200	215	219	207	208	195	206	192	196	190	45	2,653	2,608	780	434	610	784	1,214
2031-32	2026	149	191	196	204	206	207	223	221	205	211	204	208	194	196	45	2,711	2,666	797	430	637	802	1,227

- Districtwide Projections for Low and High Models are included in Appendix B



Elementary Projections (Medium)



- K-3 Enrollment rebounded in 2021-22 from increased in-migration
- Projections show steady increase for K-3 over the next 8-years
- Elementary enrollment is projected to average 785 students over the last 3-years of projection horizon



Elementary Projections (Medium)

Historic and Projected Enrollment by School (K-3)

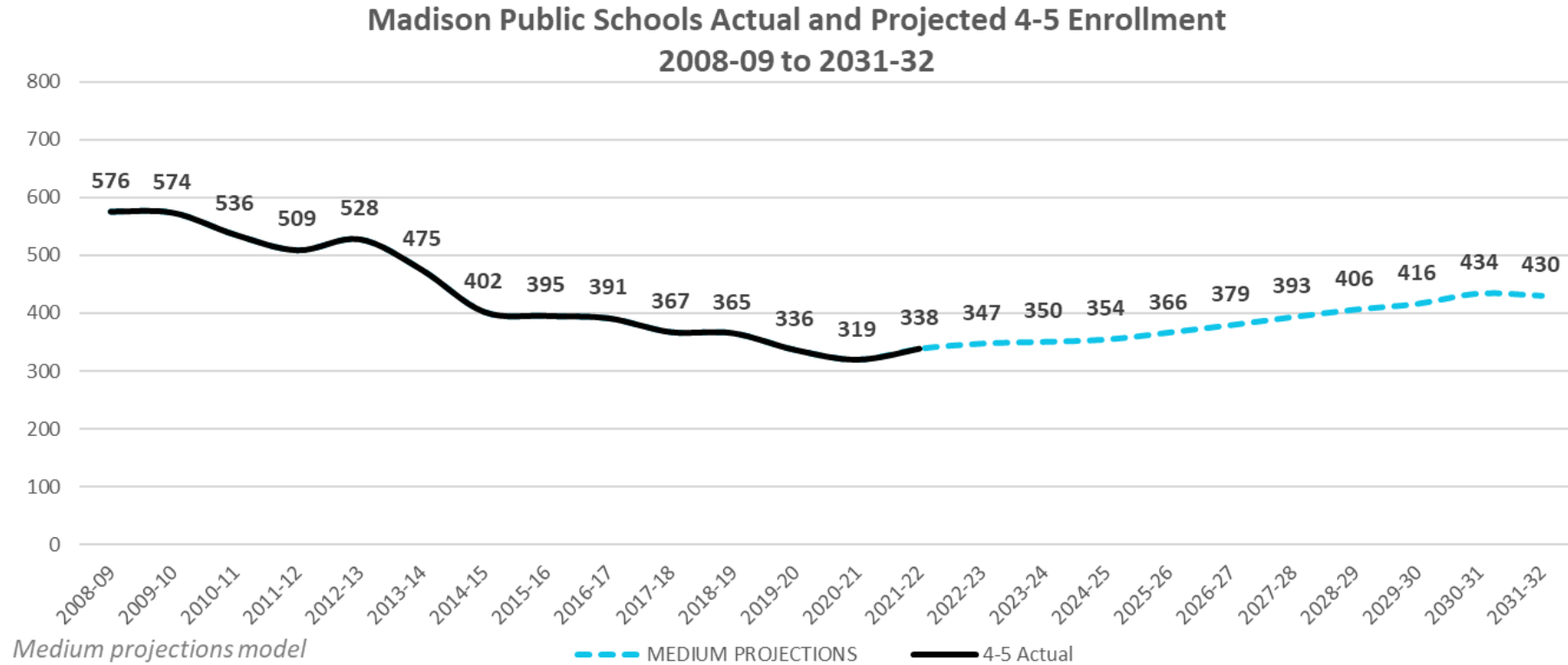
School	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32
Jeffrey	324	353	358	373	389	405	421	421	428	432	435	444
Ryerson	278	287	296	304	311	317	329	333	340	343	345	353
Total:	602	640	654	677	700	722	750	754	768	775	780	797

- Jeffrey averages about 55% of total K-3 student share, Ryerson with remaining 45%
- Jeffrey reaches peak enrollment of 444 students in 2031-32, a 26% increase from current enrollment
- Ryerson reaches peak enrollment in 2027-28 and 2031-32 with 353 students, a 23% increase from current enrollment

- Projections by elementary school and grade are included in Appendix A



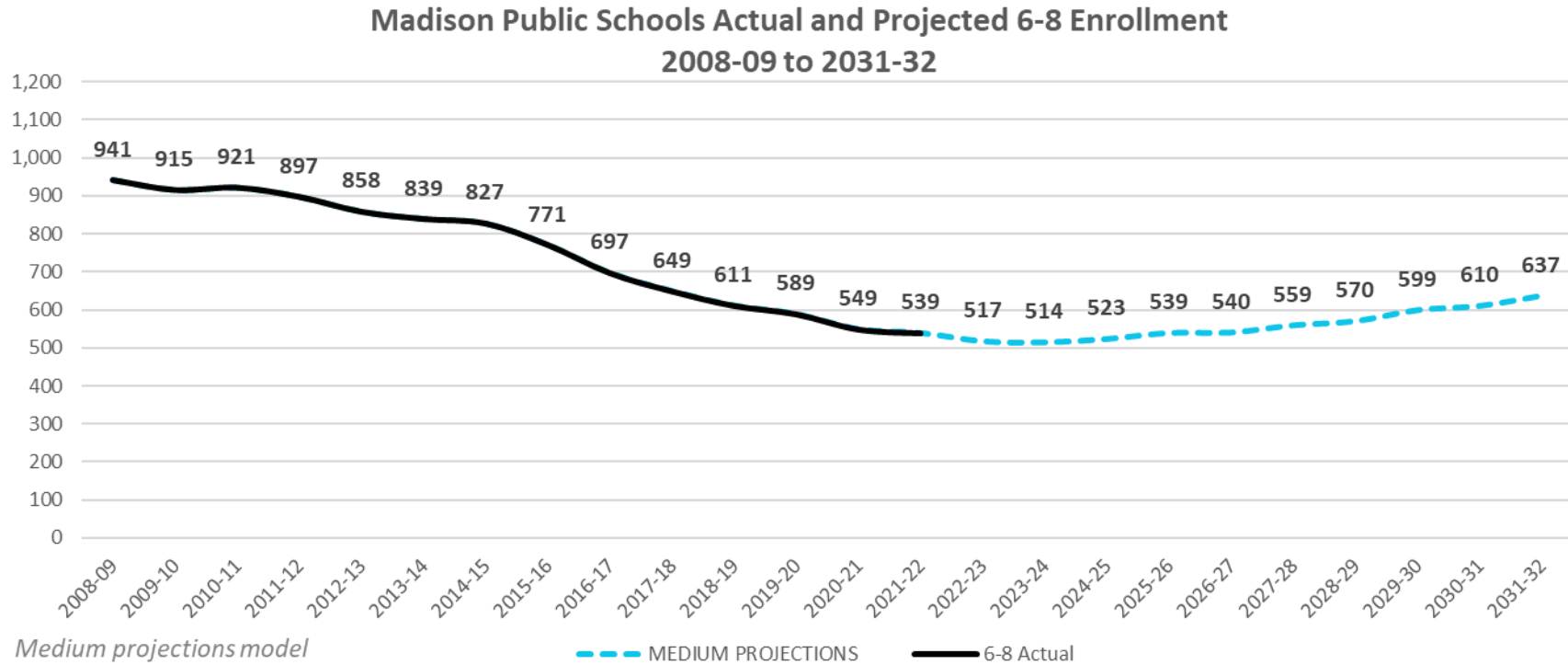
Intermediate School Projections (Medium)



- Brown Intermediate School enrollment projected to increase to over 400 students by 2028-29



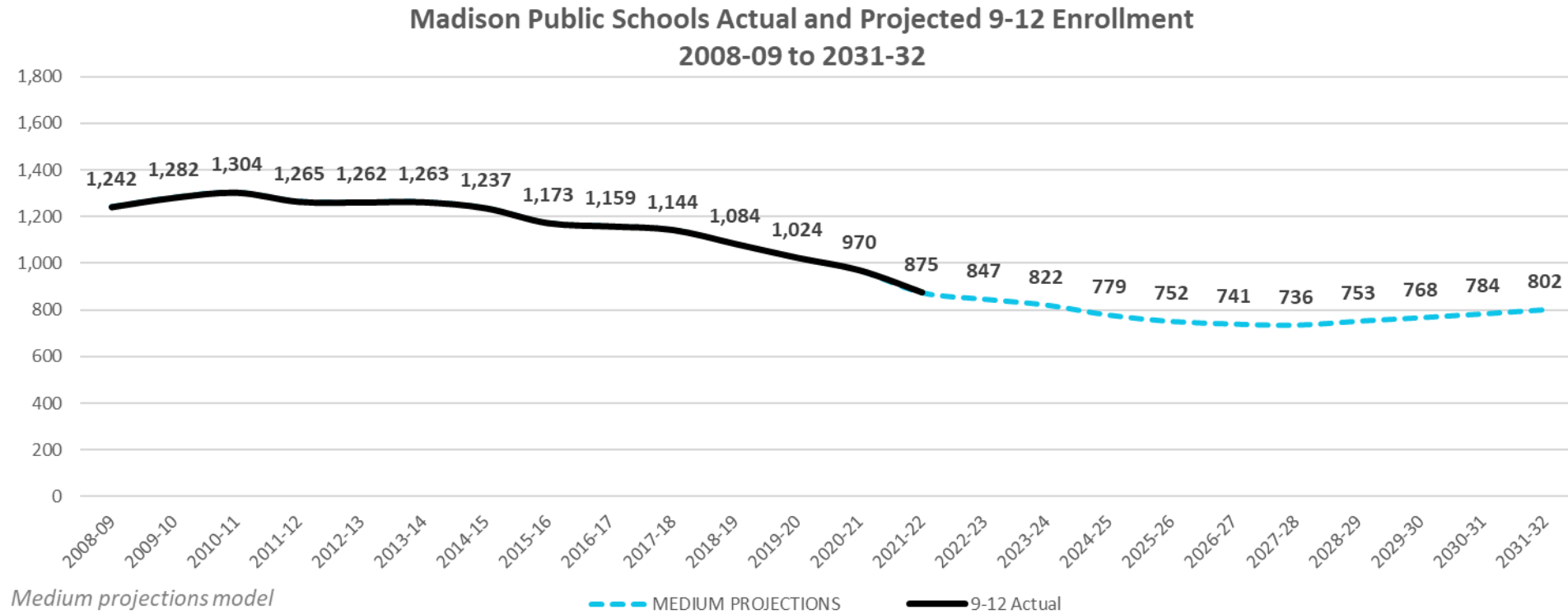
Middle School Projections (Medium)



- Polson Middle School enrollment projected to continue to decline slowly before rebounding in 2025-26 at 539 students, which is this year's enrollment
- Beginning in 2025-26, enrollment is projected to grow to over 600 students by 2030-31



High School Projections (Medium)



- Daniel Hand High School enrollment declines through 2027-28, bottoming out at 736 students
- Rebound in high school enrollments to begin in 2028-29 as larger middle school classes begin moving up to 9th grade.
- 9th-12th enrollment eventually reaching 800 students in 2031-32



Elementary Facility Planning Projections

PreK-5 Scenario Elementary Schools using Districtwide Projections

	Low Projections			Medium Projections			High Projections		
	North Elem (K-5)	South Elem (PK-5)	Total (Low Proj)	North Elem (K-5)	South Elem (PK-5)	Total (Medium Proj)	North Elem (K-5)	South Elem (PK-5)	Total (High Proj)
2021-22	489	534	1,023	489	534	1,023	489	534	1,023
2022-23	492	536	1,028	501	545	1,046	504	549	1,053
2023-24	493	537	1,030	514	558	1,072	517	561	1,078
2024-25	495	540	1,035	527	572	1,099	530	575	1,105
2025-26	500	545	1,045	544	589	1,133	545	590	1,135
2026-27	516	561	1,077	565	609	1,174	575	619	1,194
2027-28	519	564	1,083	574	618	1,192	589	634	1,223
2028-29	529	574	1,103	587	632	1,219	604	648	1,252
2029-30	537	582	1,119	596	640	1,236	618	662	1,280
2030-31	550	594	1,144	607	652	1,259	633	678	1,311
2031-32	556	601	1,157	614	658	1,272	645	689	1,334

** Includes 45 Pre-K students each year at South Elem for Low, Medium and High Projections*

- Using districtwide low, medium, and high projections for Grades K-5, evenly split enrollment is shown for two potential schools in the tables above.
- The Peak 8-yr combined K-5 enrollment is 1,191 under the medium projection model. With the inclusion of the TCLC Pre-K programming (45 students) at the “South” Elementary school overall enrollment is increased to 1,236 PreK-5 students
- In consideration of the recent housing uptick, for facility planning purposes MPS should consider benchmarking space needs against the medium projection



District Projection Summary

- Based on our analysis, the Medium Projection Model reflects the most likely trajectory for future enrollment. However, recent changes to enrollment drivers from the pandemic bear watching. Should housing market activity continue for next several years at the 2020-21 levels, the High Projection Model may prove more accurate in the long-term
- Elementary enrollment (K-3) begins to rebound, driven by increased births from 2018-2021 and increased in-migration of families with young school aged children. K-3 enrollment projected to reach nearly 800 students by 2031-32
- Brown Intermediate School (4-5) enrollment recovers slowly, and projected enrollment is for over 400 students by 2028-29
- Polson Middle school is projected to bottom out in the next few years, and enrollment is projected to grow to over 600 students by 2030-31
- Daniel Hand High school is projected to continue to decline as smaller grade cohorts continue to matriculate through high school. Enrollment will trough at ~740 before rebounding to 800 students in 10-years
- Projected enrollment for Planned PK-5 school construction has a peak enrollment of 640 students in the next 8-years



Appendix A Individual Elementary School Projections (K-3)



Individual Elementary School (K-3) Projections (Medium Model)

Madison Public Schools Elementary School Enrollment 2022-23					
School	K	1	2	3	K-5th
Jeffrey	87	87	88	96	358
Ryerson	71	79	73	73	296
TOTAL	158	166	161	169	654

Madison Public Schools Elementary School Enrollment 2025-26					
School	K	1	2	3	K-5th
Jeffrey	98	96	108	103	405
Ryerson	82	80	79	76	317
TOTAL	180	176	187	179	722

Madison Public Schools Elementary School Enrollment 2023-24					
School	K	1	2	3	K-5th
Jeffrey	94	89	97	93	373
Ryerson	78	75	76	75	304
TOTAL	172	164	173	168	677

Madison Public Schools Elementary School Enrollment 2026-27					
School	K	1	2	3	K-5th
Jeffrey	101	101	106	113	421
Ryerson	83	86	78	82	329
TOTAL	184	187	184	195	750

Madison Public Schools Elementary School Enrollment 2024-25					
School	K	1	2	3	K-5th
Jeffrey	92	97	98	102	389
Ryerson	77	82	73	79	311
TOTAL	169	179	171	181	700

Madison Public Schools Elementary School Enrollment 2027-28					
School	K	1	2	3	K-5th
Jeffrey	96	103	111	111	421
Ryerson	80	88	84	81	333
TOTAL	176	191	195	192	754



Individual Elementary School (K-3) Projections (Medium Model)

Madison Public Schools Elementary School Enrollment 2028-29					
School	K	1	2	3	K-5th
Jeffrey	99	99	114	116	428
Ryerson	83	84	85	88	340
TOTAL	182	183	199	204	768

Madison Public Schools Elementary School Enrollment 2030-31					
School	K	1	2	3	K-5th
Jeffrey	103	105	113	114	435
Ryerson	85	90	84	86	345
TOTAL	188	195	197	200	780

Madison Public Schools Elementary School Enrollment 2029-30					
School	K	1	2	3	K-5th
Jeffrey	102	102	109	119	432
Ryerson	85	87	82	89	343
TOTAL	187	189	191	208	775

Madison Public Schools Elementary School Enrollment 2031-32					
School	K	1	2	3	K-5th
Jeffrey	104	106	116	118	444
Ryerson	87	90	88	88	353
TOTAL	191	196	204	206	797



Appendix B Low & High Districtwide Projections



Enrollment Projections (Low) Model

Year	Birth Year	Births	K	1	2	3	4	5	6	7	8	9	10	11	12	PK	PK-12 Total	K-12 Total	K-3 Total	4-5 Total	6-8 Total	9-12 Total	K-5 Total
2021-22	2016	94	160	154	162	164	172	166	168	180	191	202	219	221	233	48	2,440	2,392	640	338	539	875	978
2022-23	2017	94	150	166	157	167	167	176	169	168	183	201	203	223	221	45	2,396	2,351	640	343	520	848	983
2023-24	2018	117	157	156	169	162	170	171	179	169	170	193	202	207	223	45	2,373	2,328	644	341	518	825	985
2024-25	2019	115	154	163	159	175	165	174	174	179	171	179	194	206	207	45	2,345	2,300	651	339	524	786	990
2025-26	2020	131	163	160	166	164	178	169	177	174	182	180	180	198	206	45	2,342	2,297	653	347	533	764	1,000
2026-27	2021	148	180	169	163	171	167	182	172	177	177	192	181	184	198	45	2,358	2,313	683	349	526	755	1,032
2027-28	2022	124	166	187	172	168	174	171	185	172	180	186	193	185	184	45	2,368	2,323	693	345	537	748	1,038
2028-29	2023	126	169	172	190	178	171	178	174	185	175	190	187	197	185	45	2,396	2,351	709	349	534	759	1,058
2029-30	2024	128	171	176	175	196	181	175	181	174	188	184	191	191	197	45	2,425	2,380	718	356	543	763	1,074
2030-31	2025	131	175	178	179	181	200	186	178	181	177	198	185	195	191	45	2,449	2,404	713	386	536	769	1,099
2031-32	2026	131	175	182	181	185	184	205	189	178	184	186	199	189	195	46	2,478	2,432	723	389	551	769	1,112



Enrollment Projections (High) Model

Year	Birth Year	Births	K	1	2	3	4	5	6	7	8	9	10	11	12	PK	PK-12 Total	K-12 Total	K-3 Total	4-5 Total	6-8 Total	9-12 Total	K-5 Total
2021-22	2016	94	160	154	162	164	172	166	168	180	191	202	219	221	233	48	2,440	2,392	640	338	539	875	978
2022-23	2017	94	165	169	157	171	169	177	169	168	184	200	203	222	220	45	2,419	2,374	662	346	521	845	1,008
2023-24	2018	117	172	174	172	165	176	174	180	169	172	193	201	206	221	45	2,420	2,375	683	350	521	821	1,033
2024-25	2019	115	169	181	177	181	170	182	177	180	173	180	194	204	205	45	2,418	2,373	708	352	530	783	1,060
2025-26	2020	131	180	178	184	187	186	175	185	177	184	181	181	197	203	45	2,443	2,398	729	361	546	762	1,090
2026-27	2021	148	200	190	181	194	192	192	178	185	181	193	182	184	196	45	2,493	2,448	765	384	544	755	1,149
2027-28	2022	140	186	211	193	191	199	198	195	178	190	190	194	185	183	45	2,538	2,493	781	397	563	752	1,178
2028-29	2023	145	192	196	215	203	196	205	201	195	182	199	191	197	184	45	2,601	2,556	806	401	578	771	1,207
2029-30	2024	151	196	202	199	227	209	202	209	201	200	191	200	194	196	45	2,671	2,626	824	411	610	781	1,235
2030-31	2025	153	194	207	206	210	233	216	206	210	206	210	192	203	193	45	2,731	2,686	817	449	622	798	1,266
2031-32	2026	158	200	205	211	217	216	240	220	206	215	216	211	195	202	45	2,799	2,754	833	456	641	824	1,289